

**SUSTAINABLE PROCUREMENT IN POWER SECTOR OF  
BANGLADESH: A CASE STUDY ON DESCO**

**Dissertation submitted in partial fulfillment of the requirements for the  
Degree of  
Masters in Procurement and Supply Management**

**Submitted by  
TOWFIQUR RAHMAN  
MPSM, ID – 15382004**

**MASTERS IN PROCUREMENT AND SUPPLY MANAGEMENT**

**July 2018**



**BRAC Institute of Governance and Development,  
BRAC University**

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**Principal Project Management Consultant**

**DIMAPP Project, CPTU, Ministry of Planning**

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## **DECLARATION**

It is hereby declared that the dissertation titled “Sustainable Procurement in Power Sector of Bangladesh: A case study on DESCO” has been performed by me and this dissertation hasn’t been submitted elsewhere for the award of any degree or diploma.

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**July 2018**

## **ABSTRACT**

The Public Procurement Act, 2006 is the only established law for procurement in any sector in Bangladesh. In the Public Procurement Act, 2006 (PPA 2006), the term ‘procurement’ has been defined as ‘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’. As power sector of Bangladesh mainly govern by public organizations, so procurement can broadly be defined as the purchasing, hiring or obtaining of goods, works or services by the power sector by any contractual means.

The items involved in procurement of DESCO and power sector range from simple goods or services such as clips or cleaning services to master plan, environmental assessment, large commercial projects, such as the development of infrastructure, installation of large turbine, generator, transformer installation, of automation system like SCADA etc., billing software, operation and maintenance by outsource people etc. The purpose of procurement in the private sector is basically straightforward whereas that in the public sector complex as considers the economic development and welfare of the country rather than the commercial profits. Furthermore, unlike other private procurement, power sector as well as DESCO’s procurement needs to address the considerations of integrity, accountability, national interest and effectiveness since power sector deal with common people’s money.

Sustainable Procurement (SP) is procurement that is consistent with the principles of sustainable development, such as ensuring a strong, healthy and livable society for all, living within environmental limits and promoting good governance. Sustainable procurement is an approach that takes economic, environmental and social sustainability into accounts during making any purchasing decisions.

An analysis through the review of DESCO’s procurement as a subject of case study to find out the possible scope of sustainable procurement in present power sector procurement framework reveals that although there are some provisions in the PPR, 2008 and STDs which relate to the sustainability issues, these are not sufficient in introducing sustainability in the power sector procurement.

The current scenario of sustainable procurement practice in the power sector and DESCO has been studied through analyzing the Annual Reports, interviews with key procurement professionals and survey with procurement officers of different power sector organizations addressing three aspects namely economic, environmental and social aspect of sustainable procurement. The analyses indicate that although there are a few cases where some sustainability issues are in practice, these are not very common as a whole in the power sector of Bangladesh.

Existing tendering system in Bangladesh is still based on the lowest price approach and whole life costing approach is rarely considered in power sector organizations except project procurement. There are no provision for environmental performance in the power sector except nuclear power plant and coal based power plant. The study indicates that at present there is virtually no mechanism in our power sector procurement system to check the environmental performance of contractors/ suppliers.

Sustainability criteria should be embedded in the tendering system of any organization. Knowledge and awareness at the individual procurement professional level seem important in order to make active sustainable procurement choices. A clear commitment is necessary from the very top of the management which has to be transferred to everyone involves in procurement or consumption. It is necessary to formulate a sustainable procurement policy and to align the procurement framework with the policy.

Finally, there is a huge scope to further study about the sustainability issue. Advanced research needs to be conducted in order to get a deeper insight into the sustainability issue in relation to DESCO's procurement as well as the power sector procurement in Bangladesh.



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## ABBREVIATIONS

ADP	Annual Development Plan
BADC	Bangladesh Agricultural Development Corporation
BPDB	Bangladesh Power Development Board
BCIC	Bangladesh Chemical Industries Corporation
BIGD	BRAC Institute of Governance and Development
BJMC	Bangladesh Jute Mills Corporation
BPC	Bangladesh Petroleum Corporation
BSEC	Bangladesh Steel & Engineering Corporation
BUET	Bangladesh University of Engineering and Technology
BWDB	Bangladesh Water Development Board
CDM	Clean Development Mechanism
CFL	Compact Fluorescent Lamp
CGFR	Compilation of General Financial Rules
CPAR	Country Procurement Assessment Report
CPTU	Central Procurement Technical Unit
CSR	Corporate Social Responsibility
DESCO	Dhaka Electric Supply Company Ltd.
DoE	Department of Environment
DoFP	Delegation of Financial Powers
DPDC	Dhaka Power Distribution Company Ltd.
DPHE	Department of Public Health Engineering
DPM	Direct Procurement Method
EED	Education Engineering Department
EIA	Environmental Impact Assessment
EMS	Environmental Management System
ERD	Economic Relations Division
GCC	General Conditions of Contract
GoB	Government of Bangladesh
GHG	Green House Gas
HED	Health Engineering Department
IMED	Implementation, Monitoring and Evaluation Division
ISO	International Organization for Standardization
ITT	Invitation to Tender
KII	Key Informant Interview
KPI	Key Performance Indicator
LGED	Local Government Engineering Department
LTM	Limited Tendering Method
NGO	Non-Government Organization
OPM	Open Tendering Method
PE	Procuring Entity
PPA 2006	Public Procurement Act, 2006
PPPA	Public Procurement Processing and Approval Procedures

PPQ	Pre Purchase Questionnaire
PPR 2008	Public Procurement Rules, 2008
PWD	Public Works Department
RFQ	Request for Quotation
RFQM	Request for Quotation Method
RHD	Roads and Highways Department
SC	Supply Chain
SP	Sustainable Procurement
SRFP	Standard Request for Proposal
SRM	Supplier Relationship Management
STDs	Standard Tender Documents
UN	United Nations
WLC	Whole Life Costing

# CHAPTER - 1

## INTRODUCTION

### 1.1 Introduction

Sustainable procurement is that kind of procurement when an organization purchase goods, works or services in a way that achieves value for money by considering social, economic and environmental aspects. Sustainable procurement as a broad concept first emerged following the Rio Earth Summit in 1992 (Sustainable Procurement Guide published by the department of Sustainability, Environment, Water, Population and Communities of Australian Government). During the 1990s, environmental procurement policies started appearing at the European and international levels. Sustainable procurement aims to reduce the adverse environmental, social and economic impacts of purchased products and services throughout their life. In 2005, the UK Government set up a Sustainable Procurement Task Force which developed a definition for sustainable procurement. This definition is now used by the Australasian Procurement and Construction Council (APCC), the UN and the UK Government:

“A process whereby organizations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organization, but also to society and the economy, whilst minimizing damage to the environment”. (APCC 2007, Australian and New Zealand Government Framework for Sustainable Procurement) or perhaps better explained definition would be by Bryde and Meehan (2010).

“Sustainable procurement means appreciating and managing social, ethical, safety, environmental and economic value associated with the supply chain and materials selection. Improving procurement performance helps to establish purchasing social responsibility; making common sustainable procurement in line with Legislations/initiatives for the selection of materials, suppliers and subcontractors, takes account of impacts on environmental, community, responsibility, selection and improved usages of products, works and services”. (Bryde and Meehan, 2010)

Due to the intermediary role in the economy, power sector hold a unique position with regard to sustainable development. This intermediary role is both quantitative and qualitative. Due to the efficient generation, transmission and distribution systems, power sector are being capable to foster sustainability. Power sector expands rapidly to achieve sustainable goal. So,



continuous investment took place through various projects in power sector by Bangladesh government and also some other private company invest in power sector. In addition, there is great scope for power sector agencies like BPDB, BREB, PGCB, DESCO, DPDC etc. to improve their environmental, ethical and economic performance.

## **1.2 Objectives of the Research**

Extensive practice of Supply Chain Management is mainly happens in manufacturing industries. Procurement holds a part of Supply Chain Management. Like any other industry, procurement is one of the important section for power sector organizations. Thus procurement is considered one of the core management skills for power sector organization. To ensure sustainable development in this sector, power sector organizations should practice sustainable procurement. The objective of this research is to identify the scope of sustainable procurement in the power sector and have a clear understanding on the practice so that we can recommend a way forward to achieve sustainable procurement in DESCO and power sector.

## **1.3 Research Questions**

In response to the objectives mentioned above, the following research questions have been proposed.

- I. What is the scope of Sustainable Procurement in DESCO and Power Sector of Bangladesh?
- II. To what extent DESCO and other Power Sector organizations practice Sustainable Procurement?

## **1.4 Scope of the Study**

This study is basically focused on power sector procurement. In this study, we will provide comprehensive insight into the state of sustainable procurement practice in DESCO and other power sector organizations in Bangladesh. Since no dedicated works have been done on power sector procurement it is important and pertinent to research on how money is spent and how green issues can be introduced in power sector procurement. Information gathered through analyzing annual report and Key Informant Interviews (KII) will lend support to the research on what are the steps taken by DESCO and other organizations of power sector to incorporate

sustainable procurement in their system and to what extent they practice sustainable procurement extent of sustainable procurement.

## **1.5 Methodology of Research**

To achieve the research objectives as mentioned above, initial approach is to review the relevant literature to strengthen the knowledge background in order to proceed with the task. Then we will review the annual report of DESCO and other power sector organizations and finally in depth interviews along with survey among the procurement professionals of different functions of DESCO and other power sector organizations will be performed for the research in order to achieve a better insight and understanding of the use of sustainable procurement in power sector and DESCO.

Annual report of an organization is the most authentic information that is publicly available. In order to understand the formal position of power organizations or agencies as far as the sustainable procurement is concern we will review the annual report.

For the purpose of preparing the interview schedule, both open ended and close ended questions were included to gather the required information. Information regarding departmental expenditure on procurement, relative expenditure on procurement of goods, works or services was sought in the interviews. The main focus of the interviews was the preparedness and practice of the organizations through addressing the three aspects of sustainable procurement namely economic, environmental and social aspects.

The data collected through the key informant interviews and survey questionnaires have been analyzed based on the questions asked in the interviews. An individual analysis has been made on each of the questions which would help find a complete picture of the matter. Most of the analysis has been done qualitatively from the perception based interviews with the respondents. However, some quantitative analyses have also been made based on the supplied data by the respondents. The data and the detailed analysis have been presented using different analytical and presentation tools such as table, graphs, figures, pie chart etc.

The research outcome has been revealed through the production of a dissertation paper which was prepared under the guidance of the supervisor and as per the instructions given by the BRAC Institute of Governance and Development (BIGD), BRAC University.

## **1.6 Arrangement of the Thesis**

This thesis has been developed in five distinct Chapters. General introduction of sustainable procurement is included in Chapter 1. This chapter also includes the overall objectives of the study including research question, the scope of research, methodology of the study and finally the chapter outline. Chapter 2 titled “Literature Review” introduces the concept of sustainability, sustainable development and sustainable procurement in order to give a theoretical view of the subject matter. The concepts of various sustainable procurement terminologies have also been elaborated in this chapter. The chapter also presents a brief overview of sustainable procurement practices including organizational best practices in the various part of the globe. Chapter 3 is completely dedicated to capture the theoretical background and the chronological evolution of procurement in Bangladesh emphasizing power sector and DESCO. In chapter 4, the data and information regarding sustainable procurement scenario in DESCO and power sector collected through key informant interviews with a number of procurement professionals is analyzed and presented. This chapter gives a clear view of sustainable procurement practices in DESCO and the power sector in Bangladesh. In chapter 5, Conclusion and recommendations are given. And references, appendices and survey questionnaire are placed at the end to support the research work.

## **CHAPTER - 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter introduces the theoretical background of the sustainable procurement under the study and explains on why it is a relevant issue from a power sector procurement perspective.

Public Procurement Act 2006, the basic legal document for power sector procurement in Bangladesh and Public Procurement Rules 2008, have been extensively reviewed to know the potential scope and current practice of sustainability in the power sector procurement in Bangladesh. Bangladesh government policy, PSMP 2010, PSMP 2016, previous reports etc. have also been gone through for identifying the current position in this subject matter. Reports of different government organizations on procurement performance, annual reports of various power sector organizations, reports of various development partners have helped a lot to enhance the knowledge base of the subject matter.

#### **2.2 Sustainability**

The concept of sustainability first emerged into mainstream discourse in 1972, during the United Nations Conference on the Human Environment (According to Blackburn 2007). In the same time, serious environmental concerns were beginning to be raised in relation to industrial development and practices like deforestation, pollution and the use of toxic pesticides etc. The conference delegates debated which was more important: economic development or environmental protection? After a series of discussions, the United Nations had recognized that economic development and environmental protection were intimately linked. Economic development would be required to raise living and working conditions, and to support investment in environmental conservation and viable technologies. At the same time, any attempt that threatened the environment would not be a good choice for human being in the long run because this attempts lead the depletion of resources, the degradation of environment and the pollution of air and water.

## **2.3 Sustainable Development**

Development is a term which consists of activities aimed at improving human and social well-being, through the creation and maintenance of wealth, social infrastructure, equity, education, employment, enabling technologies and so on. Sustainable development can be considered as the development activity that can be sustained, or kept up, over the long term; that does not undermine or put at risk the conditions and resources, required preserving well-being into future. So, sustainable development has two distinct dimensions; one is to achieve economic development to secure higher standard of living, for present and future generations, and the other is to protect and enhance the environment, for present and future generations. The Brundtland Commission Report (1987), initiated by the UN, focused on the need to develop a stable relationship between human activity and the natural world, which would not reduce the prospects of future generations to enjoy a quality of life at least as good as that of the present generations. These ideas were refined by the 1992 Rio Declaration on Environment and Development (issued by a UN Conference held in Rio de Janeiro), in which social justice and human rights issues were explicitly added to the mix.

Sustainable development has been defined in many ways. However, the definition of the Brundtland Commission (1987) is widely used: ‘Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.’ So, humanity must take no more from the nature than nature can replenish or repair. There should be a balance between improving human and social well-being and preserving natural resources and ecosystems.

The three-dimensional view of sustainability subsequently became widely adopted. In 1997, the term ‘triple bottom line’ (TBL) was coined by John Elkington to highlight the need for nations and organizations to measure their performance in all three areas.

## **2.4 Sustainable Procurement**

Sustainable procurement (SP) is procurement that is consistent with the principles of sustainable development, such as ensuring a strong, healthy and just society, living within environmental limits, and promoting good governance. Sustainable procurement is an approach that takes economic, environmental and social sustainability into account when making any purchasing decisions. It is about looking at what purchased items are made of,

where they come from, how they are made and by whom, how they will be used and whether they are in fact necessary. It looks at the answers of the following questions:

Sustainable procurement also known as Responsible Procurement, Socially Responsible Procurement, Green Procurement, Environmental Procurement, Affirmative Procurement, and so on.

From the United Nations procurement website sustainable procurement definition is:

‘Procurement is called sustainable when it integrates requirements, specifications and criteria that are compatible and in favor of the protection of the environment, of social progress and in support of economic development, namely by seeking resource efficiency, improving the quality of products and services and ultimately optimizing costs’ (UNGM, 2011).

Sustainable procurement should consider the economic, environmental and social consequences of design, non-renewable material use, manufacture and production methods, logistics, service delivery, use, operation, maintenance, re-use, recycling options, disposal and suppliers’ capabilities to address these consequences throughout the supply chain. In other words, sustainable procurement takes into account the whole lifecycle of a purchase and purchased items and the chain or network of supply relationships.

## **2.5 Procurement Cycle**

According to CIPS, The Procurement cycle is the cyclical process of key steps when procuring goods or services. Total 13 steps included in the procurement cycle. These are-

1. Understand need and develop a high level specification
2. Market/ Commodity and options (including make or buy assessment)
3. Develop Strategy/ Plan
4. Pre Procurement/ Market test and market engagement
5. Develop documentation, PPQ/ Detailed specification/ Combine with 1
6. Supplier selection to participate in ITT/ RFQ/ Negotiation
7. Issue ITT/ RFQ
8. Bid/ Tender evaluation and validation
9. Contract award and implementation
10. Warehouse, logistics and receipt
11. Contract performance review and continuous improvement

12. SRM and SC management and development

13. Asset management/ End of life and lessons learnt



Blue color area indicates:

- E-commerce/systems
- Stakeholder engagement
- Sustainability/CSR/Ethics/Security
- Risk Assessment/Mitigation
- Continuous improvement
- People and skills

**Figure 2.1: Procurement Cycle in the supply chain (Source: CIPS website)**

Every organization wants to have their required works, service or products in lowest price with high level of satisfaction. No one wants to procure as losing side in the negotiation table. So, these above steps should be followed by any organization during procurement to procure properly.

## **2.6 Whole Life Costing**

Whole-life cost or Life-cycle cost (LCC) means the total cost of ownership of a product or asset over the whole-life. This is also known as "cradle to grave" or "womb to tomb" costs.

According Chartered Institute of Purchase and Supply (CIPS), “ Whole life costing takes into account the total cost of a product or service over its lifetime, from concept through to disposal including purchase, hire or lease, maintenance, operation, utilities, training and disposal. It is important for procurement to take all these elements into consideration when making decisions and comparing the costs of buying, renting or leasing equipment particularly. In most cases the purchase costs are only a small proportion of the cost of operating it”.

## **2.7 Ecolabel**

Eco-labels and Green Stickers are labeling systems for products. Ecolabels are voluntary, but green stickers are mandated by law. Ecolabelling systems exist for both food and consumer products. Both systems were started by NGOs, since then the European Union have developed legislation for conduct of ecolabelling and also have created their own ecolabels, one for food and one for consumer products.

"Ecolabelling" is a voluntary method of environmental performance certification and labelling that is practiced around the world. An ecolabel identifies products or services proven environmentally preferable overall, within a specific product or service category.

According to International Organization for Standardization (ISO), Ecolabel is classified into three major types. These are- Type-I, Type-II and Type- III.

## **2.8 Triple Bottom Line**

The phrase “the triple bottom line” was first coined in 1994 by John Elkington, the founder of a British consultancy called Sustainability. First one is the measure of profit. The second is social issues related to people. The third is the planet which measures the environmental issues. The triple bottom line (TBL) thus consists of three Ps: profit, people and planet. It aims to



measure the economic, social and environmental performance of the organization over a period of time.

## 2.9 Potential Drivers for Sustainable Procurement

Drivers are the factors that impel actions for sustainable procurement. So, factors such as resource scarcity, legislation, reputational risk/ opportunity, shareholder pressure etc. are likely to drive organizational measures for sustainability. Drivers come before the introduction of a sustainability program, as a contributing factor in it. Drivers for sustainable procurement may be classified as external and internal. Table 2.1 and Table 2.2 show some of the key general external and internal drivers for sustainable procurement.

**Table: 2.1 – External Drivers for Sustainable Procurement**

<b>Drivers</b>	<b>Indicators of the drivers</b>
Political factors	Government policy, targets and standards, incentives and penalties, Government practice as a buyer/ supplier and employer.
Economic factors	Loss of market demand for unsustainable products/ services, rising market demand for sustainable products/ services.
Social/ Ethical factors	Social attitudes and values creating media, banking, labor and consumer pressure for sustainable practices, emerging social justice and ethical issues (e.g. corporate governance, citizenship, corruption, trading ethics, fair trade, human and labor rights), industry/ professional codes of ethical practice.
Technological factors	Competitor/ market innovation and take-up of sustainable technologies (new products, materials, and processes), exposure of unsustainable technologies (e.g. resource usage, wastes), and opportunities in new sustainable technology markets (e.g. alternative energy).
Legal factors	National and international legislation on sustainability (or threat thereof), waste, pollution, emissions, employment rights, health and safety, consumer rights, corporate governance, banking sector procurement etc.
Environmental factors	Resource depletion and costs (especially energy costs), issues of concern to key stakeholders (e.g. climate change, GHG emissions, deforestation, water management, conservation, biodiversity, pollution, waste reduction), national targets under international agreements.
External factors	Stakeholder Interest and pressure in any or all of the above factors creating threats and opportunities for the

	organization in obtaining resources and collaboration (e.g. customers, labor, investors, pressure group activism, potential for cause-related marketing).
--	---

[Source: Sustainable Procurement, the official CIPS course book in partnership with PROFEX publishing]

**Table 2.2 – Internal Drivers for Sustainable Procurement**

<b>Drivers</b>	<b>Indicators of the drivers</b>
Corporate Goals	Corporate vision, mission and objectives including sustainability values and aspirations.
Organizational status	Existing CSR and/ or corporate citizenship objectives/ policies
Top level buy-in	Senior management visionaries, champions and supporters of sustainability.
Business factors	Business case arguments for sustainability, enhanced reputation, brand strength and sales revenue, cost/ waste reduction (eco-efficiencies), enhanced supply chain innovation and efficiency, reduced regulatory burden.
Accountability factors	Accountability mechanisms which demonstrate seriousness, and make reward contingent on sustainability progress/ performance.
Risk awareness	Priority given to risk management, perception of business, reputational and supply risk from non-sustainability, reputational damage.
Stakeholder factors	Internal stakeholder demand for sustainability (e.g. need to attract and retain quality managers, employees, investors and supply chain partners).

[Source: Sustainable Procurement, the official CIPS course book in partnership with PROFEX publishing]

It should be obvious that some of these factors will be more immediately relevant and influential in some sectors than others. So, power sector organizations need to decide which drivers it might most effectively use as leverage to champion a sustainable procurement initiative.

## **2.10 KPIs for Sustainable Procurement**

Key performance indicators (KPIs) are agreed, specific measures of the performance of a unit or organization, against which progress and performance can be evaluated. KPIs should be such that they are relevant, clear and unambiguous and capable of direct, consistent measurement at operational level. Table 2.5 shows some of the representative KPIs for sustainable procurement.

**Table 2.3 – KPIs for Sustainable Procurement**

Area of performance	Procurement KPIs
Economic performance	<ul style="list-style-type: none"> <li>➤ Cost (e.g. procurement costs as a percentage of spend) or cost savings (annual cost savings as a percentage of spend).</li> <li>➤ Productivity (e.g. cost per procurement cycle, time taken per procurement cycle).</li> <li>➤ Supplier leverage (e.g. percentage of suppliers providing 80% or more of annual spend).</li> <li>➤ Customer satisfaction (e.g. percentage of deliveries received on time in full).</li> </ul>
Environmental performance	<ul style="list-style-type: none"> <li>➤ Percentage reduction in energy, water purchase.</li> <li>➤ Percentage reduction in supplier (or logistics or procurement), GHG emissions.</li> <li>➤ Percentage reduction in supplier water and energy usage.</li> <li>➤ Percentage purchase of recycled materials.</li> <li>➤ Percentage of vehicle fleet which is hybrid.</li> <li>➤ Volume of waste to landfill (buyer and supplier).</li> <li>➤ Percentage of spend with suppliers who report on environmental impacts, or operate Environmental Management System (EMS).</li> </ul>
Ethical/Social performance	<ul style="list-style-type: none"> <li>➤ Diversity and equal opportunity among procurement staff.</li> <li>➤ Training/ development opportunity (and percentage of take- up)</li> <li>➤ Compliance with workplace law and standards, ethical sourcing, and trading standards/objectives.</li> <li>➤ Reduction in health and safety incidents, grievance, proceedings etc.</li> <li>➤ Supplier diversity (number of women-owned, minority-owned, small suppliers)</li> <li>➤ Percentage supply chain monitored and managed for compliance.</li> <li>➤ Supply chain compliance (e.g. year on year reduction in the incident of non-compliance).</li> </ul>

[Source: Sustainable Procurement, the official CIPS course book in partnership with PROFEX publishing]

## 2.11 Sustainability and Power Sector Procurement

Environmental issues becomes the international agenda for several decades. Both public and private sectors are concerned about the role they play in these issues. Recently, the focus has expanded to broader topics such as sustainability. However, while sustainable procurement activities are common in many developed countries, the awareness and implementation of sustainable procurement is still comparatively low in most developing countries like Bangladesh.

Power sector procurement is concerned with how power sector expense money on procuring goods, works and services. Power sector has particular reasons for demanding greater levels of sustainability from its supply chain as it is directly and explicitly responsible for economic growth to maximize benefits to the society as well as the country. Power sector procurement accounts for the strategic growth of the economy of any country. So, power sector procurement is an attractive policy instrument for effecting positive changes by adopting long term sustainable program in the broader economy. In particular, power sector procurement could be used to stimulate the production of quality power in an effective and efficient way with a competitive tariff so that influence in the industrial sector of Bangladesh. If reliable, uninterrupted and quality supply of electricity ensured, investment will increase as well as GDP will increase which is the main indicator for economic growth of any developing country.

Electricity distribution organizations are responsible to ensure reliable power supply to end user. In power sector proper energy management is very much important to give energy in a reliable way. In this regard, some steps are being taken by DESCO and DPDC. Different regions markets weekly holidays scheduled by DESCO and DPDC in different day of the week of Dhaka city. Using of energy shaving equipment like energy bulb, light, fan are being encouraged. And if total projection of load demand are needed to make strategic decisions whereas these projection mainly estimated by the distribution company. If it is not done properly National Load Dispatch Center (NLDC) will fail to handle power inappropriately which will occur blackout throughout the country or partly some part of the country. So, to ensure quality power supply in a reliable way Distribution Company like DESCO, DPDC etc. should use proper technology, upgrade their existing technology, equipment etc. and build capacity according to increasing load in an efficient and effective way without making harmful any impact on environment. To ensure these, procurement of quality work, equipment and service is very much important for sustainable development of this sector.

## CHAPTER – 3

# POWER SECTOR & DESCO AND SUSTAINABILITY ISSUES IN PROCUREMENT RULES IN BANGLADESH

### 3.1 Introduction

This chapter provides a picture of power sector scenario and sustainability issues addressing in PPR 2008 of Bangladesh by incorporating the legal framework, under which power sector procurement is done and regulated, the general principles and features of power sector procurement currently in practice.

The Public Procurement Act, 2006 is the only established law for procurement in any sector in Bangladesh. In the Public Procurement Act, 2006 (PPA 2006), the term ‘procurement’ has been defined as ‘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’. So, power sector procurement can be defined as the purchasing, hiring or obtaining of goods, works or services by the power sector by any contractual means. Power sector procurement is alternatively described as the acquisition of goods, works or services if such acquisition is effected with resources from power sector organizations funds or government funds or aided agencies funds.

The items involved in power sector procurement range from simple goods or services such as clips or cleaning services to large power plant projects, such as the development of infrastructure, purchase of large machineries like generator, turbine and power transformer etc., and installation of automation system like SCADA etc. Procurement in the power sector hardly differs from that in the power sector. The purpose of procurement in the private sector is basically straightforward whereas that in the public sector complex as considers the economic development and welfare of the country rather than the commercial profits. Furthermore, unlike other private procurement, power sector procurement needs to address the considerations of integrity, accountability, national interest and effectiveness since this sector deal with common people’s interest.

## 3.2 Power sector of Bangladesh

Power sector of Bangladesh is booming fast. Bangladesh government takes long term initiatives to make a sustainable power sector. To attain sustainable development government make PSMP 2010 and then make PSMP 2016.

PSMP 2016 aims to create a well-balanced power generation environment that maximizes the respective advantages of different types of power generation methods, including nuclear power, thermal power, hydro power generation, and power imports from neighboring countries, from the comprehensive perspective of stable supply, or energy security, environmental performance, and economic efficiency. Bangladesh government also tries to increase infrastructure for power sector as early as possible to mitigate the upcoming challenges and also tries to make an optimum fuel mix to generate electricity as we know most of the power plants main fuel is gas whereas gas decreases day by day.

**Table 3.1: Brief data of power sector**

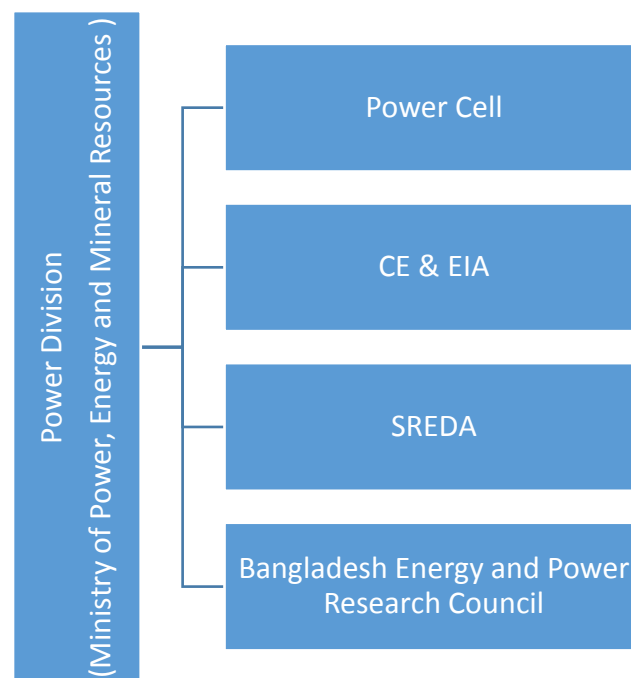
<b>Power sector at a glance</b>	
Maximum generation till now (as on 18 <sup>th</sup> July, 2018)	11387 MW
Installed Generation Capacity (as on December, 2017)	16046 MW
400 KV transmission lines (as on December, 2017)	559.76 Circuit km
230 KV transmission Lines (as on December, 2017)	3322.996 Circuit km
132 KV transmission lines (as on December, 2017)	6486.828 Circuit km
Grid Substation (as on December, 2017)	114 nos. (27272.5 MVA capacity)
Transmission and distribution loss (FY 2016-17)	12.19%
Distribution loss (FY 2016-17)	9.98%
Villages getting electricity from grid network	About 60000 nos.
Per Capita generation	351 kwh
Per Capita consumption	308 kwh
Per unit fuel cost for thermal power plant	2. 76 tk/kwh

[Source: BPDB website; PGCB website; System planning division of BPDB, Annual Report 2016-2017 of BPDB, Power Division website.]

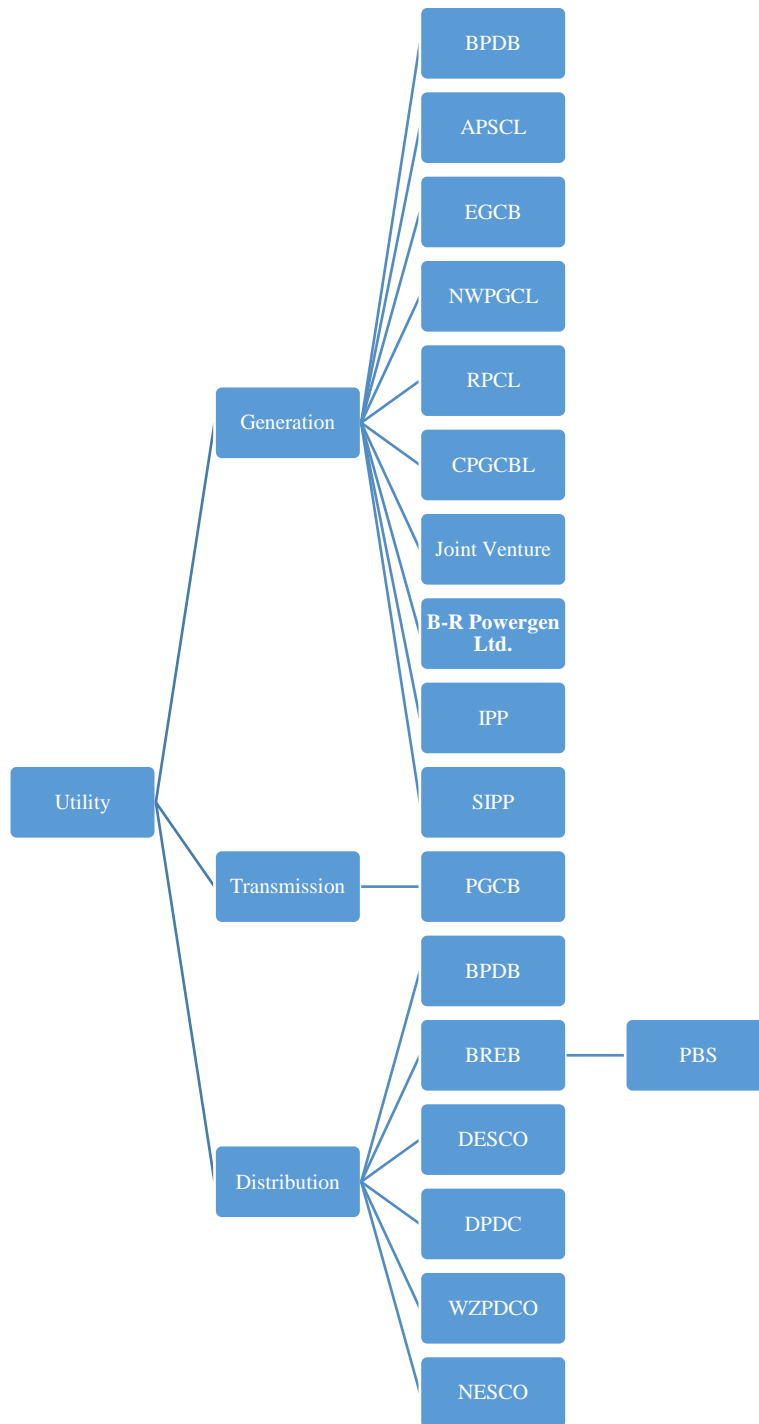
Bangladesh power sector is mainly look after by Ministry of Power, Energy and Mineral Resources (MoPEMR). Power division is a wing of ministry of power, energy and mineral

resources. Power division has for sub sectors. These are- Power Cell, CE & EIA, SREDA, Bangladesh Energy and Power Research Council.

An electrical power system has three major segments. These three segments are generation, transmission and distribution. Electricity is produced from primary fuel in the generation sub-sector. The transmission network carries power produced at generation to the major load centers like grid known as transmission and finally connects to the end users i.e. retail customers through distribution system. As economically viable utility-scale electricity storage system is yet to be developed, demand created at the distribution system must be met instantaneously by producing power at the power generating stations and transmit through the transmission network, which bridges generation and distribution.



**Figure 3.1: Power Division segments of Bangladesh. (Source: Power Division, MoPEMR)**



**Figure 3.2: Power sector segments from generation end to distribution end. (Source: Power Division, MoPEMR)**

In Bangladesh, both public and private organizations responsible for generation. BPDB, APSCL, EGCB, NWPGL, RPCL, CPGCBL, Joint venture, BPDB- RPCL Powergen Ltd. are



public power generation entity. IPP, SIPP (Summit, Orion, Sinha etc.) are treated as private power generation entity. Apart from these some renewable energy resources and imported power also contribute to generation.

Only PGCB is responsible for transmission of electricity from generation end to distribution end. PGCB maintain the only grid of Bangladesh. National Load Dispatch Center (NLDC) always keeps the load balance with generation. NLDC is one of the wing of PGCB.

Only government organizations are responsible for power distribution. BPDB, DESCO, DPDC, BREB, PBS, NESCO, WZPDCL are responsible for electricity distribution in Bangladesh.

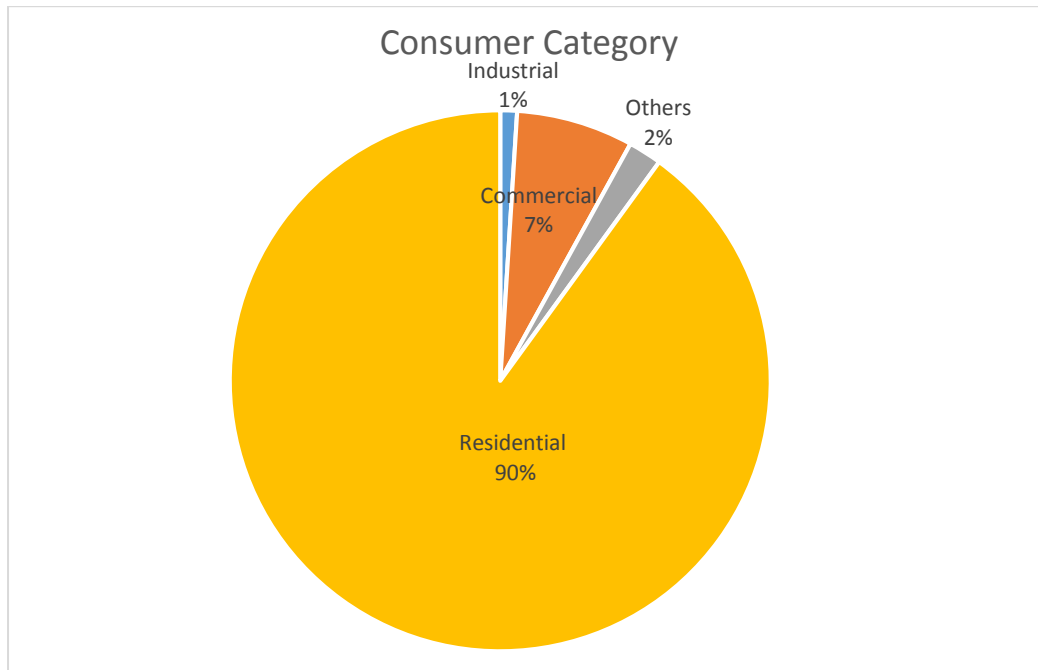
### **3.3 Dhaka Electric Supply Company Limited (DESCO)**

Dhaka Electric Supply Company Ltd. (DESCO) is a distribution company responsible for supplying electricity a part of Dhaka City. As a part of on-going power sector reforms by government, Dhaka Electric Supply Company Ltd. (DESCO) was created as a distribution company in November 1996 under the Companies Act 1994 as a public limited company. The authorized capital was TK. 5 Billion. Operational Activities at field level started on September 24, 1998 by taking over of the electric distribution system of Mirpur area from Dhaka Electric Supply Authority (DESA). In that time, total number of consumer was 71,161 and a load demand 90 MW. In the subsequent years of successful operation and better performance, the operational area of DESCO was expanded through inclusion of Gulshan Circle in April, 2003 and Tongi Pourashava Area in March, 2007. Total number of employee is about 3200 where more than 1500 people directly employed and around 1700 people indirectly employed (outsourced). These outsourced people responsible for the services of Commercial Operation Support, Line and Equipment Maintenance, Substation Maintenance, Office Security and Office up keeping and also most of the people related to transportation are outsourced.

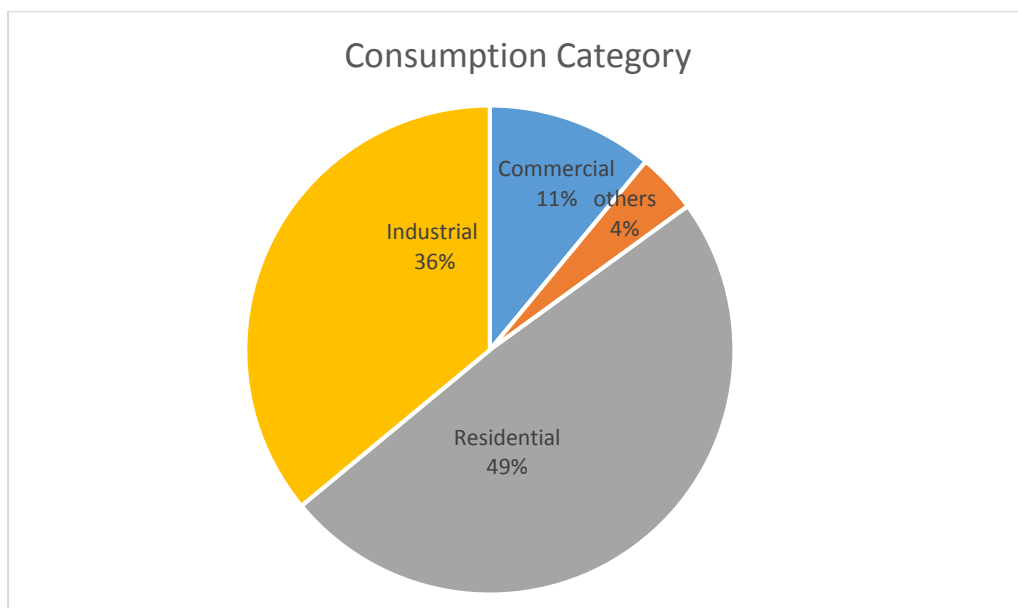
The company obtained license from Bangladesh Energy Regulatory Commission (BERC). The total distribution is about 850 MW and total area is around 400 square kilometers. As per the License, DESCO can receive power at 132KV & 33KV voltage levels and distribute the power at 33KV, 11KV & 0.4KV voltage level.

Presently in DESCO mainly four types of consumer get service. These are Residential consumers (90%), Commercial consumers (7%), Industrial consumers (1%) and others

(2%). But, in terms of consumption these percentage becomes Industrial consumer consumes 36%, Residential consumers consumes 49%, Commercial consumers consumes 11% and others consumes 4% of total delivered energy.

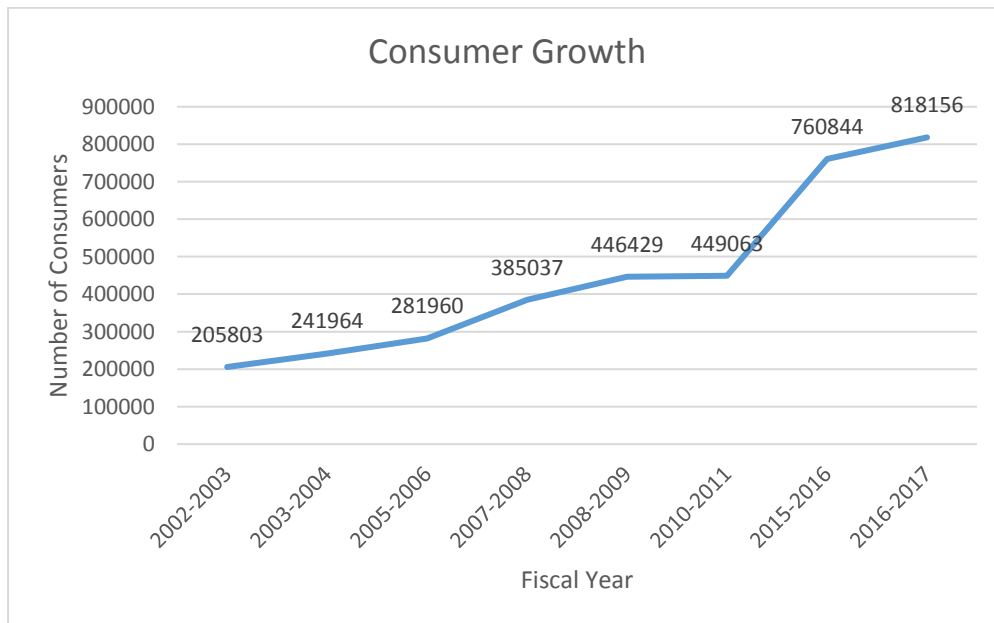


**Figure 3.3: Consumer Category in DESCO. (Source: Annual Report 2017 of DESCO)**

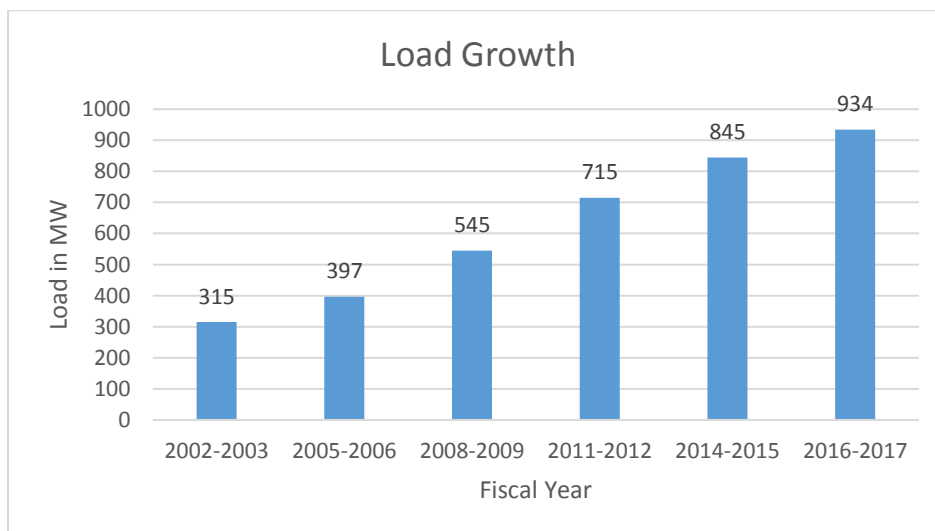


**Figure 3.4: Consumption Category of DESCO (Source: Annual Report 2017 of DESCO)**

Consumers increases rapidly in DESCO now a days. In fiscal year 2002-2003, total number of consumer was 205803 but in fiscal year 2016-2017, this number becomes 818156. This shows in an average about forty thousand consumers added to the consumer list each fiscal year and as a result load also increases. In fiscal year 2002-2003, total load was 315 MW but in fiscal year 2016-2017, this becomes 934 MW. This shows about forty one megawatt load increases each fiscal year.



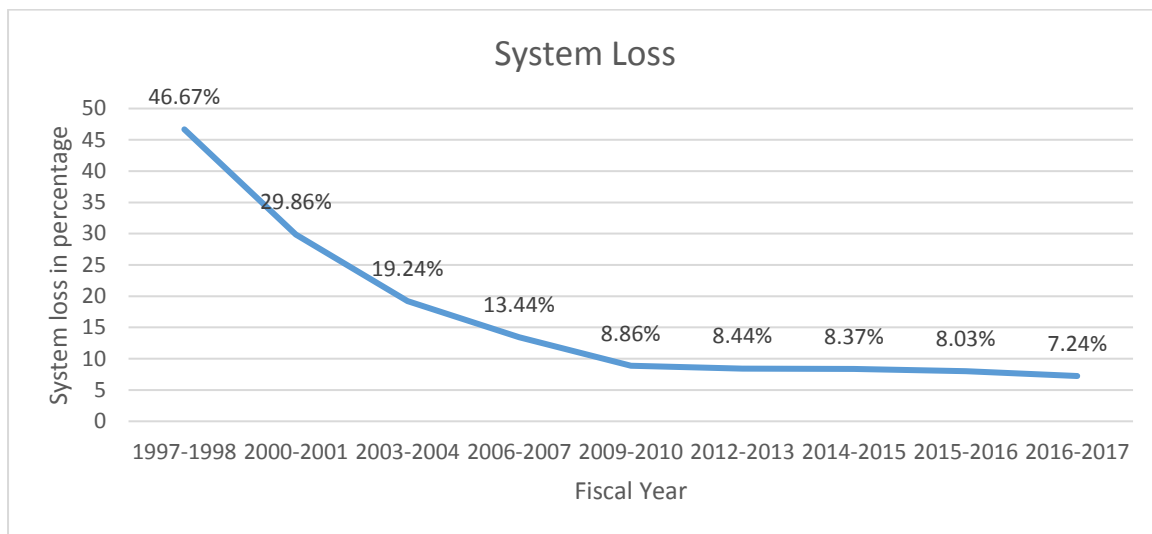
**Figure 3.5: Consumer growth in DESCO. (Source: Annual Report 2017 of DESCO)**



**Figure 3.6: Load growth in DESCO. (Source: Annual Report 2017 of DESCO)**

As the consumer increases, total load also increases. This results the operational revenue increases every year. In last fiscal year earnings from operational revenue was 34012 million taka and the cost of sales was 31535 million taka which means the total gross profit was 2477

million taka of DESCO. But, net profit was 176 million taka after different kind of expenses. Net profit of DESCO decreases during last couple of years because the increasing rate of tariff during import of energy as compare to tariff in the consumer premises still though system loss decreasing in every year gradually. In 2012-2013 fiscal year, system loss was 8.44% which decreases to 7.24% in the fiscal year 2016-2017.



**Figure 3.7: Trend of System Loss of DESCO. (Annual Report 2017 of DESCO).**

Presently, DESCO have 6567 no. of distribution transformer, 2 no. of 132/33 KV grid substations, 34 no. of 33/11 KV substations and 108.80 circuit kilometer 33 KV Overhead line, 417.95 circuit kilometer 33 KV underground line, 1394.65 kilometer 11 KV, 540.48 kilometer 11 KV underground line and 2057.66 kilometer low tension line.

Recently, a study has completed by DESCO to ascertain the load demand and consumer growth in DESCO area up to the year 2030 with every 5 years phasing. In this report, the projected load demand will increase to 1,964 MVA, 3108 MVA, and 4827 MVA by the year 2020, 2025 and 2030 respectively. In this regard, 72 nos. of new 33/11 kV Substations and 17 nos. of new 132/33kV Grid Substations will be required. So, this substations have to construct along with up gradation of some existing sub-stations. This will increase the total load capacity of DESCO.

Two new townships namely “Purbachal Model Town” and “Uttara Model Town (3rd Phase)” are being developed by RAJUK in the DESCO area. The load demand of “Purbachal Model Town” and “Uttara Model Town (3rd Phase)” are expected to be about 500 MW and 352 MW respectively.

### **3.4 Power Sector Procurement in Bangladesh**

Power sector is one of the most important sector in Bangladesh. This sector has contributed a lot to the development of the country. It has created employment facilities, influence in economic growth, contributed to eradicate poverty and many more. Like any other country in the world Bangladesh power sector divided into three segments. These are generation, transmission and distribution. The first segment is generation where electrical energy are produced. Both public and private sector generation take place in Bangladesh whereas public sector is the most of the percentage responsible for generation. Different types of fuel, renewable energy are used to produce electricity. In near future nuclear energy will also contribute to the generation. And also some of the power imported from India. The second segment is transmission where electrical energy carried major distance from generation end to distribution end through grid. The third segment is distribution where received electrical energy from transmission and distributed to consumer premises.

However irrespective of their activity any power sector organization operating in the country directly or indirectly has to follow the regulation of Bangladesh Energy Regulatory Commission (BERC).

Bangladesh Energy Regulatory Commission (BERC) as the regulator of all the organization of power sector has no specific guideline on procurement. But by default the public power organizations are bound to follow the government rules and regulations since they are funded by public money. As such all the public power organizations are following the PPR 2008 as the basis of their procurement. For project procurement, organizations own fund, government fund and donor agencies fund are also used for procurement. If donor agencies funded, instructions or guidelines from them also being followed during procurement. Though most of the project of power sector are done by turnkey basis. But for private sector there has no significant guidelines for procurement. For example, rental or quick rental power plants mostly operated by private sector. They procure their power plant machineries themselves. Bangladesh Power Development Board (BPDB) buy energy from them and also fuel is given to them by government. This selling price and fuel cost is preset by government through a contract. So, here is wide range of opportunity to do works related to sustainable procurement. Another issue is renewable energy. Most of the solar system of Bangladesh are implemented by private organizations. They are not the manufacturer. They procure this system from foreign country and only responsible for the installation whereas the end user not very concern for using this

solar systems. So, here is also many opportunity for doing works related to sustainable procurement. Also nuclear power plant installation works going on. Here, waste management is a vital issue. Bangladesh power sector booming fast day by day to achieve sustainable development though maintaining proper economic growth. To maintain proper economic growth power sector has a vital role to play. So, a proper sustainable procurement is needed for sustainable development in power sector as well as for Bangladesh.

### **3.5 Procurement in DESCO**

Dhaka Electric Supply Company Limited (DESCO) is one of the government owned electricity Distribution Company. DESCO has several departments like engineering, operation, legal, audit, procurement etc. Among them DESCO gives a huge importance to its Procurement Department. This Department has dedicated man power to manage the procurement related tasks. An executive director led this department to manage all the procurement functions within this organization.

As a government owned company DESCO have to follow PPA 2006, PPR 2008 and guidelines from CPTU during procurement of goods, works or services. DESCO has its own procurement guidelines.

### **3.6 Regulations in Power Sector**

We have searched the official website of Bangladesh Bank and found three basic documents governing the entire procurement of Bangladesh Bank. These documents are;

- a. PPA, 2006
- b. PPR, 2008
- c. E-tendering
- d. Procurement guidelines from CPTU
- e. Self-Procurement Guidelines if exist (i.e. DESCO procurement guidelines, 2015)
- f. BERC regulations/guidelines (i.e. tariff establishment for different power sector organization, conflict resolution etc.)
- g. Electricity Act, 1910
- h. Basically above mentioned three documents are the official procurement references for the public power sector procurement in Bangladesh. But, for private power sector

organizations, no specific procurement guidelines exist. They mainly go for value for money criteria.

- i. Bangladeshi power sector mainly govern by public sector. A very little percentage responsible for private sector. So, in public sector procurement mainly PPR 2008, PPA 2006 and e-tendering are being followed during procurement. For foreign aided project, guidelines from aided agencies are being followed in parallel with government procurement guidelines.

### 3.7 Sustainability issues in PPR 2008

In Chapter 1, two research questions have been proposed which are; i) what is the scope of sustainable procurement in the Power Sector? And ii) to what extent your organization practice Sustainable Procurement as a power sector organization?

This section addresses the 1st of the research question and represents a search for any component of sustainability in the current procurement framework of Power Sector.

At present the Power Sector procurement in Bangladesh is regulated by three principal documents which are the Public Procurement Act, 2006, the Public Procurement Rules, 2008 and the Procurement Policy of the Concern Organization. Besides these documents, the CPTU has prepared a number of Standard Tender Documents (STDs) for goods and works and Standard Request for Proposals (SRFPs) for services depending upon basically the size or volume of procurement. Table 4.2 shows some of the points made in the public procurement documents which relate to the sustainability issues.

**Table 3.2 – Sustainability Issues in the Public Procurement Rules**

<b>Performance Area</b>	<b>Relevant points in the procurement documents</b>
Economic Performance	<p>“The Procuring Entity shall take into account the following when determining the method of Procurement and consolidating of Goods packages:</p> <p>(a) availability of the relevant Goods in the local market;</p> <p>(b) quality, sources and brand of the Goods available in the local market;</p> <p>(c) price levels of the designated Goods;</p> <p>(d) Risks related to supply in the local and international markets”. [Rule 15(2), PPR, 2008]</p>

	<p>In the case of determining the method of Procurement for Works, the Procuring Entity shall considering the prevalent conditions of the contracting industry and expected competition;  <b>[Rule 15(7), PPR, 2008]</b></p> <p>Technical Specifications prepared by Procuring Entities shall, where appropriate, be expressed in terms of performance or output requirements, rather than specifications linked directly to design or descriptive characteristics which may tend to limit competition. <b>[Rule 29(2), PPR, 2008]</b></p> <p>There shall be no reference, in technical specification of goods to a particular trade mark or trade name, patent, design or type, named country of origin, producer or service supplier. <b>[Rule 29(3), PPR, 2008]</b></p>
<p>Environmental performance</p>	<p>The Contractor shall throughout the execution and completion of the Works and the remedying of any defects therein take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of the Contractors methods of operation.  <b>[GCC 27.1, STD-PW3]</b></p> <p>The Contractor, in particular, shall provide proper accommodation to his or her laborers and arrange proper water supply, conservancy and sanitation arrangements at the site for all necessary hygienic requirements and for the prevention of epidemics in accordance with relevant regulations, rules and orders of the government.  <b>[GCC 29.2, STD-PW3]</b></p>
<p>Social performance</p>	<p>The Procuring Entity shall take into account the following when determining the method of Procurement and consolidating of Goods packages:  (a) capacity of local Suppliers to supply the required quantities;  (b) capacity of the national industry and quality of its products;  (c) market conditions and expected competition;  <b>[Rule 15(2), PPR, 2008]</b></p> <p>In the case of determining the method of Procurement for Works, the Procuring Entity shall consider the capacity of local Contractors. <b>[Rule 15(7), PPR, 2008]</b></p> <p>Procuring Entities shall, where possible, prepare the specifications in close cooperation with the concerned user or beneficiary of the Goods or Works or Service</p>



**[Rule 29(5), PPR, 2008]**

The Tender Document may allow for a domestic preference as defined in Schedule II. I to provide local manufacturers, Suppliers and Contractors with a price advantage over their international competitors for the purpose of promoting domestic products or industries.

**[Rule 83(1)(e), PPR, 2008]**

The Contractor shall throughout the execution and completion of the Works and the remedying of any defects therein take all reasonable steps to safeguard the health and safety of all workers working on the Site and other persons entitled to be on it, and to keep the Site in an orderly state.

**[GCC 27.1, STD-PW3]**

The Contractor shall not perform any work on the Site on the weekly holidays, or during the night or outside the normal working hours, or on any religious or public holiday, without the prior written approval of the Project Manager.

**[GCC 28.1, STD-PW3]**

The contractor shall comply with all the relevant labor laws applicable to the contractor's personnel relating to their employment, health, safety, welfare, immigration and shall allow them all their legal rights.

**[GCC 29.1, STD-PW3]**

The Contractor, further in particular, shall pay reasonable wages to his or her laborers, and pay them in time. In the event of delay in payment the Procuring Entity may effect payments to the laborers and recover the cost from the Contractor.

**[GCC29.3, STD-PW3]**

The Contractor shall not employ any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development in compliance with the applicable labor laws and other relevant treaties ratified by the government.

**[GCC 30.1, STD-PW3]**

The Contractor shall provide, in the joint names of the Procuring Entity and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles specified in the PCC for the following events which are due to the Contractor's risks Personal injury or death.

**[GCC 37.1, STD-PW3]**

However, although these points in the public procurement documents as mentioned above relate somehow to the different aspects of sustainable procurement, these are not sufficient for introducing sustainability issues in the procurement system. It is noticeable here that very few points are made regarding environmental performance in the public procurement documents.

## CHAPTER – 4

# SUSTAINABLE PROCUREMENT IN DESCO AND POWER SECTOR OF BANGLADESH: AN ANALYSIS

### 4.1 Introduction

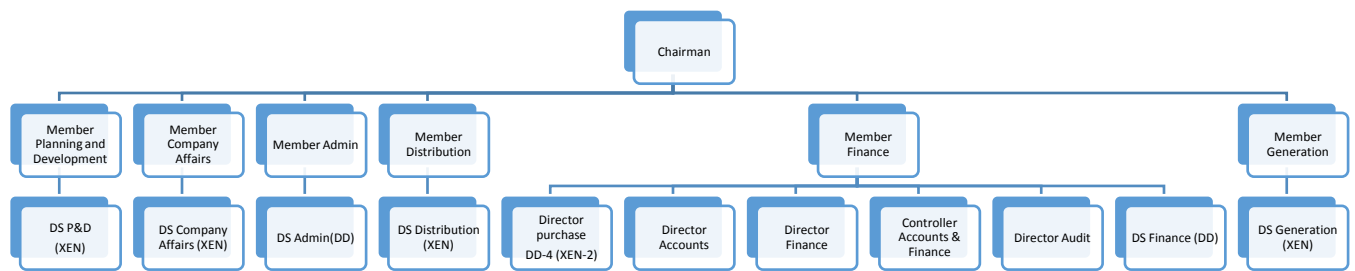
In Chapter 1, two research questions have been proposed which are, firstly what is the scope of Sustainable Procurement in DESCO and Power Sector of Bangladesh? And secondly to what extent DESCO and other Power Sector organizations practice Sustainable Procurement?

This section addresses the second of the research question and represents a search for to what extent Power Sector organizations practice Sustainable Procurement.

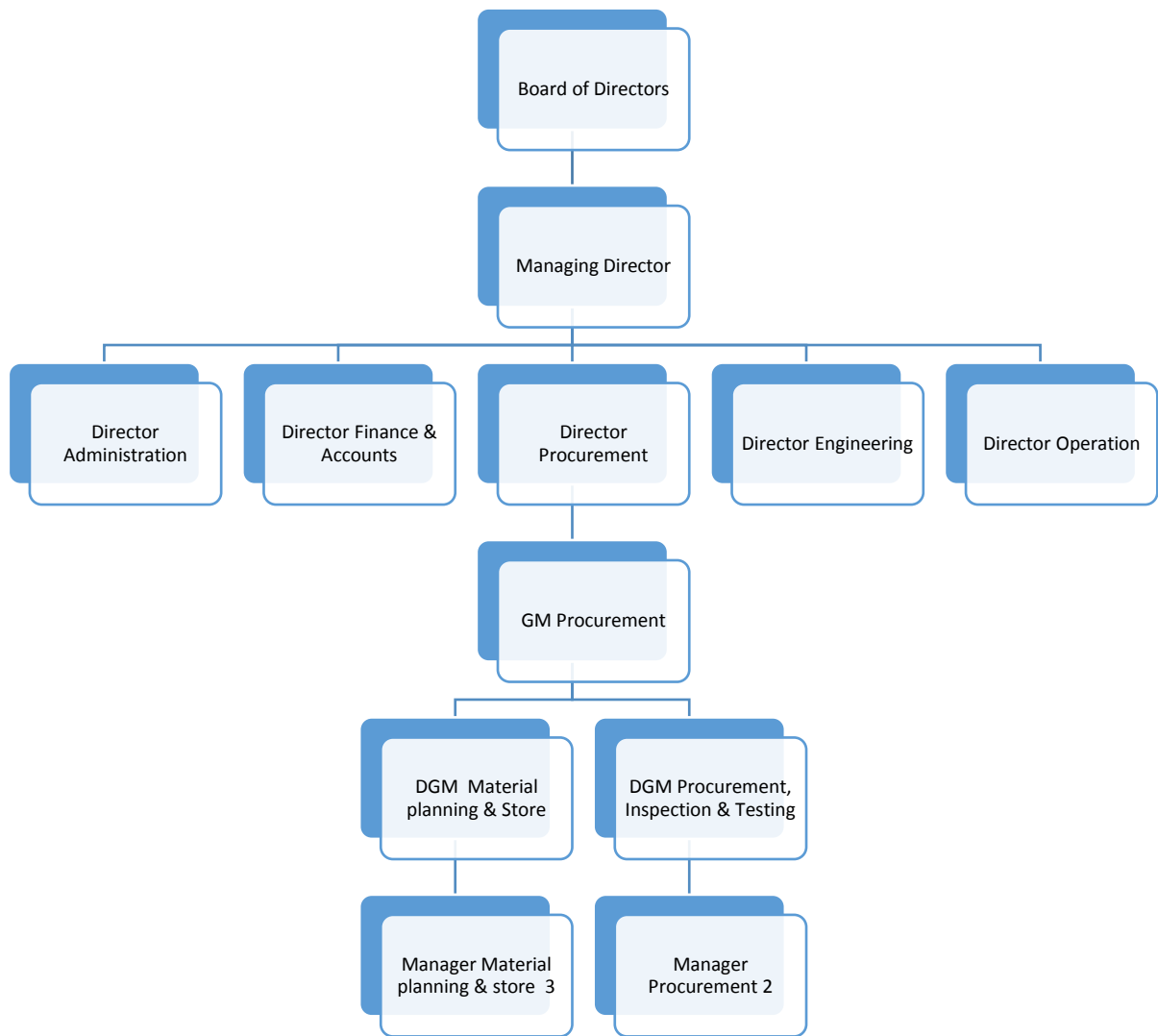
Here, power sector divided into three segments. These are generation, transmission and distribution. In generation several organizations exists. BPDB, RPCL, BPDB-RPCL, NWPGL, CPGCL, imported power from India, Renewable energy (for example hydro power, solar energy, wind energy), IPP and some private organizations contributed to generation. Nuclear power plant will also contribute to generation in near future of Bangladesh. BPDB is the largest contributor for generation still now. Very small percentage of generation done by private agencies in Bangladesh. So as a generation organization in this study BPDB is taken into account. For transmission only one organization exists named PGCB. So as a transmission organization in this study PGCB is taken into account. For distribution several organizations exists. BPDB, BREB, DPDC, DESCO, WZPDCL, NWPDC, NESCO responsible for distribution of electrical power. All of the distribution organizations are public agency still now. So as a distribution organization in this study DESCO is taken into account.

### 4.2 Procurement Procedure of power sector

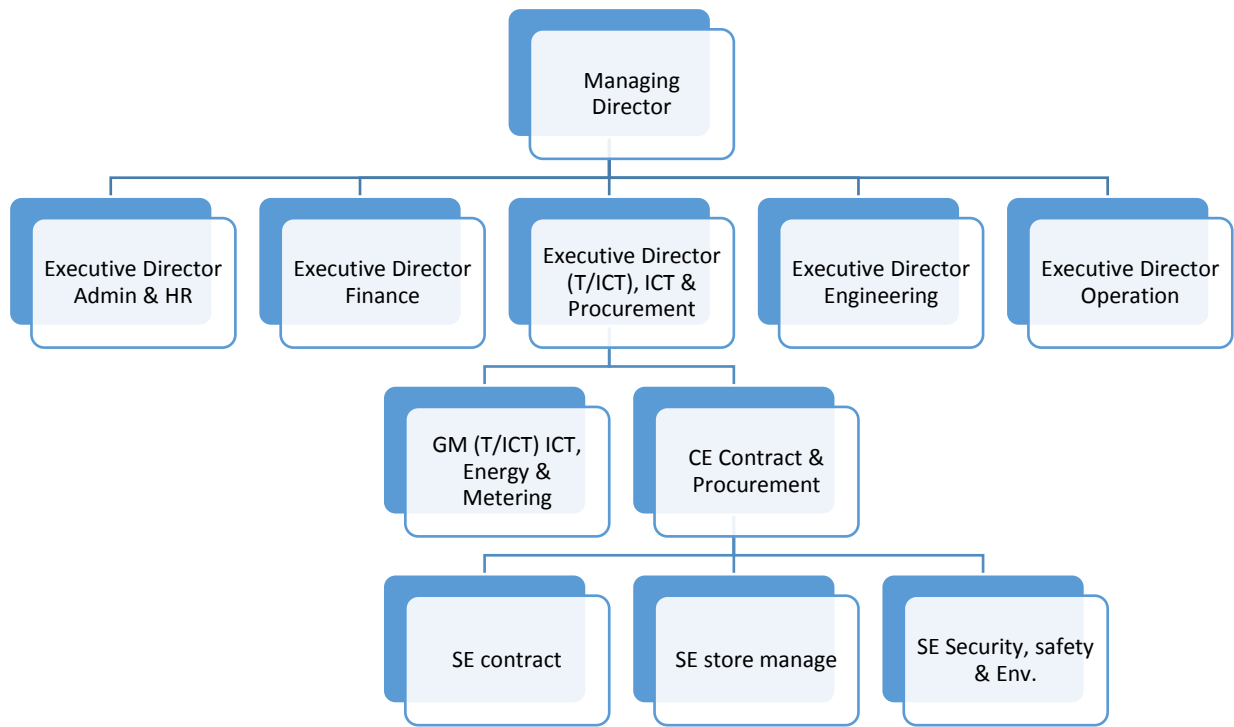
Several organization plays an important role for power sector of Bangladesh. These are BPDB, PGCB, DESCO, DPDC, BREB etc. Some private organization also contribute in the power sector. Over the period of time power sector has become matured in all aspect. To support growth of power sector require well organized Procurement function. This function accomplished by procurement department or purchase department. This department is headed by departmental head. Organogram of the purchase function in some power sector organizations is as follow -



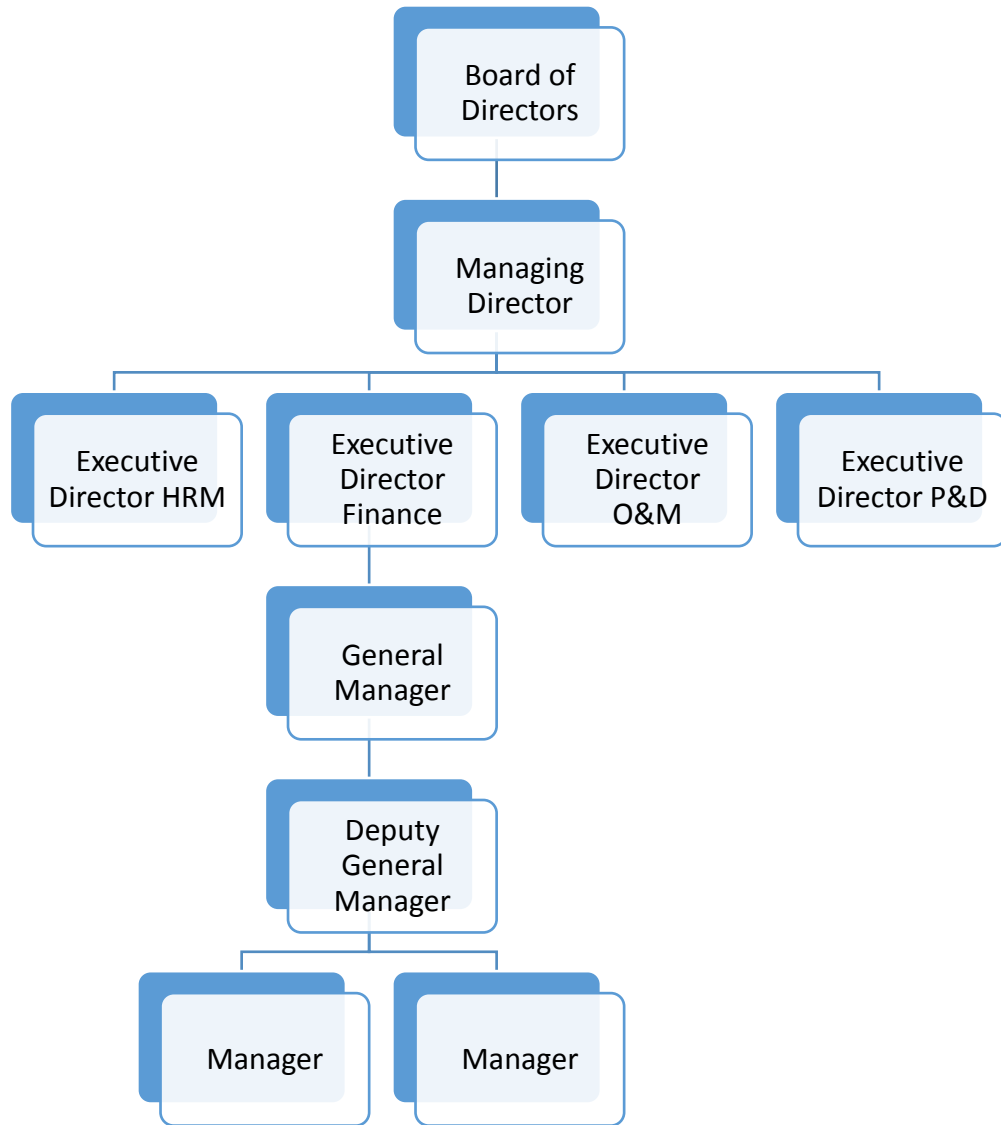
**Figure 4.1: Organogram showing procurement department of BPDB. (Source: BPDB website)**



**Figure 4.2: Organogram showing procurement department of DESCO. (Source: DESCO website)**



**Figure 4.3: Organogram showing procurement department of DPDC. (Source: DPDC website)**



**Figure 4.4: Organogram showing procurement department of PGCB. (Source: PGCB website)**

From the above mentioned hierarchy of different organization it is established that power sector organizations have given due importance to the purchase function. In fact the management of above have considered the purchase activities as one of their core function. This is a good progress in context of development of power sector of Bangladesh. Annual purchase value of each organization of power sector is huge and this expenditure is controlled by well-defined process. Power sector organization follows PPR 2008, PPA 2006 and also guidelines from CPTU during purchasing through the approval of proper channel.

### **4.3 Procurement Methods**

Since most of the organizations are public so it is mandatory for them to follow the PPR 2008. However, it is observed that they are practicing most of the PPR standards. Several power sector organizations also follow their procurement guidelines along with PPR 2008. Procurement guidelines of DESCO, 2015 is one of the example. Power sector organizations procure goods & services, works & physical services, outsourcing services and consultancy services.

List of procurement method practiced by power sector organizations are –

- Direct Procurement Method(DPM)
- Quotation Method(QM)
- Limited Tendering Method (LTM)
- Open Tendering Method (OTM)
- Direct Cash Purchase Method (DCPM)
- Framework Contract Method (FCM)
- QCBS/FBS or Others Method For Consultancy Services

Depending on volume of procurement, nature of procuring item(s) and estimated price, power sector organizations adopt the applicable method of procurement.

DESCO follows these above methods during procurement of goods, works or service. These above methods are described widely in DESCO's procurement guidelines, 2015 by which employees related to procurement activities may follow if needed.

### **4.4 e-GP**

The elaborated form of e-GP is e-Government Procurement. e-Government procurement (e-GP) as the collaborative use of Information and communications Technology (especially the Internet) by government agencies and other actors of procurement community in conducting all activities of Government Procurement Process Cycle (GPPC) for the acquisition of goods, works, and consultancy services with enhanced efficiency in procurement management. e-GP is a web based system. e-GP records all the procurement activities occurs in a purchase. e-GP encompasses all the procurement life cycle. The purpose of this system is to maintain complete and up-to-date Public Procurement System activities of all public agencies as well as provide tender opportunities to all potential tenderers from Bangladesh and abroad.



Central Procurement Technical Unit (CPTU), IMED, Ministry of Planning is developing the e-GP System using the cutting edge technology and global expertise complying with the Public Procurement Act 2006 and Public Procurement Rules 2008.

Bangladesh e-Government Procurement (e-GP) system consists:

1. Centralized Registration (Contractors/Suppliers/Consultants, Procuring Entities and other actors of e-GP)
2. Workflow management System
3. e-Tendering (e-Publishing/e-Advertisement, e-Lodgment, e-Evaluation, e-Contract award)
4. e-Contract Management System (e-CMS)
5. e-Payments
6. Procurement Management Information Systems (PROMIS)
7. System and Security Administration
8. Handling Errors and Exceptions
9. Application Usability & Help

In power sector, almost all the power sector public organizations like BPDB, BREB, DESCO, DPDC, PGCB etc. already introduce e-GP in their procurement system. But, procurement functions are not fully done through e-GP till now.

#### **4.5 Tender Committee**

All purchase whether against Press tender or against Limited Tender or against Single Tender or against Spot Tender, is processed through Tender Evaluation Committee. The composition of tender evaluation committee varies considering the procurement method. Generally, Technical evaluation committee and Financial evaluation committee responsible for the evaluation of tender. If the supplier offer or sample technically qualify then the financial offer evaluated. Then lowest rate given by the technically responsive tenderer awarded the tender after the evaluation of financial offer by financial evaluation committee.

In DESCO, Tender evaluation committee generally working in three steps. At first, technical evaluation done by technical evaluation committee. Technical evaluation committee select the suppliers whether they are responsive or not. Secondly, the responsive suppliers financial offers

evaluated by the financial evaluation committee. Financial evaluation committee ranking technically responsive buyers according to their financial offer. Finally, qualified lowest evaluated bidder negotiated by the tender negotiation committee. The Tender Evaluation Committee has the right to negotiate the price with the qualified lowest evaluated bidder only.

#### **4.6 Sustainable Procurement in Procurement Policy**

The objective of Procurement Policy as it aims to set out the parameters for contributing towards sustainable growth of the power sector through the application of a sustainable procurement policy and address the key issues and principles associated with this object.

There are no specific procurement policy for sustainable procurement in power sector of Bangladesh. But, Bangladesh government taking some initiative to attain sustainable goal through sustainable development. Large amount of money being invested in power sector to increase the economic growth. So, sustainable procurement is a vital issue for sustainable procurement in power sector. Specific KPI for sustainable procurement is not set yet in power sector. But some issues related to sustainable procurement is maintained during procurement. These are value for money, no child labor, equal opportunity, ISO 2008-9001 standard accredited organizations (i.e. BPDB, BREB, DESCO) etc. But, these are not enough for sustainable procurement.

#### **4.7 Sustainable Procurement in Procurement Policy of DESCO**

Like any other power sector organization, Dhaka Electric Supply Company Limited (DESCO) also follows the PPA 2006, PPR 2008, guidelines from CPTU during procurement. DESCO has its own procurement guideline which known as procurement guidelines of DESCO, 2015. DESCO has no sustainable procurement policy of its own. But, indirectly DESCO perform some of the functions which is related to sustainable procurement during procure of goods, works or equipment's. These sustainable issues which are being done during procurement are-

##### **4.7.1 Social/ Etical issues**

Social issues are given below-

- Child labor are not allowed.
- DESCO also prohibit its outsourced organization from the recruitment of child labor.

- During recruitment, dedicated quota for women are given according to government rules to promote women participation.
- Besides running on commercial basis, DESCO also recognizes some social responsibilities such as collects electricity bills at a nominal rate from the Ijtema Committee, provides support to the freedom fighters & the family of the National Poet Late Kazi Nazrul Islam and also contribution to other social activities as decided by the Board from time to time.
- Since the Government has decided to introduce e-Tender system to put an end to tender manipulation, DESCO has introduced e-Tendering system to facilitate its procurement process. The main functions are online bidder registration, email acknowledgement of new tender according to bidder's interest list, online bid participation, edit submitted documents/bids till closing date online tender specification with a comprehensive security. This system prepares customized comparison sheet of the submitted bids to accelerate the evaluation process.
- DESCO introduces e-Governance system by using internet to ensure good governance in all functional areas of the establishment. This enables an accountable and transparent governance system by using advanced IT (Information Technology) systems. As a result, One Point Service Centre, Complaint Management, New Connection, Monthly Bill Collection, Miscellaneous Bill Collection, DESCO Website and E-mail Communication, Inter Office Wide Area Network (WAN) Connectivity has been successfully developed and implemented.
- Both internal and external audit done every year. Internal Audit division is responsible for performing various Audit program relating to different functions and activities of DESCO for ensuring transparency & accountability in its activities with aim to provide better service to its valued customers. As a government owned public sector company, external audit done by authorized agencies in every year. This audit ensures transparency.
- DESCO awarded ISO 9001:2008 certification for quality management system in 2016.

#### **4.7.2 Economic issues**

Economic issues are given below-

- System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) both reduces every year. As a result operational revenue increases and also it shows that no of fault decreases which means maintenance cost also reduces.

- DESCO outsourced people to do some of its logistics functions like cleaner, security guard, some sort of transport, maintenance and operational gang etc. As a result management able to reduce some sort of operational cost every year.
- DESCO has already two grid sub-station. DESCO also have an ongoing project to build another 5 no. of grid sub-station. As a result, DESCO can buy electrical energy in a lower tariff in 132 KV side.
- DESCO encourages consumers to use energy saving bulb, electric appliances etc.
- DESCO install pre-paid meter to reduce misuse of electricity.

### **4.7.3 Environmental Issues**

Environmental factors are given below-

- DESCO install solar panels to its different office premises to extract green energy.
- Accordingly order from Ministry of Power, Energy and Mineral Resources (MoPEMR), DESCO ensures the implementation of solar panel to consumer premises according to sanction load at consumers own cost and also monitor whether consumer use solar properly or not.
- One solar charging station has been installed in Uttara, Sector 6 of Dhaka city to charge the easy bike or Auto rickshaw and another solar charging station is under construction in Baunia under turag thana of Tongi by DESCO.

## **4.8 Interview Findings**

Sustainable procurement has three dimensions. These are economic, environmental and social aspects. The operational definitions of these three aspects are outlined in Chapter 1. A questionnaire was designed including a number of questions which covered not only the above mentioned three aspects of sustainable procurement but also the information about the organization's procurement.

To evaluate the understanding of Sustainable Procurement issues by the officials directly or indirectly related to procurement of different power sector organizations as well as DESCO, we have conducted in depth interview and also conducted survey among 30 officials of various level. The list of officers was chosen from different divisions so that we can get a holistic view of entire organization. The findings and analysis of the survey data are presented. Every questions individually analyzed which would help to find a complete

picture of the matter. Most of the analyses have been done qualitatively from the perception based interviews with the respondents. Some quantitative analyses have also been made based on the supplied data by the respondents.

#### **4.8.1 Social Aspects of Sustainable Procurement**

The sustainable procurement encompasses three dimensions. These are social/ ethical, economic and environmental aspects of procurement. The respondents were asked a number of questions about the social aspect of sustainable procurement.

##### **4.8.1.1 Equal opportunity for Tenderers/ Bidders**

The respondents were asked whether their specifications comply equal opportunity for all the potential suppliers or contractors. Everyone gives a positive response regarding this issue and all of them said that equal opportunity ensured to all the potential suppliers or contractors. The Public Procurement Rules, 2008 does not allow making specifications which may exclude some of the suppliers or contractors. In this regard, mentioning of any brand name or country of origin according to PPR, 2008 is prohibited. Everyone said that potential suppliers or contractors are treated equally during procurement of goods, works or services.

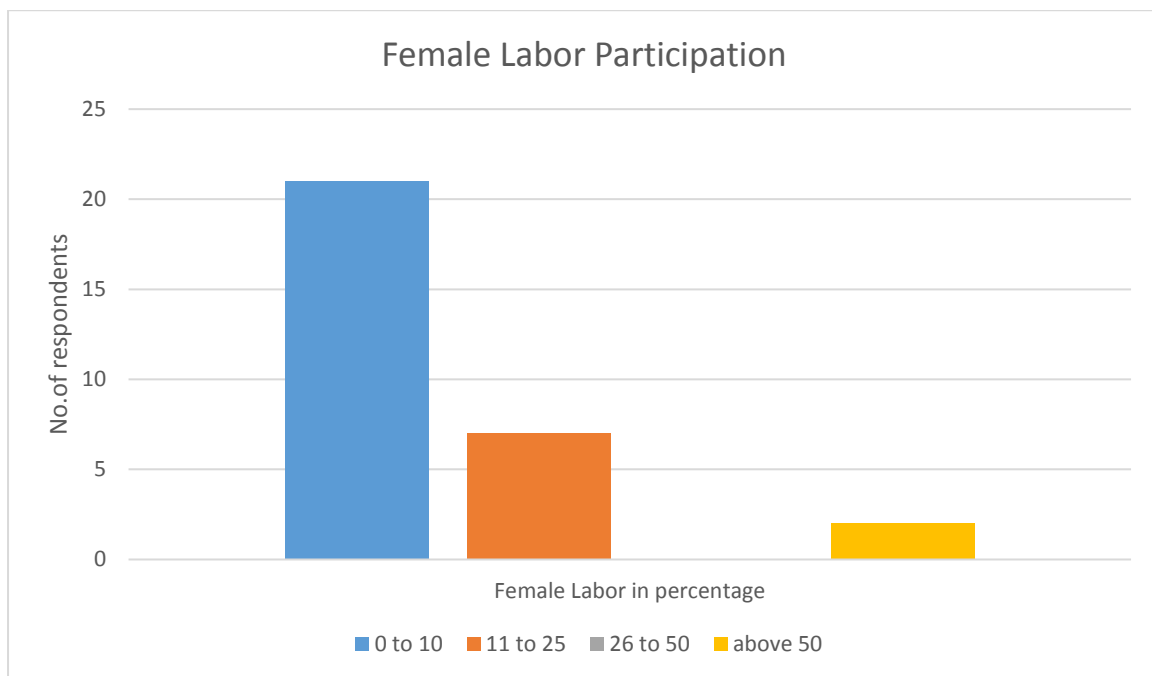
##### **4.8.1.2 Labor practices**

The respondents were asked to share their views about the labor practices whether ethical or not regarding equality, terms & conditions, health & safety, diversity, compliance with ILO standards or country's labor law etc. 22 out of 30 respondents said that some sort of ethical labor practices take place during procurement and execution of works by the contractors or supplier. Insurance coverage for the laborers, technicians working for gang (outsourced technicians known as gang in DESCO) which is the responsibility of the contractors and binding upon them as per the terms of the contract is one example of ethical labor practice and also these criteria are extensively used in international bidding. Eight of them said that they have no idea about this criteria are used in the contract document.

##### **4.8.1.3 Female participation**

The respondents were asked about the female participation. Almost all of them said that in terms of DESCO and other power organization own recruitment, a percentage of total

recruitment are dedicated for female but for outsourced people or contractors no provision exists in the tender document or contract regarding this issue. They also said female participation depends upon the contractors or suppliers. Some female being outsourced as cleaner in the office and sometimes during construction works, some suppliers ensure female participation for lower wages than men. Total 21 out of 30 respondent said that 10 or less than ten percent of the total employees are female, 7 out of 30 respondents said that 10 to 25 percent of total employee are female and another two said it may be more than fifty depending on the supplier for example in cleaner supplier agency most of the cleaner is women.



**Figure 4.5: Female labor participation in suppliers firms or organization**

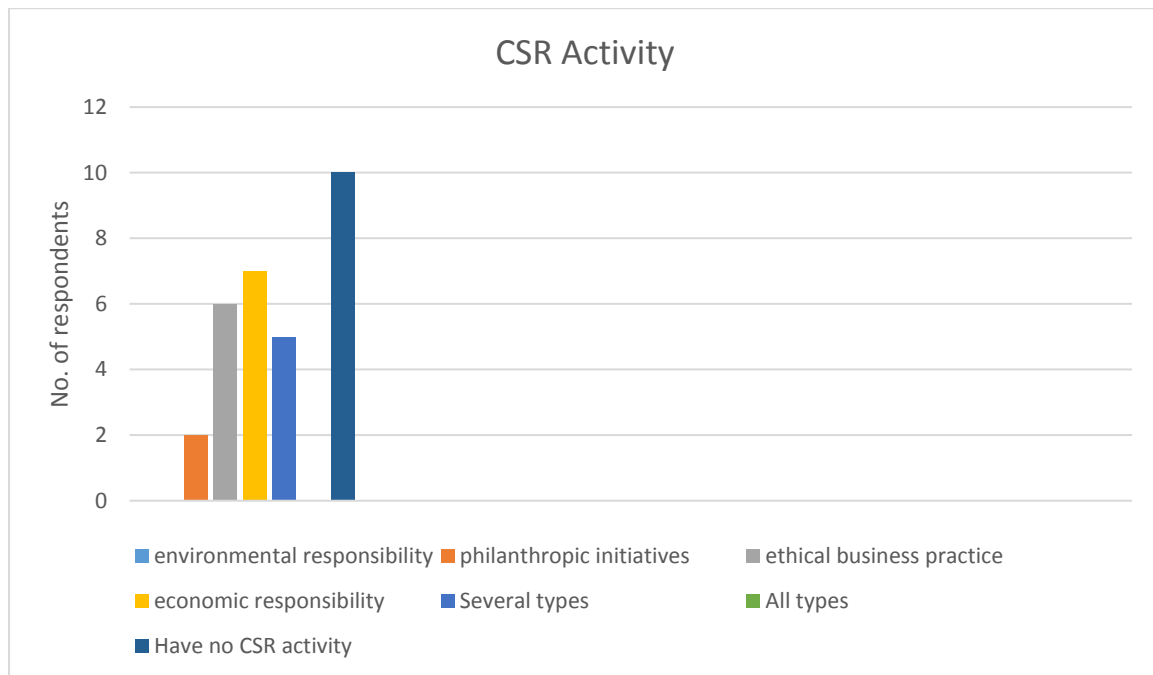
#### 4.8.1.4 Child Labor

The respondents were asked about the child labor participation. Everyone said that child labor is strictly prohibited during recruitment not only for own recruitment but also for contractors or outsourced employees.

#### 4.8.1.5 CSR activity

The respondents were asked about the CSR activity of their organizations. 2 out of 30 respondents said that philanthropic initiatives being followed, 6 out of 30 respondents said that ethical business practice being followed, 7 out of 30 respondents said that economic

activity being taken of CSR activity. 5 out of 30 respondents said that several types of activity taken depending on situation and 10 out 30 respondents said that their organizations have no CSR activity.



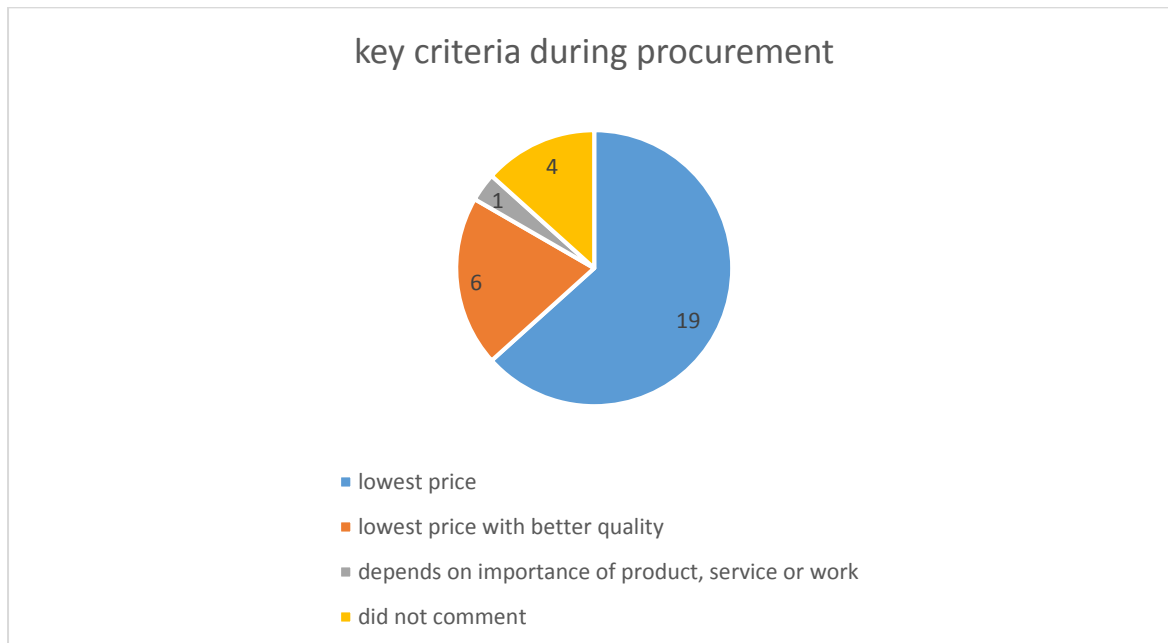
**Figure 4.6: Organization’s CSR Activity**

## 4.8.2 Economic Aspect of Sustainable Procurement

The respondents were asked a number of questions about the economical aspect of sustainable procurement.

### 4.8.2.1 Key criteria during procurement

A question was made to the respondents in order to know the key criteria during procurement. Most of the respondents said that the main criteria is the lowest price. It is found from the interview that whole life costing is rarely considered in various public sector organizations. Some of them also said in the project procurement whole life costing taken into consideration during procurement. 19 respondents out of 30 mentioned the lowest price as the main criteria. 6 respondents out of 30 respondents mentioned lowest price with better quality as the main criteria. Only one respondents out of 30 respondents mentioned that it depends on the importance of the product, service or works.



**Figure 4.7: key criteria during procurement of product, service or works.**

#### **4.8.2.2 Participation of local firms during procurement**

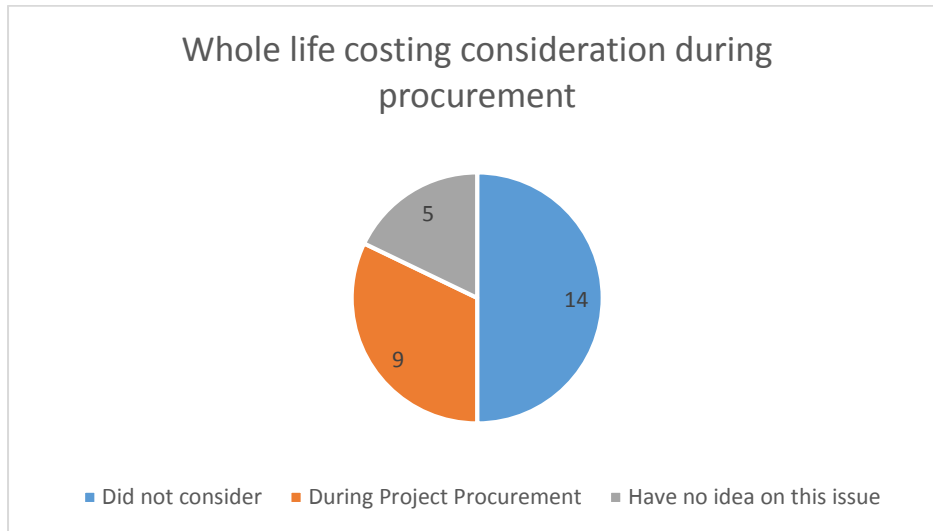
The respondents were asked about the use of any criteria in the tender documents during procurement to encourage the participation of local firms. Almost everyone said the same answer regarding this question. It is clear from the responses that all the procurement functions have to follow the PPR 2008, PPA 2006 and own guidelines if any organization have (i.e. DESCO have a procurement guideline which is Procurement Guidelines of DESCO, 2015). The mentioned guidelines have no criteria for encouraging participation of local firms in the case of national competitive bidding. But, a significant number of respondents (21 out of 30) said that in international competitive bidding, there exists a provision for encouraging participation of local firms. Others respondents said that they have no idea on this issue. This term known as ‘domestic preference’. It can be said from this question that there is little scope in our procurement practice to involve local firms for development of the local community because most of the project procurement of power sector carried out through international bidding/tender.

#### **4.8.2.3 Whole life costing**

The respondents were asked about the consideration of whole life costing during procurement of their organization. 14 out of 30 respondents said that whole costing is not considered. 9 out



of 30 respondents said that during project procurement whole life costing considered and 5 out 30 respondents said that they have no idea on this issue.



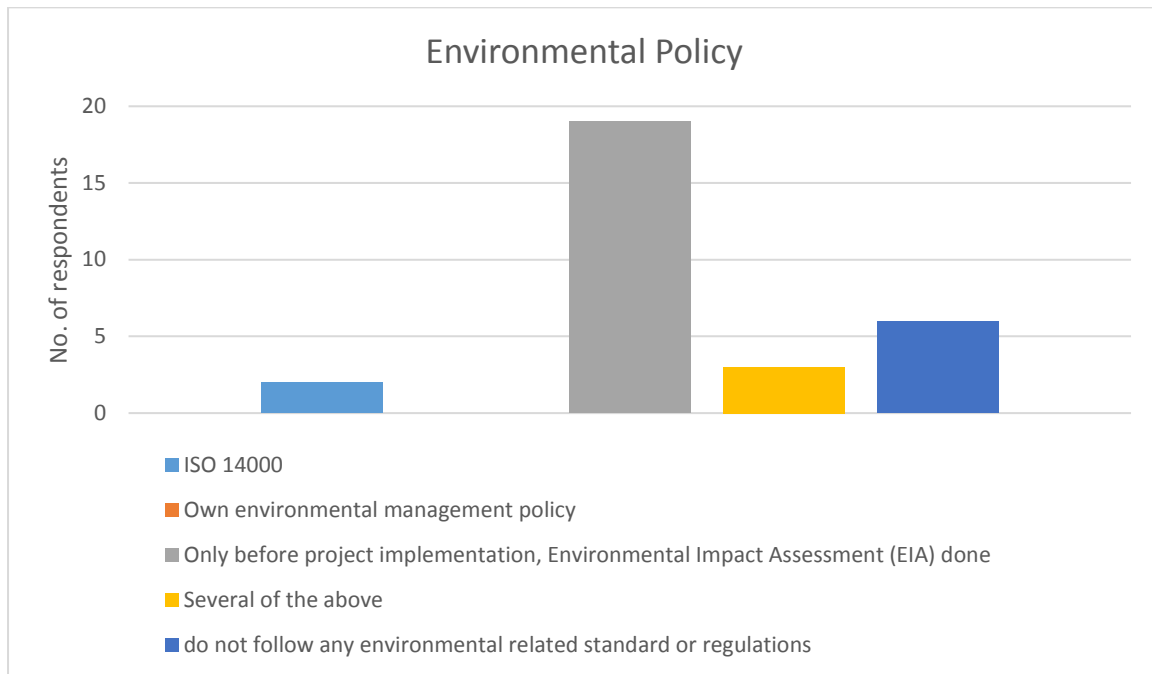
**Figure 4.8: Whole life costing consideration during procurement.**

### **4.8.3 Environmental Aspect of Sustainable Procurement**

Several question asked to respondents to know the environmental aspects consideration during procurement of goods, works or services.

#### **4.8.3.1 Environmental policy or environmental management system**

The respondents were asked whether they have any idea about the environment related policy or management system in their organization for procurement. 6 out of 30 respondents said that they have no policy for environment or no environmental management system certification. 2 out of 30 respondents said that they got ISO: 14000. 3 out of 30 respondents said that they follow several environment regulations. And 19 out of 30 respondents said that in every project, an Environmental Impact Assessment (EIA) report on must be approved by environmental ministry of Bangladesh and then after taking clearance the execution of project works started.



**Figure 4.9: Environment policy**

#### **4.8.3.2 Environmental performance of suppliers or contractors**

The respondents were requested to describe the mechanism briefly to check the environmental performances of the contractors/ suppliers about the environmental performance of contractors or suppliers. Majority of the respondents given a negative response. Some of the officials mentioned the ignorance about the existence of any such mechanism to check the environmental performance of contractors/ suppliers in their organizations. But they also said that there are no criteria except PPR 2008 regarding the environmental performance of suppliers for contractors but contractor should follow the EIA report during project implementation and for procurement.

#### **4.8.3.3 Environmental initiatives by power sector**

Respondents were asked about the environmental initiatives taken by their organization. 24 out of 30 respondents said that solar charging station has been installed and also solar system has been installed in their own office premises as a part of green energy extraction from sun. 6 out of 30 respondents gives negative response on this issue.

#### **4.8.3.4 Enhancement of supplier's environmental performance**

A question was asked to the respondents they use any criteria which could enhance supplier's environmental performance. This is the question where most of the respondents (23 out of 30) have given negative answer and others have no idea regarding this issue. But they said that they use indirectly in the RFP because in this regard PPR 2008 clearly mentioned that "the contractor shall throughout the execution and completion of the works and the remedying of any defects therein take all reasonable steps to protect the environment on and off the site and to avoid damage and nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of the Contractors methods of operation. Again it has been advised that the Contractor, in particular, shall provide proper accommodation to his or her laborers and arrange proper water supply, conservancy and sanitation arrangements at the site for all necessary hygienic requirements and for the prevention of epidemics in accordance with relevant regulations, rules and orders of the government."

#### **4.8.3.5 Ecolabel**

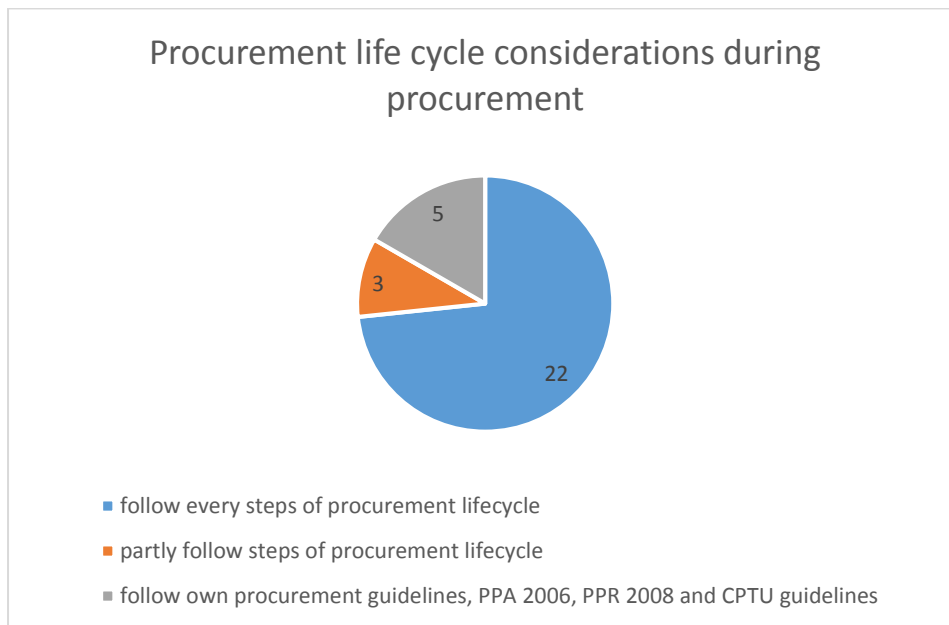
The respondents were asked about the ecolabelling of products or service whether they consider this issue during procurement. Everyone said that ecolabelling is not taken into account during procurement of products or services. One respondents also said that no guidelines available in the procurement guidelines, PPR 2008 or from CPTU on this issue.

#### **4.8.3.6 Compliance of the minimum legal standard**

The respondents were asked whether they use any criteria so that the suppliers or contractors comply with the minimum legal standard. In this question majority of the official interviewed have mentioned that they always ensure that the suppliers are maintaining minimum legal standards. They also said that they use this criteria during procurement of goods, works or services, otherwise the supplier or contractors treated as non-responsive and any supplier found in violation of any legal standards become blacklisted. They also said that they use suitable clauses to ensure compliance of legal standards.

#### 4.8.4 Procurement life cycle

The respondents were asked to whether they follow every step of the procurement life cycle during procurement. 3 out of 30 respondents said that they follow every step. 5 out of 30 respondents said that they follow partly and also said this varied with the procurement method and products, service or works types. 22 out 30 respondents have no idea about procurement life cycle but they follow defined guidelines of their organization, PPA 2006, PPR 2008 and CPTU guidelines.



**Figure 4.10: Procurement life cycle considerations during procurement of products, services or works.**

#### 4.8.5 End use of procured products or works

Majority of the respondents said that there is no specific guideline for disposal of products or works procured in power sector organizations. One of them said that the product or equipment's should store or sell them after a certain period of time by auction. The latter is the most common process of end use of materials. Some of them said that there are no specific guideline for end use of product or works but in special cases like shifting a substation to a higher capacity different elements to be replaced. In that case, older elements are being stored or used in other substation of same capacity if needed by proper authority otherwise these would be auctioned by the authority.

## 4.9 Summary of the Analysis

In this chapter, analysis has been done dividing the whole study into two parts. The first part was the analysis of procurement documents of Power Sector Organizations and DESCO to determine whether there is any provision in the procurement documents which address the issues of sustainable procurement. The analysis indicates that although there are some provisions in the Procurement Documents but these are not sufficient to achieve sustainability in procurement.

The second part of the analysis was based on the current scenario of sustainable procurement practice in Power Sector Organizations and DESCO. In addition to the interviews/survey thirty officers who are involved directly or indirectly in procurement related activities have been provided with printed questionnaires or soft copy of questionnaires with a view to get a holistic view of sustainable procurement scenarios of power sector as well as DESCO. To do this, the interview and survey questions were divided into three categories addressing three aspects of sustainable procurement which are economic, environmental and social aspects. And also some additional procurement related questions were asked. The analyses done on the responses against the set questions indicate that although there are a few cases where some sustainability issues are in practice.

The analysis made from the questionnaire gives a realistic picture of procurement practices in DESCO and the public sector in Bangladesh. Lowest price is still the key criteria for selection of suppliers. Whole life costing is only considered for project procurement. Participation of local firms is not adequately encouraged through the criteria put in the tender documents in terms of local bidding. In power sector, specific environmental policy or environmental management system is unavailable. Ecolabelling is not taken into account of product or services during procurement. Moreover, the present procurement system of power sector provides little scope for ensuring environmental performances by the suppliers/ contractors. On the other hand, equal opportunity to all the participants is generally ensured. Ethical labor practice, female labor force participation, prohibition of child labor etc. are present in the current procurement system. However, it should say that sustainability issues are not well embedded in the procurement system of DESCO as well as power sector of Bangladesh.

## CHAPTER – 5

# CONCLUSION AND RECOMMENDATION

### 5.1 Introduction

For a long time economic factor has been the single most important indicator in the practice of procurement in the Public Sector of Bangladesh. Environmental and social factors have always been neglected in the procurement system. However, the importance of non-economic factors in the procurement increased significantly with the development of the concept of sustainable development worldwide.

Power Sector in Bangladesh is one of the most important sector which has direct impact on GDP. So, it is evident that what and how power sector organizations buy and acquire in terms of goods, works and services contribute significantly in the overall economy of the country, both to its ability to deliver sustainable development and to its credibility with its development partners. By using their market leverage to opt for goods, works and services that also respect the environment and the society, they can have a major influence on suppliers and stimulate the production of more sustainable goods, works and services. Power Sector procurement, therefore, needs to consider sustainability issues seriously to ensure real value for money over a longer term without compromising environmental and social responsibilities. This would further ensure that development targets are achieved through the acquisition of goods, works and services without much damage to the society and the environment.

Sustainable procurement indicates that day by day modern technologies will become more and more low carbon, low rubbish and energy/water conservation, and beneficial to broader sustainable development goals. In Bangladesh, sustainable procurement is not a legal concept under the current public procurement laws or other related laws. However, perceptions gathered through the interviews with different procurement professionals in different power sector organizations give a moderate indication about the awareness of sustainability issues because several professionals has no idea about sustainable procurement so more awareness of professionals about sustainable procurement would be expected that this will lead to development of the sustainability issues embedded in the public procurement framework.

## 5.2 Conclusion

In order to find the answers of the research questions made in Chapter 1, effort has been made in this dissertation paper to explore the scope of sustainable procurement in DESCO and the power sector of Bangladesh.

The first part of the research questions was about the scope of sustainable procurement in DESCO and the power sector. In response to the first part of the research questions, it is found from the analysis that there is limited scope of practicing sustainable procurement in the current procurement framework of power sector organizations and DESCO. The analysis made in Chapter 4 from the response of procurement officials of DESCO and other power sector organizations gives the similar view that sustainability issues are not well embedded in current procurement practice.

Tendering system is still based on the lowest price approach. However, environmental and social factors are not used consciously in the specifications and whole life costing approach is rarely considered. While making lots in a package, sometimes, the issue of local participation is ignored.

It is mandatory for public sector organizations except the private organizations like summit, orion etc. to follow the standard tender documents prepared by the CPTU. And the standard tender documents prepared by the CPTU do not include any criteria for encouraging participation of local firms in the case of national competitive bidding. Although a few points are made in the PPR, 2008 as outlined chapter 3, these do not directly address the issue. However, in international competitive tendering, there is a provision for encouraging participation of local firms using a term known as ‘domestic preference’. Power sector organizations do not have any type of environmental management system. Although some environmental criteria seem to be used in large procurement contracts like Environmental Impact Assessment (EIA), most of the contracts have been pointed out by the respondents as problematic as regards environmental considerations. The study also indicates that there is virtually no mechanism in PPR 2008 to check the environmental performance of contractors/suppliers.

The procurement professionals in DESCO and power sector organizations have very limited scope of using any environmental criteria in the tender document for enhancing the

contractor's or suppliers environmental performances. Similarly, they lack the mechanism to make the contractors or suppliers comply with minimum legal standard regarding environment.

At present there is no specific guidelines for disposal of products or works procured in Power Sector. At present DESCO and other power sector organizations sale the old items through auction. However, for procurement of works, some criteria are put so that the rubbish, disposable waste, exhaust, nuclear waste etc. produced during the construction or production are collected and removed by the contractor at their own cost and responsibility as per the conditions of contract. But Government takes some steps in specific areas to address environmental factors. For example, Rampaul power plant and Matarbari coal based power plant both are located in the coastal region of Bangladesh. Rampaul is located near sundarban. A huge pressure group also give pressure to government regarding environment. So, policy maker designs the chimney to transmit the exhaust flue gases into a certain safe level in a specific height so that no unwanted impact will occur in the environment. In the upcoming nuclear power plant waste management issues being negotiated with Russia and Russia willing to take the nuclear waste. And also government initiate an agency named SREDA who are responsible to improving, enhancing and initiating renewable energy throughout the country.

It is evident from the above analysis based on the responses that Power sector has taken some initiatives on the environmental issues though these are not significant enough.

In addressing the social aspect of sustainability, power sector organizations and DESCO ensures equal opportunity to all. The preferred method is the Open Tendering Method (OTM) which ensures opportunity for participation of all interested suppliers through sufficient advertisement. It is also mentioned that while preparing specifications, all the potential suppliers/ contractors are treated equally. The PPR 2008 does not allow making specifications which may exclude some of the suppliers/ contractors. For ensuring equal opportunity to all, it is prohibited to mention any brand name or country of origin. However, this reminds the requirement of skilled and experienced specification writer which many of the organizations lack.

Another issue of social aspect of sustainability is the ethical labor practice which is present in the procurement system of power sector organizations. Some points have been made in the



procurement documents regarding health and safety of all workers, prohibition of working in the holidays, complying with the relevant labor laws, wages of laborers, prohibition of engaging child laborers, insurance in case of personal injury or death etc. Participation of female labor force is not ensured though the contract terms in the public sector procurement.

The second part of the research questions was that – to what extent DESCO and Power Sector organizations practice Sustainable Procurement? The findings of this study indicate that the idea that economic, environmental and social criteria are equally important as other criteria is gaining acceptance in the public sector procurement.

If sustainability issues included in the procurement guidelines and followed during procurement, it can be highlighted to foreign aided agencies like World Bank, Asian Development Bank, Asian Infrastructure Investment Bank, JICA etc. so that they get more interest to invest in the power sector of Bangladesh.

### **5.3 Recommendations**

Although sustainable procurement is an important issue in most of the developed countries, it has not become an important matter of concern in developing countries like Bangladesh. However, it is a matter of hope that this issue is gaining acceptance in our country which may be a potential driver for introducing sustainability in the power sector procurement. Sustainable procurement is particularly important in the power sector as electricity has a direct impact to economic growth. Uninterrupted quality power is expected by the people. To supply uninterrupted quality power stable, reliable power system, grid and power plants needed. So, in order to introduce sustainable procurement in the power sector it is necessary to take steps as the short-term, medium-term and long-term solutions.

As a short-term activity, sustainability criteria should be embedded in the tendering system. For example, Environmental parameters can be considered in various stages of tendering: it can be used in the pre-qualification of the tenderers; environmental requirements that must be fulfilled in the contract; and environmental criteria applied in the tender evaluation. The criteria should be focused on environmental management measures and the way the contractors are planning to perform the work. For example, ISO 14000 family of standards provides practical tools for organizations to manage all the environmental responsibilities, Eco label in the product ensure whether the product environment friendly or not etc. So, these

parameters should be focused in the tender. Similarly social criteria should also be included in the tendering process. The criteria can thus be regarded as a way of selecting a contractor or supplier that is likely to fulfill the environmental and social requirements along with the economic requirements. In this way, requirements, prequalification criteria and evaluation criteria can be combined in order to support each other. BPDB, DESCO, BREB are the ISO 9001:2008 certified organizations of power sector in Bangladesh. Others organizations should also take necessary steps to get this certification. And power sector organizations also should give preference to the tender selection criteria if supplier have ISO 14000, ISO 9000 certification. BREB also gets the ISO 14000:2004 certification and OHSAS 18001: 2007 certification.

A sustainable procurement policy should be formulated by CPTU or CPTU should revised PPR 2008 by inserting sustainable procurement regulations in the PPR 2008 and then the power sector organizations should follow the sustainable procurement policy or the revised PPR 2008. This policy formulation should be considered as a medium-term activity to introduce sustainability. Regulators willingness is required at the initial stage for such a policy. A clear commitment is necessary from the CPTU to all the public sector organizations. This will keep everyone in a same platform and encourage them to follow the sustainable procurement agendas. Many procurement professionals of power sector lack of clear direction from the top of the organizations on the priority to be given to delivering sustainable development objectives through procurement. This should be cascaded down through both government targets and performance management systems and progress monitoring.

Education and training on sustainable procurement at the individual professional level seem necessary in order to increase knowledge base for implementing sustainable procurement. Only the formulation of a policy and including sustainability criteria in the documents are not enough to introduce a sustainable procurement system. It should be considered in long-term basis. There is lack of capacity to address the issue of sustainable development within the context of procurement. Procurement professionals suffer from lack of proper information and training and lack of tools showing how to put sustainability into practice. This indicates that cognitive aspects such as knowledge and awareness at the individual procurement professional level seem important in order to make active sustainable procurement choices.

Top level management or government decision maker should take necessary steps and come forward to implement sustainable procurement issues or include this issues in the procurement

guidelines or PPR 2008. All procurement should be carried out by people whose procurement skills have been developed appropriately. Because sustainable procurement cannot be undertaken effectively unless procurement activities are carried out professionally and effectively. So, procurement should be done by the full-time procurement people; and people who do procurement as a significant element of their work. Also, related procurement officials need to be trained up on sustainable procurement so that they can easily implement their knowledge when they doing purchasing activities. The regulator needs to come forward to remove the barriers to sustainable procurement – whether actual or perceived. Awareness campaign should be arranged focusing on how to take account of non-monetary benefits of sustainable procurement. All public power organizations should be called upon to examine their budgeting arrangements to make sure they encourage and support sustainable procurement. CPTU may play the leading role in this regard. They have been conducting various awareness programs about the public procurement among the organizations. Similarly awareness programs should be arranged addressing the necessity of sustainability issues.

Optimum fuel management is a challenge to make a sustainable power sector. Cause fossil fuel will decrease day by day. So, alternative options should adopt like renewable energy, nuclear energy in a planned manner. Necessary steps should take to increase imported electrical power in a competitive tariff from foreign country.

During procurement of goods or equipment's, energy saving equipment's, advanced technologies, reusable goods, renewable energy products should give preferences. Awareness program on domestic use of renewable energy use like solar, wild etc., energy saving equipment's like CFL bulb, energy light, LED light, LED TV etc., eco-friendly equipment like AC should take by government or power sector organizations so that energy efficiency increases. As a result, with the same electricity production, government would be capable to give electricity to more people from grid.

Due to an order from power division of Ministry of Power, Energy and Mineral Resources (MoPEMR) on 7<sup>th</sup> November, 2010 to install solar system to consumer premises according to their sanction load, consumer install solar panel to their premises. This limit varies from 3% to 10% depending on consumer category and consumers lighting load like light, fan etc. In Bangladesh, solar system imported from China, Germany, and Japan etc. foreign country. In this regard a survey is also done regarding installed solar panel in DESCO area of Dhaka city. Solar survey being made on 100 no. installed solar system of consumer premises in Dhaka city

where 28 no. off grid solar system and 72 no. on grid solar system. we find 44 no. consumers solar system are functioning properly and another 66 no. consumers solar system does not functioning properly. From the above survey, it is evident that for lack of knowledge, willingness to use after getting electricity connection, natural calamity like storm etc. proper utilization of procured solar system couldn't be ensured. But, in the rural area where people do not have power from grid use solar system efficiently to fulfill their needs. So, government should take necessary steps to ensure proper use of solar system in the urban area or government may raise a fund by taking as a charge/donation during new connection in the urban area and then use this fund to make solar park in a defined area and give the responsibility to a dedicated government organizations to look after so that efficient and effective operation may ensure.

DESCO and BREB installed a number of solar charging stations to different areas where auto rickshaw or easy bike can charge their vehicles in a very reasonable price. An easy bike will take 6 hours a day to be fully charged. DESCO started to install two solar charging station within its area. One in Uttara sector 6 and another in Baunia of Turag thana. Ultra sector 6 already starts operation. As the salary range is quite high of DESCO's own employees, this is not a good choice operate the solar charging station by DESCO's employees. Operational cost would be high than collected revenue. So, DESCO can operate this solar charging stations by outsourced people or authority which will minimize the operational cost.

From table 3.3 and table 3.4 we see that the though operational income increases every year, net profit is decreases every year. So, as a government shareholder limited company, DESCO should focus on cost reduction. Tariff is fixed, so cost of sales cannot be reduced. Again, system loss also decreases every year. So, DESCO management should focus on others cost like operational cost reduction. In this regard, DESCO has one Central store situated in Mirpur section 13 and one sub-store situated in Uttara. DESCO has 16 local office divided into 3 regions which are- Gulshan Zone, Uttara Zone and Mirpur Zone. Here, for any kind of products needed by local office should come to central store in Mirpur. Which will kill time and increase transportation cost. So, DESCO can make Zone wise sub store from which zonal office can able to take necessary products by saving time and low transportation cost. During, reception of products from supplier, DESCO can receive products in zone wise sub store. Central store can monitor and control the supplied products being supplied properly or not in respective sub stores with right quantity and quality.

DESCO should focus on waste management for example there are no guidelines for re use of degraded transformer oil or wasted insulator which is aseptic. Clear guidelines should make by top level management of DESCO as well as power sector organizations.

DESCO and other power sector organization should emphasize on participation of women in the supplier's firm or organization and also monitor whether they follow labor rules, safety issues etc. before and after awarding contract as well throughout the procurement cycle.

Whole life costing should be introduced in the regular procurement mainly during strategic items procurement by DESCO management and others power sector organizations.

DESCO and others power sector organization should procure environmentally friendly products. During procuring, they could procure respective ecolabelling product from buyers or suppliers.

Uninterrupted power supply is badly needed for any country to sustain current globalized environment of trade and investments. Bangladesh increases exports with a rapid growth in manufacturing output and employment. To maintain this growth in diversified field will require an efficient and lower cost power infrastructure which may strengthen the competitiveness of Bangladeshi exports as well as increases the GDP. To maintain the increasing demand of electricity government should take National Energy Policy or develop an Energy Master Plan which includes Gas allocation policy, Energy subsidizing and pricing, domestic coal utilization, Improved Cooking Stove, Domestic gas exploration policy, Energy import, Demand side management and energy conservation, rapid infrastructure installation etc. Government and DESCO should take necessary steps to minimize operational and maintenance cost and also government may repower and replace existing simple cycle gas turbines into combined cycle power plants so that the efficiency will increase to a significant value. Efficient procurement decisions will be important to meet up the upcoming challenges in the power sector of Bangladesh. For the quick buildup of power sector investment of donor agencies is much important so that turnkey type investments will help to reduce procurement problems and ease project implementation.

Power sector booming in Bangladesh for last few years. This is the right time to focus on sustainable issue during procurement of goods, works or services by restructuring the contract

conditions, introducing socio-economic issues in the contract, formulating a national sustainable policy, introduction of environmental aspects and CSR activity etc.

As most of the power sector organizations are government so that they have to follow PPR 2008, PPA 2006, directions from BERC or CPTU and sometimes from the aided agencies guidelines also specially for project procurement. That's why government should make a sustainable procurement policy for power sector or introduce more terms related to sustainable issues in the PPR 2008. DESCO should also focus on this issue.

A clear commitment is necessary from DESCO's management and other organizations of power sector and also from the top to bottom officials throughout the organization for sustainable procurement implementation.

Finally, there are scope to further study about the sustainability issues of power sector and DESCO. The concept of sustainable procurement has not been well embedded in the procurement system of DESCO and other power sector organizations till now. So, this paper gives an overall scenario of sustainable procurement practices in DESCO and other power sector organizations. Advanced research needs to be conducted in order to get a deeper insight into the sustainability issue in relation to DESCO's procurement as well as power sector procurement.

## List of References

7<sup>th</sup> Five Year Plan of Bangladesh (FY 2016- FY 2020)

APCC 2007, Australian and New Zealand Government Framework for Sustainable Procurement.

Blackburn, W. R, 2007. The Sustainability Handbook. pp 2-3.

BERC website, [www.berc.org.bd/](http://www.berc.org.bd/)

BPDB website, <https://www.bpdb.gov.bd/>

Brundtland Commission Report, 1987: “The Report of the U.N. Brundtland Commission, Our Common Future, 1987” as Report of the World Commission on Environment and Development.

Bryde and Meehan, 2010

Elkington, 1997: “Cannibals with Forks: The Triple Bottom Line of 21st Century Business.”

DESCO website, <https://www.desco.org.bd/>

DESCO Procurement Guidelines, 2015

DPDC website, <https://www.dpdc.org.bd/>

Ellmers, Bodo, 2011: Helping or hindering? Procurement, tied aid and the use of country systems in Bangladesh

Kraljic, P, 1983: Article “Purchasing must become supply management” published in the Harvard Business Review.

Ministry of Power, Energy and Mineral Resources of Bangladesh website, <https://www.mpemr.gov.bd/>

PGCB website, <https://www.pgcb.org.bd/>

PPA, 2006: Public Procurement Act, 2006.

PPR, 2008: Public Procurement Rules, 2008.

Power Sector Master Plan, PSMP 2010.

SREDA website, [www.sreda.gov.bd/](http://www.sreda.gov.bd/)

SDGs, <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

UNGM, 2011, United Nations Global Marketplace. Retrieved 09 October 2011 from <http://www.ungm.org/sustainableprocurement/default.asp>

Wikipedia, <http://en.wikipedia.org/wiki/Procurement>

## Survey Questionnaire

Title of Dissertation: “Sustainable Procurement in Power Sector of Bangladesh: A case study on DESCO”.

This is a questionnaire for conducting a research on scope and practice of sustainable procurement in DESCO as well as Power Sector of Bangladesh. It is a requirement for the fulfillment of the degree ‘Masters in Procurement and Supply Management’ at the BRAC Institute of Governance and Development, BRAC University. Your honest response is valuable for the researcher. The researcher does assure that the information given by you will be kept confidential and will be used only for the academic purpose.

### 1.0 General Information

1.1 Name

1.2 Organization Name

.....

1.3 Designation of the Officer

.....

1.4 Name of the Department

.....

1.5 Working Experience

.....

### 2.0 Social/ Ethical Aspect

2.1 Do your specifications ensures equal opportunity to all the potential suppliers/ contractors?

- a) Yes      b) No

If No, DO you agree that equal opportunity to all the potential suppliers/ contractors should be ensured?

- a) Agree   b) Moderately agree   c) Strongly agree   d) Not Agree

2.2 Do you put any criteria for evidence of ethical labor practices (terms & conditions, health & safety, equality, diversity, compliance with ILO standards etc.) from the suppliers/ contractors?

- a) Some of the above criteria                      b) All of the above criteria  
c) Depending on type of procurement      d) No criteria

2.3 What is the percentage of female participation in the suppliers/ contractors firms or your organizations?



- a) 0-10    b) 11-25    c) 26-50    d) more than 50

2.4 Do the suppliers/ contractors or your organization allow child labor?

- a) Child labor allowed    b) Child labor prohibited    c) Sometimes allowed depending on type of procured goods or service    d) have no idea on this issue

2.5 What type of CSR (Corporate Social Responsibility) activity your organization have?

- a) Related to environmental responsibility  
b) Related to philanthropic initiatives  
c) Related to ethical business practice  
d) Related to economic responsibility  
e) Several types  
f) All types  
g) Have no CSR activity

3.0 Information Regarding Economic Aspect

3.1 During preparing specifications which criteria do you consider?

- a) Lowest price    b) Lowest price with better quality    c) Depends on importance of product, service or work    d) None

3.2 During procurement do you consider whole life costing?

- a) Yes    b) No    c) only during project procurement    d) have no idea on this issue

3.3 Do you put any criteria in the tender documents to encourage participation of local firms?

- a) Yes    b) No

if No then, then do you agree that participation of local firms should encouraged for power sector organizations?

- a) Agree    b) Moderately agree    c) Strongly agree    d) Not Agree

4.0 Information Regarding Environmental Aspect

4.1 Do your organization follow any environmental policy or environmental management system or environmental management standard?

- a) ISO 14000  
b) Own environmental management policy  
c) Only before project implementation, Environmental Impact Assessment (EIA) done  
d) Several of the above  
e) do not follow any environmental related standard or regulations

4.2 Do you have any mechanism in your organization to check the environmental performance of your contractors/ suppliers?

- a) Yes    b) No

If yes, please write below-

.....  
4.3 Do you consider ecolabel during preparation of specifications of products or services?

- a) Yes    b) No

If yes, what type of Eco label you consider most during procurement?

- a) Type I    b) Type II    c) Type III    d) depends on procured item

4.5 Do you use any criteria so that the suppliers/ contractors comply with the minimum legal standard?

- a) Yes    b) No

If No, Do you think minimum legal standard should maintained?

- a) Agree    b) Moderately agree    c) Strongly agree    d) Not Agree

5.0 Do you follow the steps of procurement life cycle during performing procurement related activities?

- a) All the steps of procurement life cycle
- b) Several steps of procurement life cycle
- c) Depends of types of procured item
- d) Do not follow any prescribed steps of procurement life cycle

6.0 What type of waste your organization takes step to recycle or ensure end use?

- a) Nuclear waste    b) Oil of machineries like transformer etc.    c) Reuse of end products or obsolete product in other field    d) Do not perform any recycling activities

7.0 Your comments about the sustainability issue or sustainable procurement?  
.....

Thank you very much for your co-operation.