

Report On
Sustainable procurement policies and practices in BAPEX's
Project Management to the SDGs.

By:
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An internship report submitted to the BRAC Institute of Governance and Development (BIGD), BRAC University in partial fulfillment of the requirements for the degree of Masters in Procurement and Supply Management (MPSM)

BRAC Institute of Governance and Development (BIGD)
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Report on
Sustainable procurement policies and practices in BAPEX's
Project Management to the SDGs.

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Declaration

It is hereby declared that

1. The report submitted is developed by me as per discussed and taking feedback from my work station's officers for the completion of MPSM degree at Brac University.
2. The report is prepare with the help of academic resources and trying to avoid putting such direct materials previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. I have acknowledged all of my primary sources of assistance.

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Letter of Transmittal

Md. Mosta Gausul Hoque, PMP,
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**Subject: Submission of PSM-665: Supply Chain Management in Practice-
Report / Practicum.**

Dear Sir,

I am grateful to submit herewith my report on, "**Sustainable procurement policies and practices in BAPEX's Project Management to the SDGs.**," in order to partially meet the requirement to acquire the MPSM degree at BIGD, BRAC University. It is my sincere pleasure & proud privilege to work under your proactive advice and supervision.

In addition, Furnish my best effort to finalize the report with the relevant & essential data and recommendations from the procurement officials in the most concise and detailed manner possible with the help of BAPEX's MIS.

I think this report will fulfill the standard and meet the desires.

Sincerely yours,

Mohammad Ahsanul Amin
21382028
BRAC Institute of Governance & Development (BIGD) Brac University
August 14, 2023

Non-Disclosure Agreement

This agreement has been established and entered into by and between the Bangladesh Petroleum Exploration and Production Co. Ltd. (BAPEX) and the undersigned student Mohammad Ahsanul Amin to complete the MPSM degree at BIGD, BRAC University.

Considering my present position at my mentioned organization, I have the access to the Organization information that means confidential. I will use any and all data and material for academic reasons only. Also I agree and assure that I will keep all the information strictly confidential and will not share by not making it public.

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Acknowledgment

All praises go to the gracious Almighty, who's blessing always shower upon me in every aspects. First and foremost, the author proud to express his sincere gratitude to the supervisor, Md. Mosta Gausul Hoque, PMP, Senior Trainer, BIGD, BRAC University, for his excellent supervision, guidance and motivations providing the utmost guidance and advices for each step of preparing this report.

In addition, the author is also thankful to the workplace supervisor, Engr. Md. Fazlul Haque, General Manager, Planning & ICT Division, BAPEX for giving me the chance to complete this practicum and for his relevant significant data & information throughout the period. His professionalism as procurement sector, technical experience, knowledge, genuineness, and motivation have all tremendously impressed me. The author is in sincerely debited to the officers and staffs of BAPEX for their support regarding access to collect the data and related information for this report.

However, Last but not the least I would want to convey my gratitude to my MPSM peers and coworkers, for their unwavering support, tolerance, and inspiration.

Executive Summary

In Bangladesh, BAPEX is the only one government owned oil / gas exploration organization for exploration, drilling and gas production for which procures goods, works and services as a large scale.

Due to the intermediary role in the economy, Energy & Power sector hold a unique position with regard to sustainable development. This intermediary role is both quantitative and qualitative. Due to the efficient production, transmission and distribution systems through line pipe / cable, energy & power sector are being capable to foster sustainability. Energy & Power sector expands rapidly to achieve sustainable goal as well as to improve their environmental, ethical and economic performance.

The study has been conducted with BAPEX's concerned officials by addressing three aspects of sustainability (TBL's 3P) to aware about the present scenario & policies of procurement practice and analysis on the strength, opportunities and barriers to adopt the sustainability in the public procurement of the different project executions.

An effective and formal commitment is requisite among the government bodies, procurement entity and project authorities through proper channel for effective sustainable development. Apart from, limiting of major obstacles, such as, financial barriers, land acquisition difficulties and bureaucratic complexities may create positive scope to adopt sustainability in procurement for project of BAPEX.

The report comprises a brief overview of the **Sustainable procurement policies and practices in BAPEX's Project Management to the SDGs**, along with brief scope of BAPEX, functions, and working procedure of the procurement department. The report also includes an analysis and evaluation of the different projects activities, procurement department and possible recommendation to improve the present status of the organization.

Keywords: Drilling, Exploration, Seismic Survey, Process Plant, Procurement, Supply Chain Management, Project Management, Sustainable procurement, PPR;

Table of Content

Declaration	iii
Letter of Transmittal	iv
Non-Disclosure Agreement	v
Acknowledgement	vi
Executive Summery	vii
Table of Content	viii
List of Tables	x
List of Figures	x
List of Acronyms	xi
Chapter 1 [Overview of Practicum objective]	
• [Background]	13
• [At a glance of Energy scenario of Bangladesh]	13
• [Objective]	15
• [Sample of Questions for preparing of report]	15
• [Scope of Study]	16
• [Limitation]	16
• [Report Preparation Methodology]	16
Chapter 2 [Overview of BAPEX]	
• [Organization Overview]	19
• [Function Of BAPEX]	20
• [Scope Of BAPEX]	21
• [BAPEX’s resources, product and services]	27
• [Contribution in national economy by BAPEX]	28
• [Gas Supply chain system of BAPEX]	29
• [The competitive advantages of BAPEX]	30
Chapter 3 [Literature Review on Sustainability]	
• [Review Introduction]	32
• [The Concept of Sustainable Development]	32
• [The Concept of Triple Bottom Line]	33
• [Sustainable Development Goals and Energy sector within SDG’s]	35
• [The eventual benefit of Sustainable Procurement]	36
• [The Conflict & trade off in Sustainability]	37
• [The importance of Sustainable procurement]	38
• [The Public Procurement;]	39
• [The Supply Chain Management;]	40
• [The Sustainable Project & Green Manager;]	41
Chapter 4 [Procurement of BAPEX]	
• [Method of Public Procurement in Bangladesh]	44
• [Stages of Procurement Process]	44
• [Sustainability addressed in Public Procurement]	46
• [Business Environment Of BAPEX product & services]	47
• [Forecasting of clients / end user’s needs and demand]	47

• [Comparison of procurement process]	49
• [Inventory through online E-store Management System]	50
• [Level of Procurement Activities]	51
Chapter 5 [Findings & Importance of Sustainable Procurement]	
• [Findings]	53
• [Consideration of Sustainable Development in context of Public Entity]	53
• [Impact of Process by oil & gas sector considering Environment]	54
• [Readiness of procurement department and PE]	54
• [Sustainability practices in BAPEX's procurement]	55
• [Feedback and suggestions from Procurement officials]	56
• [Such technical recommendation or possible ways the oil & gas industry is approaching sustainability]	58
Chapter 6 [Practicum challenges and Recommendation]	
• [Procurement Challenges]	61
• [Comparison of Practices with sustainability addressed in PPR]	62
• [Conclusion]	64
References	65
Appendix: A	66

List of Table

Table:1 List of BAPEX Drilled wells	72
Table:2 List of BAPEX Work over wells	74

List of Figure

Fig:1 Block Map of BAPEX	22
Fig:2 Production & Reserve Scenario	28
Fig:3 Supply Scenario	29
Fig:4 Six Principle of Sustainable Projects	42
Fig:5 Figure of BAPEX Gas Process Plant.	70
Fig:6 Figure of BAPEX RIG with capacities.	70

List of Acronyms

MD	Managing Director
GM	General Manager
PD	Project Director
CIPS	Chartered Institute of Procurement and supply
CPTU	Central Procurement Technical Unit
EGP	Electronic Government Procurement
HOPE	Head of Procurement Entity
EMS	Environmental Management System
GCC	General Conditions of Contracts
ICT	Information and communication Technology
EIA	Environmental Impact Assessment
IWRM	Integrated Water Resources Management
KPI	Key Performance Indicators
EMRD	Energy and Mineral Recourses Division
MLSS	Member of Lower Subordinate Staff
PPA	Public Procurement Act
PPR	Public Procurement Rule
DPEC	Department of Project Evaluation Committee
SOP	Standard Operating Procedure
IOC	International Oil Company
SP	Sustainable Procurement
SPP	Sustainable Public Procurement
DS	Drilling Superintend.
FIC	Field In charge
UK	United Kingdom
WLC	Whole Life Costing
TEC	Tender Evaluation Committee
ETO	Engineering Technical Order
EPC	Engineering , Procurement and Construction

CHAPTER- 1

Overview of Practicum objectives

1. Introduction:

1.1 Background

‘Sustainability’ designated the idea that humans must link with the environment in a way that ensures there will be enough resources left for the comfort of future generations at a similar present level considers economic, environmental and social sustainability. In a nutshell literally, it means the accomplishment initiate on today do not restraint our comfort or well-being in the future.

Although in today’s world is moving forward to establish sustainability in each sector but it is unfortunate that readiness and proceeding of sustainability in public sector is still in need of major concern in most of developing countries.

1.2 At a glance of Energy scenario of Bangladesh:

Our country's economy has been a true record-breaker in recent decades. It is one of the fastest-growing economies in Asia, showing stable growth. **For example, between 2013 and 2022 the average annual GDP growth was 6.41%, despite all the cataclysms the world experienced during that time.** Currently the 41st largest economy, Bangladesh will be the 25th largest economy by 2035. Due to the intermediary role in the economy, Energy & power sector hold a unique position with regard to sustainable development.

However, production growth inevitably entails an increase in energy demand, which Bangladesh has been unable to meet and is now facing a serious energy crisis. One of the reasons for the situation in which the country has found itself in recent years is the over-dependence of the Bangladeshi economy on natural gas, which accounts for **over 70 percent of the country's energy balance.**

Undoubtedly, the government is faced with the urgent task of diversifying energy sources, for which special attention is paid to the development of **nuclear power, renewable energy sources, and the coal industry.** Nevertheless, we have to admit that natural gas is the most efficient fuel and will play a significant role in achieving economic results in the long term in a sustainable way.

At present, according to estimates by the country's Ministry of Energy, the current demand for natural gas in Bangladesh is around **38 bcm/a, domestic production of this fuel, on the other hand, reaches only about 24 bcm/a.** At the same time, there is a trend towards a gradual decrease in production with a full depletion of reserves after 2038, while demand will only grow and by the same time will reach about **80 bcm per year.** *(Ref: Report from PB Report)*

This situation is largely caused by the depletion of existing fields and the lack of new discoveries due to insufficient exploration.

In order to overcome the crisis, the government is acting in several directions at once:

- Measures are being taken to limit the consumption of natural gas (higher retail prices, etc.);
- LNG supplies are being organized;
- Exploration works are being intensified, activities to increase production in the existing fields and to make working conditions in Bangladesh more attractive for international oil and gas companies (IOC's).
- Offshore exploration under JVC .

However, in recent year's whole world's oil & gas businesses have fallen in a awful situation due to different global aspects. Above all considering the authorities rules & regulation for environmental, social & health concern most the industries' possible goals are set to provide quality items maintaining low cost as possible as they can effort. In this manner energy sector have a great role for the industries to achieve their own target as well as to meet the occurred difficulties considering the good supply chain management.

1.3 Objectives:

The prime aim of the dissertation / appraisal is to find out the scopes and obstacles of endorsing the sustainability practices considering the activities of BAPEX. Hence to ease the study work the following sector is went through to move to the milestone objective.

- The organizational overview of BAPEX.
- The traditional method of procurement practices.
- Identify the supply chain operations of BAPEX.
- The Gas & HC exploration, production & delivery process considering sustainable procurement.
- To comprehend the obstacles, that the procurement department encountered when outsources for materials such as chemicals, drilling & production materials, software & equipment.

1.4 Sample of Questions & queries for preparing of report:

To accomplish the main milestone objective, the followings questions asked to different level of employee to conclude the report with some recommendation: (Detail is attached in annexure)

- What is the level of conception on sustainability?
- What is the awareness and readiness on sustainable issues within BAPEX?
- Some organizations face a lack of internal knowledge regarding sustainability and sustainable public procurement. How can you address this?
- How do you as an organization know which sustainability risks to focus on in the supply chain?
- As with any introduction of idea within an organization, it is important to have internal alignment. How do you ensure the alignment amongst management and other stakeholders, including employees, regarding the implementation of a sustainable procurement?
- Resources are essential when tackling sustainable procurement, in terms of time, funding, manpower, and information resources. How to deal with limited internal company resources as per rule of business?
- Let, a sustainable procurement process has been started, but it seems our suppliers are reluctant to engage. How should we approach this?
- The degree of practice in public procurement process as per PPR as regards sustainability?
- While preparing specifications, what's their preference between lowest price or lowest whole life costing?
- Identify the IEE, EIA environmental plan & policy / environmental reviews in BAPEX?

1.5 Scope of the Study

During the preparation of the study our main focus on associated public procurement process as per PPR-2008 following in different project of BAPEX. As only one nation owned largest oil & gas exploration, drilling & production agencies of the country, now BAPEX is implementing in an average of 5-6 development projects in the area of geological & geophysical seismic survey, exploration, drilling, workover, procurement of gas process plant and Rig & associated materials. Most of the procurement is processing by following the principle public procurement rules, procurement management guideline as well as by using e-GP platform accordingly as per applicability.

Although BAPEX exploration activities is executed to meet the national energy crisis, so the associated jobs on sustainability issues in procurement process is limited; but the importance of study on the existing degree of awareness about the sustainability practice cannot be ignored. In this manner the focus of the study is limited to addressing among the such officials of BAPEX who are involved themselves in public procurement.

1.6 Limitations

There are some common limitations of this report preparation, these are stated as below,

➤ Limited of effective Time

Time is the main constraint as like always to prepare such report. Due to scarcity of effective time the study has to be limited within recent completed 3 project only. To assess the total scenario about readiness and awareness on sustainable procurement within BAPEX as well as it might be more understandable if all the procurement documents under both revenue and development projects could be reviewed in the mentioned time.

➤ Defined & controlled Access to data

Considering time constraint maintaining the rate of data collection as minimum for the preparation of the report. It was limited within only respondents of projects and related to procurement activities for last 05 fiscal years. But for this study, tried to arrange the interview survey as well as awareness based meeting session and got the prompt responses in the regard. But by involving most of the officials along with data from more financial years may enrich the findings of this report.

➤ Insufficiency of documentation of relevant studies:

Like other government based organization sustainable issue is seemed very new, so it was found the numbers of similar type of report and practices relevant to this topic is limited.

1.7 Report Preparation Methodology

To prepare the report mostly fundamental data and some alternate relevant data are used from responses of sample questions.

For this purpose, some awareness based meeting session has been conducted by addressing the different aspects of sustainable procurement. Procurement official and management personnel from different procurement entity have been shared their views, idea and create an overall impression about the sustainability procurement considering the emergency of the energy sector.

1.8 Data collection

Almost fundamental data are assembled by interviewing one to one & discussion, communication through mobile and responds over email.

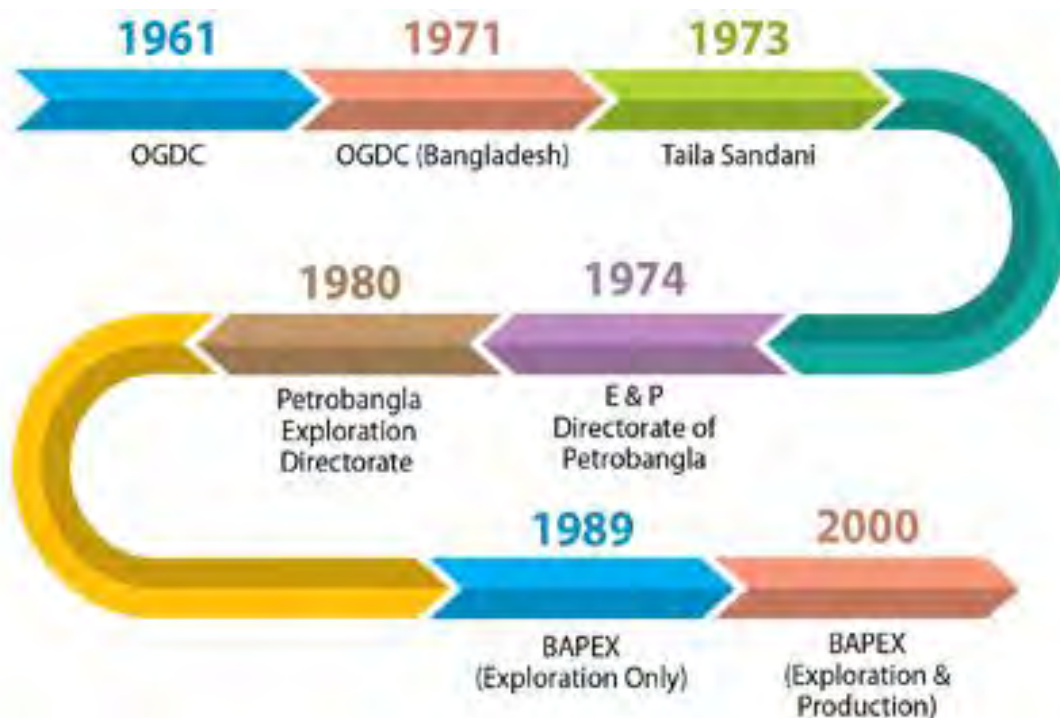
And the alternative data are assembled usually from Websites (CPTU, BAPEX, Petrobangla, IMED, Planning Commission, Wikipedia etc.) related articles, journals etc to analyze the feedback of respondents.

CHAPTER- 2
Overview of BAPEX

2.1 Organization Overview:

BAPEX emerged as an oil/gas exploration company under Petrobangla in July 1989 as per Government decision to expedite Petroleum exploration activities within the country. Subsequently, in February 2000, BAPEX was transformed into an exploration-cum-production company with a view to making it more dynamic and self-reliant.

Evolution of BAPEX



Currently, in addition to its main exploration activities in the awarded ring-fenced areas, BAPEX has been producing and supplying about 157 MMSCFD gas to the national grid from its 07 gas fields, namely Saldanadi, Fenchuganj, Shahbazpur, Semutang, Sundalpur, Begumganj and Srikail. The gas from all other gas fields is being supplied to the national grid and connected different Power Plant, Fertilizer, Industries.

Throughout its 29 years long experience in oil-gas exploration activities, BAPEX has succeeded to advance itself significantly toward international standards. The energy deficiency of the country can be successfully addressed if new gas fields are discovered through the ongoing “**Vision-41**” Drilling Projects of BAPEX.

2.2 BAPEX's Organizational Environment:

BAPEX is a govt. owned organization and the board of directors is the governing body of the company who is selected by Ministry, and they are given the responsibility for overseeing a top management such as Managing Director & the General Manager. BAPEX's Employees or the workforce, the most important element of an organization's internal environment which performs the tasks of the technology, engineering & administration for successful hydrocarbon exploration & production.

2.3 Functions of BAPEX

Considering the management functionality, At the first stage of planning to find out the Hydrocarbon potentiality of an area is assessed primarily by conducting geological, 2D /3D survey. Based on these technical report (i.e: GTO), Drilling and Production process is going accordingly by proper planning, financing and approval by the authorities.

In addition BAPEX has been equipped with three drilling rigs and two workover rigs that operated by Drilling and Engineering Division with the support of Well Services Divisions, Production Division & Laboratory Division.

2.4 Mission:

The mission of BAPEX is to carry out geological and geophysical investigation, drilling for the purpose of exploration, development and production of hydrocarbon as well as undertaking other business that support BAPX for becoming a financially sound and self-reliant Company

2.5 Vision:

To be the leading National Company in the country by conducting expeditious exploration and exploration of hydrocarbon for the sustainable economic growth of Bangladesh.

2.6 Strategic Goals:

Achieving consistent profitability and growth; Active environmental protection; and work out then idea of sustainable development.

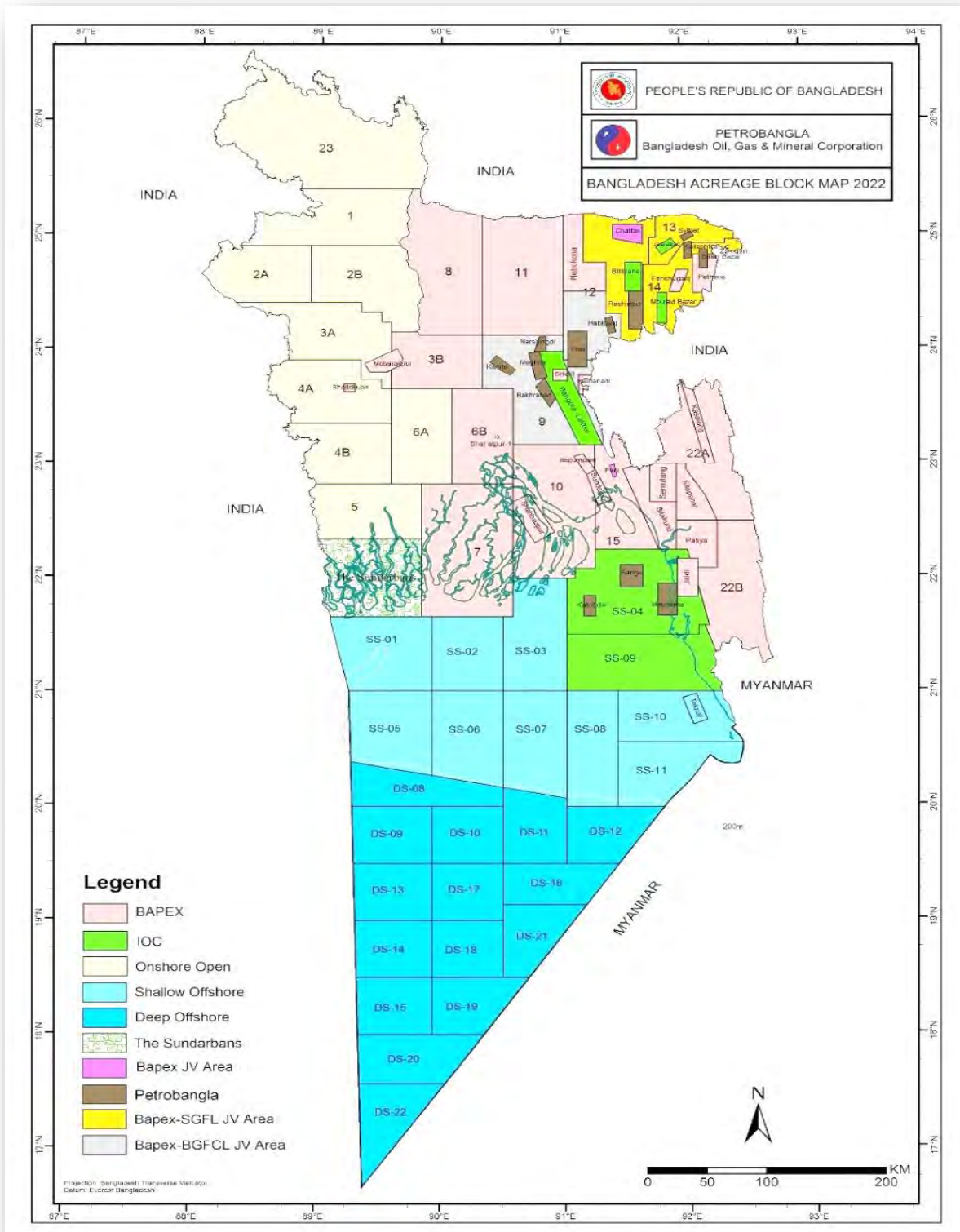
2.7 Scope Of BAPEX.

BAPEX activities are as follows within different divisions:



- a. Geological Survey
- b. 2D Seismic Survey
- c. 2D Seismic Survey
- d. Drilling of Exploratory Well
- e. Drilling of Development Well
- f. Workover Activities.
- g. Well Services (Cementing, Mud Engineering, Well Testing, DST)
- h. Gas Production by processing.
- i. Process Plant design and Automation
- j. Rig Engineering and Maintenance
- k. Laboratory Services
- l. Data Management (Archiving, Storing)
- m. Civil Engineering for Drilling Activities.
- n. Procurement of goods, works and services for above activities.

2.8 Block Map Of BAPEX:



2.9 Basic Functional Activities Oil & Gas Industries:

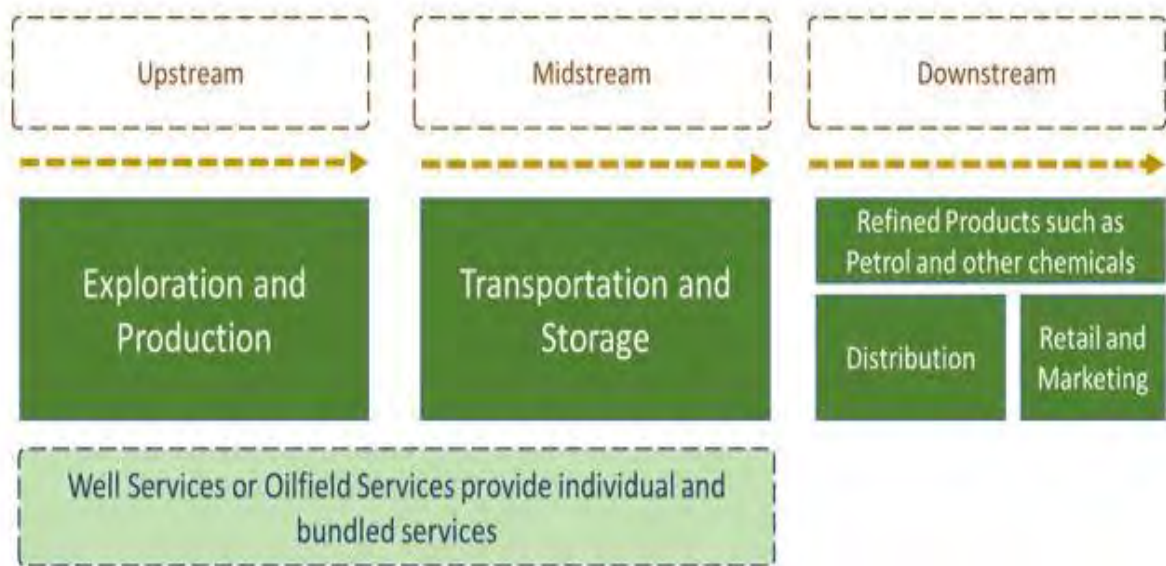


Figure 1: Value chain in the oil and gas industry

The terms upstream, midstream and downstream are often used to refer to the major sectors or operational components of the petroleum industry.

In general, the upstream sector involves the exploration for and extraction of petroleum crude oil and natural gas. The upstream oil sector is also known as the exploration and production (E&P) sector. The upstream sector includes the searching for potential underground or underwater oil and gas fields, drilling of exploratory wells, and subsequently operating the wells that recover and bring the petroleum crude oil and/or raw natural gas to the surface.

Whereas the midstream sector involves storing, marketing and transporting petroleum crude oil, natural gas, natural gas liquids (mainly ethane, propane and butane) and byproduct sulfur. Midstream operations are sometimes included in the downstream category.

The downstream sector involves the refining of petroleum crude oil and the processing of raw natural gas. It includes the selling and distribution of processed natural gas and the products derived from petroleum crude oil such as liquefied petroleum gas (LPG), gasoline (or petrol), jet fuel, diesel oil, other fuel oils, petroleum asphalt and petroleum coke. The downstream sector includes petroleum refineries, petroleum product distribution, retail outlets and natural gas distribution companies.

BAPEX main function realates with in terms Upstream and Midstream following scopes of different divisions.

Geology

- Geological Field Survey
- Basin Study/Basin Modeling, Reserve and Resource Estimation
- Prospects Evaluation for Oil and Gas
- Proposal for exploratory and appraisal wells
- Well Site Geology
- Mudlogging Services, Wireline Logging
- Log Interpretation and Zone Selection for Testing



Geological Field Work at Batchia Structure



Ferruginous Sandstone at Lokkhi Chara

Geophysics

- Geological Field Survey
- Seismic Data Acquisition (2D and 3D)
- Data Processing (2D and 3D)
- Data Interpretation (2D and 3D)
- Structure Identification



Seismic Data Processing Work Stations



Seismic Data Interpretation Room

Laboratory Services

- Petro-physical Core Analysis–Routine & Special Core Analysis
- Sedi-mentological Analysis, Bio-stratigraphic Analysis
- Fluid Analysis– Natural Gas- Seepage Gas Oil- Condensate, Produced/ Formation Water
- Core-Outcrop Analysis for Source Rock Evaluation
- Cement Testing for Well Cementation



Core Analysis



Micropaleontological Study

Research and Development

- Geological, Geophysical Data Storage
- Preservation of Magnetic Tapes and Reports
- Data Sale

Drilling

- Exploratory Drilling
- Appraisal / Development Drilling
- Casing / Tubing Setting
- Work Over Operations



BAPEX rig Bijoy-10



Top Drive Maintenance

Production

- Process plant designing.
- Process Engineering
- Reservoir Engineering/Management
- Maintenance & Engineering Modification of NG Processing.



Shahbazpur Glycol Type Gas Process Plant



Gas Process Plant Maintenance

Engineering

- Repair and Maintenance of Rig and Rig equipment, vehicles, transport/ special transport, crane, earth moving equipment etc.
- Mobilization/ demobilization of Rig and Rig & Drilling associated equipment etc.



DST Flare of Bhola North-1 Gas Fields



Mud Circulating System of Rig Bijoy-10

Technical Services

- Well Cementing
- Mud Engineering
- Well Testing



Maintenance of Rig Pump



Officers' Accommodations at drilling site

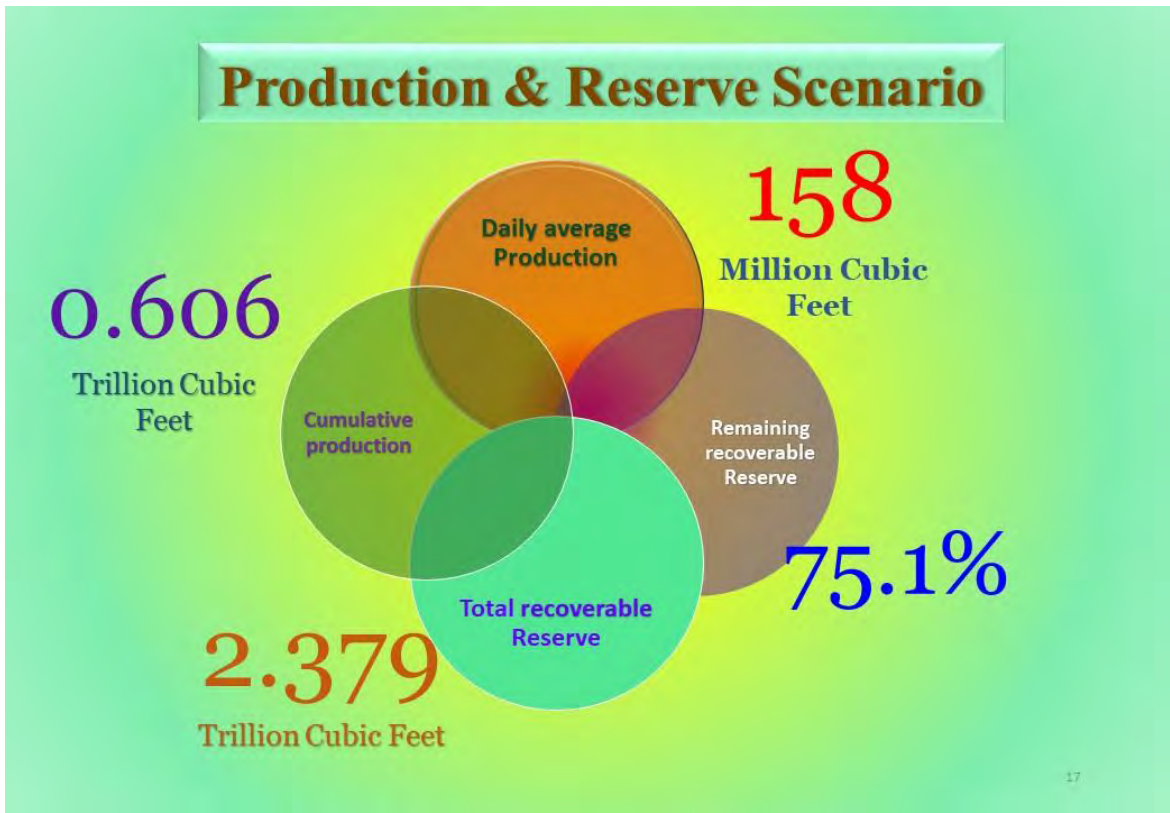
2.10 BAPEX's resources, product or services:

BAPEX started its Journey with the deputed manpower as well as the burden of capital with accumulated loss. Currently BAPEX has a total of 695 manpower comprising of 409 officers and 286 staff.

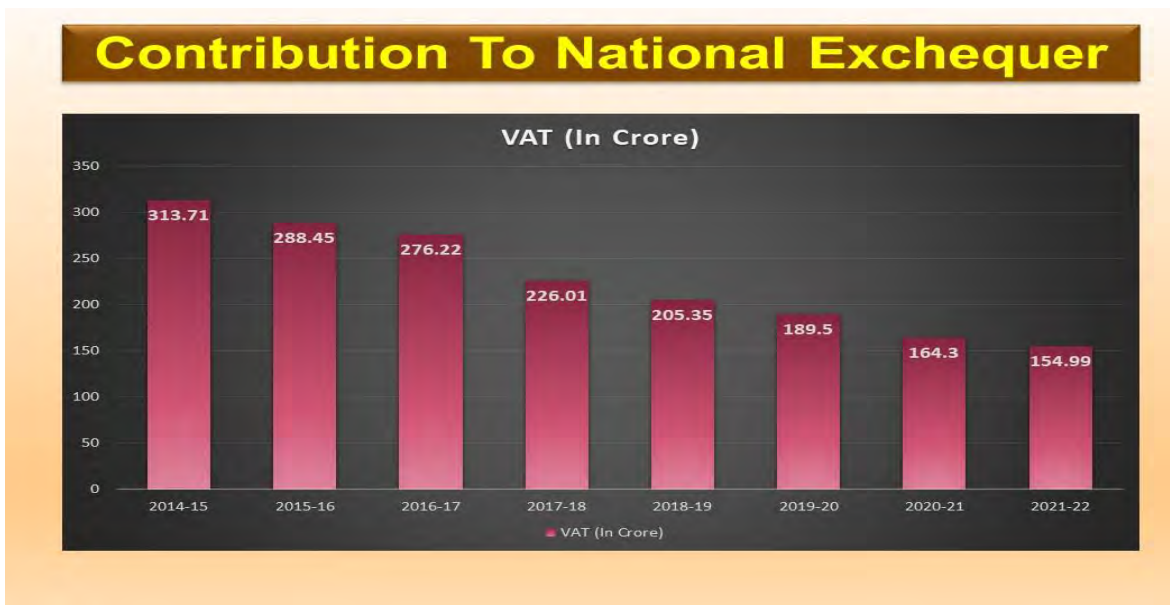
As an only national owned Oil & Gas Exploration and Production Organization, to execute any drilling activities its necessary to initiate 2D / 3D survey. after 2D / 3D survey the acquainted raw data is processed and interpritate. A G&G team analyzing the data locate the drilling point. Then prepare drilling programme, prepare procurement plan and hire different third party services. After successful drilling operation a reserve is estimated and going for gas production. Gas is processed with different type process plant and transmitted to national Gas Grid Line.

As an exploration & Drilling organization BAPEX facilitate service for its customer such as BGFCL (Bangladesh Gas Field Co. Ltd.), SGFL (Sylhet Gas Field Ltd.), different IOC (Tullow, Chevron) under different mutual contract. Along with BAPEX transmit the Gas to Grid which is operated by GTCL (Gas Transmission Co. Ltd.) and Liquid Condensate produced as by-product which was sold to BGFCL, SGFCL and BPC & Private Petrochemical Industries.

2.11 Contribution in national economy by BAPEX:



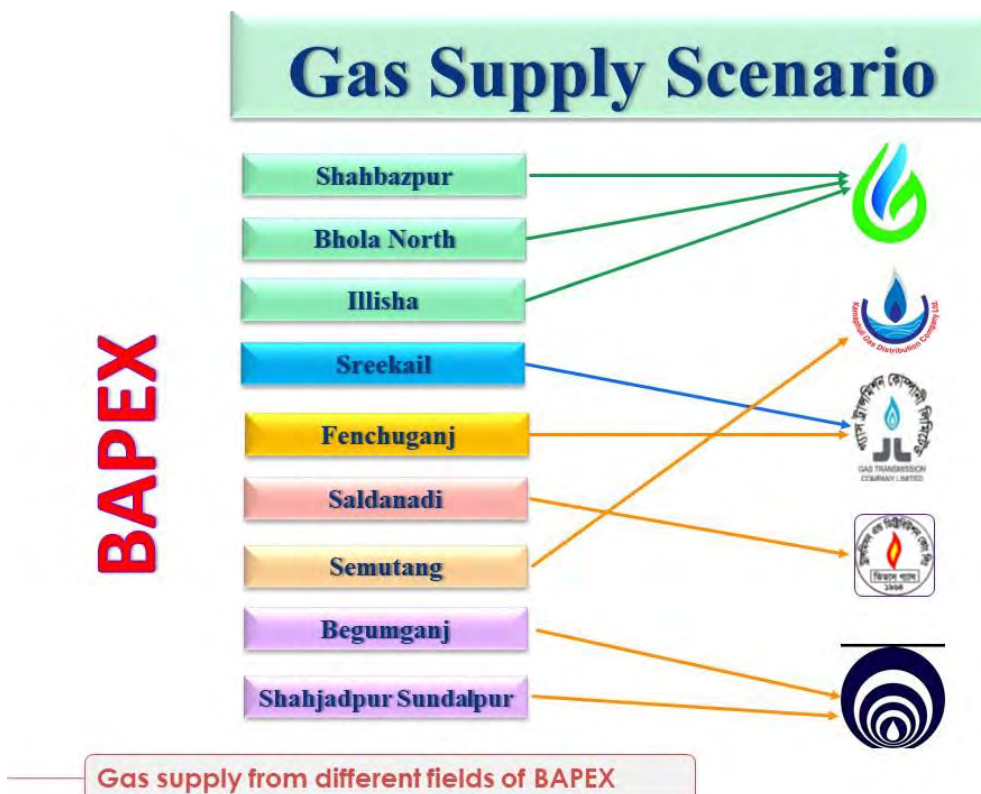
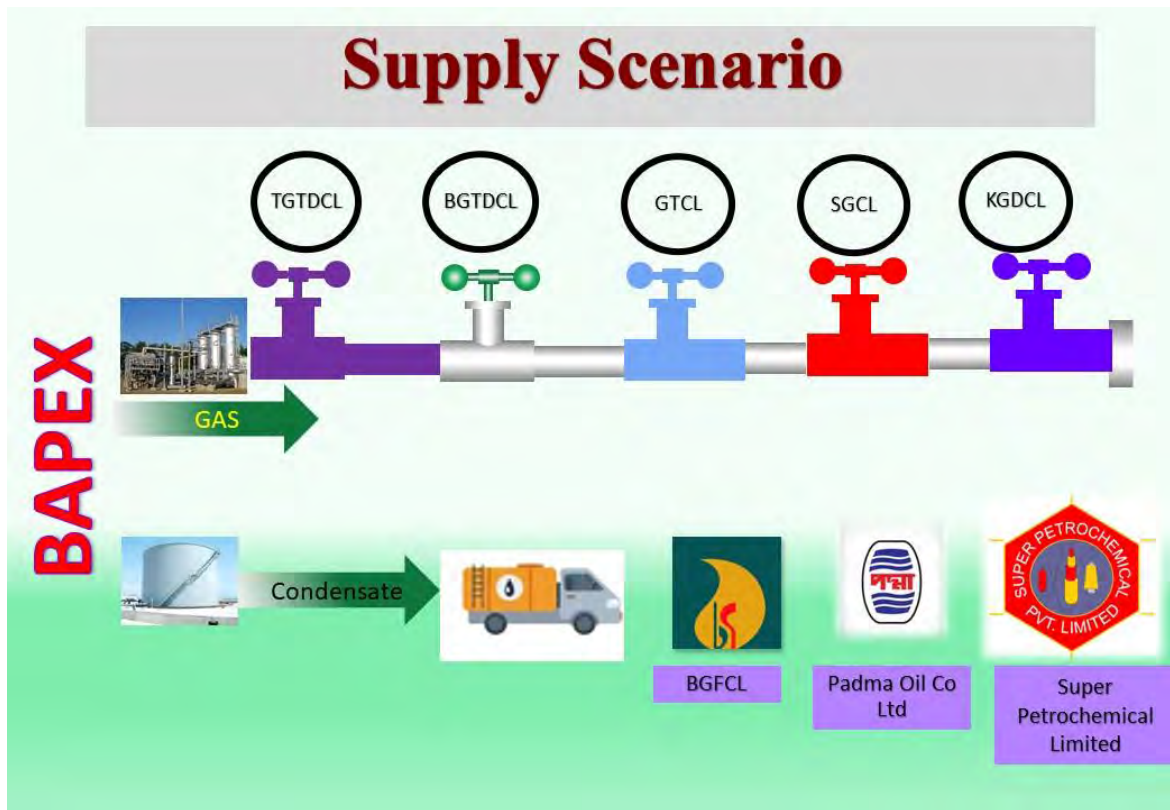
N.B: All Cumulative date processed till date Sep, 2023



Ref: BAPEX Annual Board Paper of 2022

2.12 Gas Supply chain system of BAPEX:

Product from Gas field is processed and supply as follows chain:



2.13 The Competitive Advantages of BAPEX:

The following few scopes that set this organization apart from the same others.

- Cost of works would be less than the prevailing global market price of Bangladesh.
- The drilling time is significantly moderate than the other Foreign drilling contractors working in Bangladesh.
- BAPEX will accept mid currency payment like, USD + BDT while working for other IOC's.
- BAPEX always trying best to deliver their services and consultancy on time.
- BAPEX owned three (3) drilling rig and two (2) workover rig with special & trained crews of these.
- BAPEX will adopt to undertake the works cost – effectively and on schedule with its state of the art Western technology and its rich regional experience.
- BAPEX maintain their service quality in accordance with SOP so tight.
- BAPEX have own modern equipment, software to compliance their job contract as turnkey basis with IOC & national companies.
- BAPEX have well-trained, educated and skill resources with workers
- Following best safety practices system during any exploration and gas processing activities..
- BAPEX's employees & workers are always trained themselves under different certified organization, by which they can easily make adjustment with the modern technology.
- The working force of BAPEX and its environment is good.
- Crews are holding duly certified International drilling certification.
- Cost regarding for Seismic survey is comparatively lower than other international organization working in Bangladesh.

2.14 At a glance of BAPEX:

For last 33 years BAPEX has been successfully accomplishing its oil / gas exploration and production activities. From its very emergence, BAPEX, the sole state owned oil and gas exploration and Production Company of the country has been working diligently to mitigate the energy crisis of the country through its unique activities despite various adversities.

The employees of BAPEX have to perform their duties in day-night shifts in isolation from their families in order to accomplish such specialized works. All the activities of oil and gas exploration, from the primary to the final stage, involve high level of risks. Risk of many kinds of incidents such as blow-out, high level of sound pollution and other form of accidents etc. may arise from use of various kinds of explosives, dangerous chemical and radioactive materials, erection and dismantling of heavy machineries and equipment and high-pressure gas/water etc. Despite all these adversities, the employees of BAPEX have been working relentlessly in overcoming the energy/gas crises of the country through its huge activities.

Ref: BAPEX Annual presentation of 2022

CHAPTER- 3
Literature Review
On
Sustainability.

3.1 Review introduction:

During conducted the meeting among with the officers of BAPEX regarding the report preparation the academic concept about supply chain, sustainability, Project Management, CSR, EGP. Especially the guideline of PPA-2006 and PPR -2008 as public procurement is presented as well as to aware about green concept in organization because in public procurement system within Bangladesh government fund is restricted to stick to these rules & guidelines.

To go through the depth in knowledge relevant report, electronic publications, books, websites, blogs have been reviewed.

3.2 Sustainable Development:

Development is a process that creates and generate growth, progress, positive change or the addition of physical, economic, environmental, social and demographic components. Two major considerable aspect of development are: Economic growth of increase in people's income. Social progress includes literacy, heath and the provision of public services.

Sustainable Development define as the development activity that can be sustain over the distant future without doing damage to the resources & environmental ecology required to preserve wellbeing into future as well as for next generation.

(Ref: defined by the Brundtland Commission in 1987)

Among the 17 goals of SDG the three key sustainable development addressed in energy industries; SDG7, SDG9, SDG11. SDG7: Affordable and Clean Energy in context of renewable energy technology, sustainable power generation. SDG9: Industry, innovation and infrastructure to guide the nation with the policy considering energy system analysis and application and transformation in energy and climate. SDG11: Sustainable Cities and Communities considering the energy demand and supply distribution system in the built environment & energy system economics.





It is well known and mind set in context of recent example that the prominence of industrial & economic development which brings change in society & evolution along with such massive notable environmental disasters (i.e., Fukushima Daichi Nuclear reactor power plant in 2011 during last tsunami, Chernobyl nuclear reactor explosion in 1986, Tengratila, Magurchara Oil & gas exploration in 2005 & in 1997 etc.) and lack of social injustices as well.

3.3 The Concept Of Triple Bottom Line :

Triple Bottom Line: In 1997, a business concept, ‘triple bottom line’(TBL) was introduced by John Elkington to spotlight the needs for the countries and organizations to measure their performance in all three areas (economic-environmental-social). It can also be said as 3Ps’ of sustainability that means Profit, People and Planet.



Figure 1: Triple Bottom Line

3.4 Several illustration of Sustainable Procurement is in context of Energy sector:

Considering the Economic Pillars

- Economic improvement
- Sustainable economic extension
- Expanding retail places & merchandise
- Evolution of SMEs
- Cost of overall life cycle of product
- Value for fund, capital, cash etc.
- Scaling down of poverty

Considering the Environmental Pillar:

- Resource Management for the Environment
- Bring down the rate of CO2 emission
- Supervision of Management of cycle of water
- Management of disposal in industry.
- Sustainable Farming
- Greenery all around.

Considering the social Pillar:

- Rights of People
- Safe & clean Drinking water
- Conformity of Natural Food.
- Increase social standard
- Decent wages, remuneration under existing Law
- Enforcement policies that forbid child labor.
- Energy for affordable price.

To achieve the SDG's key target at the best & fit practicable price, sustainable procurement practice should be ensure at best level.

However, the process of implementing the sustainable criteria and relevant policies in procurement may be established and designed differently considering the industry to industry's scopes.

3.5 Sustainable Development Goals and Energy sector within SDG's



Considering energy point of view BAPEX's project always align with the following target of goal # 07 as per project proforma.

Goal # 07: Affordable and clean energy for all

	Target		Proposed global indicator for measuring performance
7.1	Ensure universal right to affordable, reliable and modern energy services for all by 2030	7.1.1	Proportion of population covered by electricity facilities.
		7.1.2	Proportion of population primarily dependent on clean energy and technology.
7.2.	Significantly increase the share of renewable energy in the global energy mix by 2030	7.2.1	Shared value of renewable energy in total energy use.
7.3	Double the global rate of energy efficiency improvement by 2030	7.3.1	Measure fuel density according to primary energy and GDP
7.ka	By 2023, increase international cooperation in clean energy research and technology, including renewable energy efficiency and improve in cleaner fossil fuel technologies, and promote investment in energy	7.ka.1	International financial flows to developing countries in support of clean (non – polluting) energy research & development and (including mixed method) renewable energy production.

	Target		Proposed global indicator for measuring performance
	infrastructure & clean technology sectors.		
7.ka	By 2023, developing countries, especially least developed countries, small island developing states and land locked developing countries, in accordance with their own supporting programs, will improve technology, including the expansion of energy infrastructure, to improve modern and sustainable energy services for all.	7.kha.1	Investment in energy efficiency as a percentage of GDP, including the amount of foreign direct investment in financial transfers for sustainable development services infrastructure and technology.

Bangladesh has adopted the integrated Energy and Power Master Plan named as “ Gas Sector Master Plan Bangladesh 2017 (Final Report February 2018)”, which along with the PSMP 2016 creates a good analytical base for developing the energy sector as a whole including adopting necessary policies, regulatory interventions and investment need to develop the gas sector.

During execution of project, the authority of BAPEX is always taken care of the sustainability issues to contribute to the national economy as well as to achieve the relevant target accordingly.

3.6 The abstraction of Sustainable Procurement:

Sustainable procurement (SP) is align with the key concept of sustainable development. Although BAPEX’s activities (Geological survey, 2D / 3D Seismic survey, drilling, production etc.) in oil & gas industries relatively quiet different from some traditional business around the country, so in most cases it’s not feasible to follow the guideline of PPR of Bangladesh. But in every sourcing the relevant guideline to the sustainable procurement, mostly try to consider as per emergency of the activities.

3.7 Eventual Benefit of Sustainable Procurement

According to owns rules of business different organization set different key driver for sustainability. The followings are considerable eventual benefit of sustainable procurement within a business.

- Adherence
- Reputational or renowned Benefits
- Public accountability
- Ensure Social responsibility

- Competitive advantage with affordable price.
- Commitment of entire human resources of workplace.
- Commitment of Supply base side.
- Supply uninterruptedness
- Effective Cost Management.
- Low inventory.
- Innovation

3.8 Conflicts and trade-offs in Sustainability

Every benefit has some opposite reaction. Some possible conflicts, and trade- offs between business objectives and sustainability targets. These are,

- Every business make their target for the short term benefit considering **Cost** of product / works / service It may be by reducing cost & maintenance rather than waiting for long term return on investment. over the life of the cost.
- In terms of harming domestic supply markets, human rights standard, Green House Gas, Co2 emissions **Social and environmental responsibility** may sometime compatible in accordance with **economic performance**.
- Also in terms of **cost and sustainable development considerations**, influence for quality and compliance may be differed, such as engaging child labor, low-cost labour with poor standards etc.
- In order to attain the maximum value for cash, capital which is a fundamental objective of public funded procurement engage persuade on buying organizations to minimize costs.

3.9 Importance of Sustainable Procurement:

Beside the conflict and trade off the basic significant outcomes of sustainable procurement comes from the fact any of their brand positioning statement at the end of year. This help in enhancing its trustworthiness and achieving the vendor', client and stakeholder' confidence. Such common advantages of sustainable procurement are considered as follows:

Financial:

Turning to sustainable procurement will reduce overall performance costs and, by acquiring more effective and eco-friendly products and services, increase operating income.

Risk Management:

It will be able to map the challenges and opportunities to economic, legal, environmental, and social sustainability by including sustainable procurement methods. It will also be able to generate methods for managing them. Especially it confirm on compliance with industries polies accordingly.

Commitments and Goals:

By utilizing sustainable procurement practices and decisions, it will be feasible to reflect business ethics, values, and culture in accordance with applicable rules. Following the overall strategy of the nation, it will also be able to choose a sustainable procurement method.

By inheriting the sustainable procurement processes align with a company's business goals and objectives, in a long run the business will dominate the sector and this can significantly upgrade the company's financial spectrum.

3.10 Sustainable Performance Measurement & Auditing:

Various benchmarks & techniques, key performance indicators (KPIs), balanced scoreboards could be embraced to framing the supplier / vendor performance measurement.

Considerable of Auditing may be as follows:

- i. Selection of Contractor / Vendor / Supplier / Consultant
- ii. Functioning Contract and Procurement Management

Considering BAPEX's activities for the countries relevant adherence aspect, assessing conformance to rule & statute (i.e., Security clearance, HSE regulations, Explosive

storing, EIA), documentation for prescribed permits & certification and licenses (i.e., waste management & disposal licenses, Environmental Clearance, Export-Import License,).

3.11 Public procurement

Public procurement is the process in which utilizing and spending tax payers' money on procuring of goods, construction works and relevant services are regulated by the principles of transparency, accountability, and achieving value for money for citizens.

For sustainable point of view environmental compliance and relevant topics have been on the most global agenda since last various decades. Considering all procurement of BAPEX under PPR, authority is always keep on eye of the environmental issue specially. Now its mandatory to complete the assessment of EIA to conceive any project. In this way BAPEX is almost align with the procurement as well as execution of project in time.

However, while in many developed countries the sustainable procurement activities are almost common, but the expanding of awareness, practice and execution of these ideas is still relatively small in most developing countries due to the conflict.



Fig: Basic Cycle of Procurement (Ref: CIP's)

3.12 Supply Chain Management (SCM):

SCM is the dynamic management of the flow of procurement of goods, works and services and includes all processes that transform raw materials into final / finished products. It involves the active streamlining of a business's supply-side activities to maximize customer value and gain a competitive advantage in the marketplace.

Importance of Supply chain management (SCM)

- SCM is the centralized management that includes all processes that transform raw materials into finished / final products.
- By executing the supply chain system, organization can cut overabundance costs and deliver products / service to the consumer faster and more efficiently.
- Good & effective supply chain management keeps organization out of the headlines and away from expensive recalls and lawsuits.
- A supply chain manager is assigned with controlling and reducing costs and avoiding supply shortages.

3.13 Types of Supply Chain Models

Supply chain management does not look the same for all organizations. Each business has its own goals, constraints, and strengths that shape what its SCM process looks like. In general, there are often five different primary models an organization can adopt to guide its supply chain management processes.

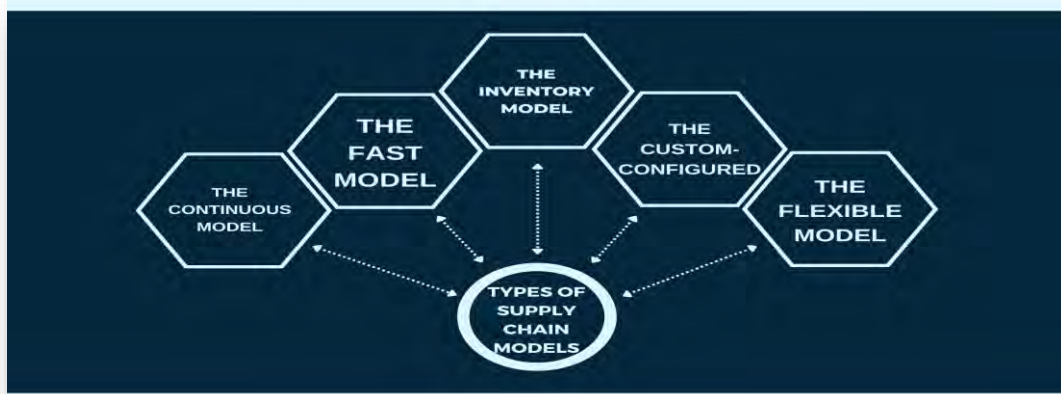


Fig: <https://www.edureka.co/blog/supply-chain-modeling/>

As BAPEX is typical technical government organization so no such above model doesn't suit for company's needs, it can always turn towards a custom model. This is often the case for highly specialized industries with high technical requirements.

3.14 Sustainable Projects

According to PMP, Sustainable Project defines a project as “an investment that requires a set of coordinated activities performed over a finite period of time in order to accomplish a unique result in support of the desired outcome.” In order for a project to be sustainable, the focus must be placed on value creation. Project requirements and constraints must include mitigation of negative environmental, social, and economic impacts and attainment of the benefits outlined in the business case.

The profession of project official is now moving beyond its traditional focus on time, cost, and scope to place the emphasis on delivering the objectives in the business case while maintaining an asset lifecycle focus.

Project management must make greater efforts to address each project’s social and environmental impacts so that the world we live in and that we are borrowing from future generations can regenerate and be sustained. In order to take this step, project management must move to a wider and well-rounded view of the project’s impact and value as illustrated below.



Ref: <https://greenprojectmanagement.org/>

3.15 Sustainable or Green Project Manager

A sustainable or green project manager is an individual who manages a project by employing a collection of diverse but integrated competencies to deliver on the objectives detailed in the business case. This is done by using and tailoring the appropriate methods, tools, and techniques for leading the project team, engaging stakeholders, and progressing the project while still safeguarding society, the environment, and human rights.

Sustainable project managers contribute to organizational goals while navigating complex cultures and dynamics to create benefits that support short- and long-term business strategies while simultaneously addressing our planetary constraints. As such, sustainable project managers have an important role to play as advocates, advisors, ambassadors, and architects of a better world.

A sustainable project will also adhere to some of six principles for sustainable projects:



CHAPTER- 4

Procurement Process of BAPEX

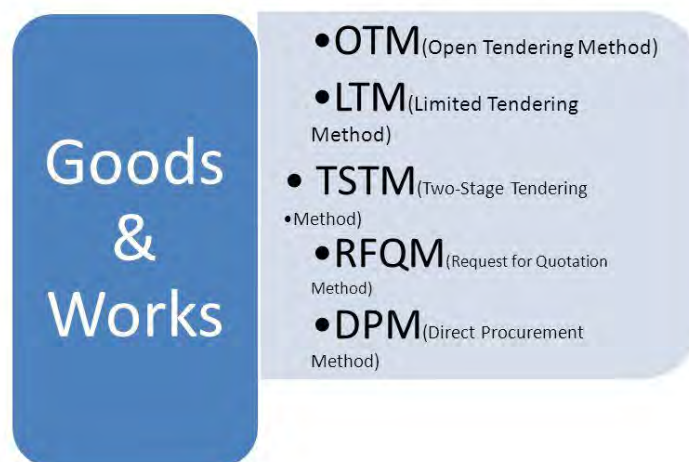
4.1 The Procurement environment of BAPEX's product and services

BAPEX is always practices of public procurement guideline by following the prescribed legal framework, regulations, the principles and features of public procurement PPR-2008 & PPA-2006 during any sourcing of goods/ works / services as required.

4.2 Methods of Public Procurement in Bangladesh

As per PPR-2008, Rule no 61 and 62, the following types of public procurement methods are commonly used for all types of government purchasing under revenue and development projects ,

Procurement Methods



To ensure equal participation as well as equal opportunities to almost supplier, the Open Tendering Method (OTM) / Two stage Open Tendering Method (OSTEM) is considered as preferable procurement method. But in some especial cases Limited Tendering Method (LTM) also followed by PE, to encourage the local suppliers by shortlisting of eligible bidders for urgent low-cost tenders in case of urgent scenario..

Among the above mentioned process there are some projects are considered under Quick Enhancement of Electricity and Energy Supply (Special Provisions) Amendment Act, 2010 (correction on 2021) to meet the energy crisis as well as economic stability

4.3 Procurement Process:

As per own business action plan it is needed to obtain the goods, works & services that followed a procurement process. There should be a systematic chronological stages to perform a procurement process such as Creating demand, confirming of budgeting for purchases, placing buy orders, organizing value, confirming the transportation along with

quality & quantity of buying goods, controlling inventory, managing stock, and transforming & mobilizing of disposal materials like (saline water, chemical etc.)

To reiterate, all personnel involvement is notified in supply chain from the production to in delivering any product into the hands of a customer. Basic stage of procurement process and step of success are similar as mentioned below:

Stages of a procurement process



Fig 12: Common Stages of Procurement Plan

(Ref: <https://kissflow.com/procurement/procurement-process/>)

In addition, the following figure illustrate the steps of successful procurement accordingly:

The 7 Steps to a Successful Procurement Process



Fig: Successful Steps of Successful Procurement

4.4 Sustainability addressed in Public Procurement

The Public Procurement Act, PPA-2006 and the Public Procurement Rules, PPR-2008 are the two fundamental legal books that regulate and guide the use of public fund within government organization during public procurement. Considering the size or volume of procurement, such numbers of Standard Tender Documents (STDs) for goods & works and Standard Request for Proposals (SRFPs) for services & consultancy are developed by CPTU .(Ref: CPTU Website)

Till now the public procurement system has not yet considered sustainability dimension as describe earlier 3P context. But integration of sustainable procurement parameters and selection of the “most advantageous” tender considering whole life cycle cost may help Bangladesh ensure maximize benefit. The following Table: 1 picturized the considerable of factors for sustainability those have been addressed in PPR’s documents.

(Ref: CPTU Website: https://cptu.gov.bd/upload/%20publication/2023-01-10-13-06-25-Draft-SPP-Policy_CPTU_09012023.pdf)

Table 1: Sustainability addressed in PPR, Bangladesh

	Articles addressed Sustainability Issues in PPR
Economic Sustainability	<ul style="list-style-type: none">• In PPR-2008 [Rule 15(2), Rule 15(7), Rule 29(2), Rule 29(3).]
Social and Ethical Sustainability	<ul style="list-style-type: none">• In PPR-2008 [Rule 15(2), Rule 29(5), Rule 29(3), Rule 83(1)e]• In STD-PW3 [GCC 27.1, GCC 28.1, GCC 29.1] [GCC 29.3, GCC 30.1, GCC 37.1]
Environmental Sustainability	<ul style="list-style-type: none">• In STD-PW3 [GCC 27.1, GCC 28.1, GCC 29.2]

4.5 Set out of the other guideline of international standard

As BAPEX main activity dealing with technological equipment and resources, so almost all bidding is prepared considering foreign participation. During preparation of tender document & evaluation process now BAPEX encourage the supplier’s standards to comply the international standard for sustainability procurement factors.

ISO: 9001: 2015 standards for ensuring the quality of Management and its product and services.

ISO: 20400: 2017 standards for providing guidelines on sustainable standard. In this way BAPEX confirm the supplier’s standard of economic, social and environmental sustainability.

ISO: 14001: 2015 standard sets out the criteria and mapping the framework & guideline for an effective environmental management.

ISO: 45001: 2015 standard sets out the criteria of the guideline for an occupational health & safety management system.

4.6 The business environment of BAPEX's product and services

As BAPEX main role align with Government interest as well as demand from others nation owned Oil & Gas Organization. As per government instruction Drilling proposal of any exploratory / appraisal / development well have been prepared on the basis of available 2D / 3D seismic data and analyzing 2D seismic data along with geological information of neighboring wells with approval of the G & G committee of BAPEX. During preparation & finalization of any project necessary feasibility studies (Environmental, Economical, Social) should be analyzed following rules of concerned authorities.

As the activities in related is highly technical using special team, tools, software and technique. For executing any project for survey, drilling, process plant design & erection, ETO approach is applied in which engineering definition starts only after a customer's order is received.

By applying ETO as a business model most of the project is implemented by the approach of Turn Key project inviting EPC Contractor. EPC Contractor provide design solutions for all parts of the overall project design. Along with our engineers can provide well-designed solutions for specific projects.

4.7 Forecasting of the clients / end user's needs and demand

Work programs have been set to carry out exploration and production activities with different duration of different projects as per the time-bound plan to implement the 'Vision-2041' of the government. The all out cooperation of the present government in transforming BAPEX as a technically and financially capable organisation will help it in expediting its activities and help BAPEX in achieving its aspired goal in the days to come. Finalization of 2D/3D data analysis BAPEX move forward for Exploratory drilling operation. After report of successful drilling of exploratory well a next development well is being proposed for drilling to estimate the actual gas reserve.

There are around 36 wells under nation owned oil and gas production Companies. Considering technical point if view some of these well flowing pressure is going to be declined comparing with its initial flow after certain time. Also due to increase of water production its trending of the decrease the gas production from the well. In these case as a service provider BAPEX would be proposed to recover, rectify and maintenance the wells that named as work over operation. Here service seeker and service provider meet and develop the SOP by the ETO approach.

In this way BAPEX is increasing and maintaining the steady gas flow to the national gas grid. During the last year (2022-23) about 142 (+/-) MMSCFD gas is being added to the national grid from different wells (i.e: Titas-13, Titas-7, Shahbazpur-3, Titas-24, Shahbazpur East-1, Sreekail-4, Fenchugonj-3, Begumganj-3, Sylhet-9) as per the proposal of BGFCL / BAPEX / SGFL.

4.8 The Resources or materials planning to meet that demand

BAPEX main function is Seismic Survey, Drilling, Gas Production. For executing all of the activities different types of special tools, Materials, highly technical software and hardware should be confirmed. Along with special trained personnel are ready to be assigned to these specific operation.

As a SOP to execute all of these activities and services always a safety well control, production maintenance, material planning is advised. Along with material planning different types of third party services (Wireline logging, Cementing, DST, Testing, Well completion) will be hired by a through competitive bidding.

Through utilization of accurate data for service demand from different division CEO able to develop a plan for capacity of BAPEX. This plan accounts for a varying demand and the maximum amount of product that can be produced and utilizes the most advantageous route for capacity. This saves facilities from high holding cost and prolonged lead times.

In pursuit of strengthening BAPEX technically and financially the process of recruiting new manpower, imparting necessary training, enriching BAPEX with modern technologies and equipment and many other necessary activities is in progress.

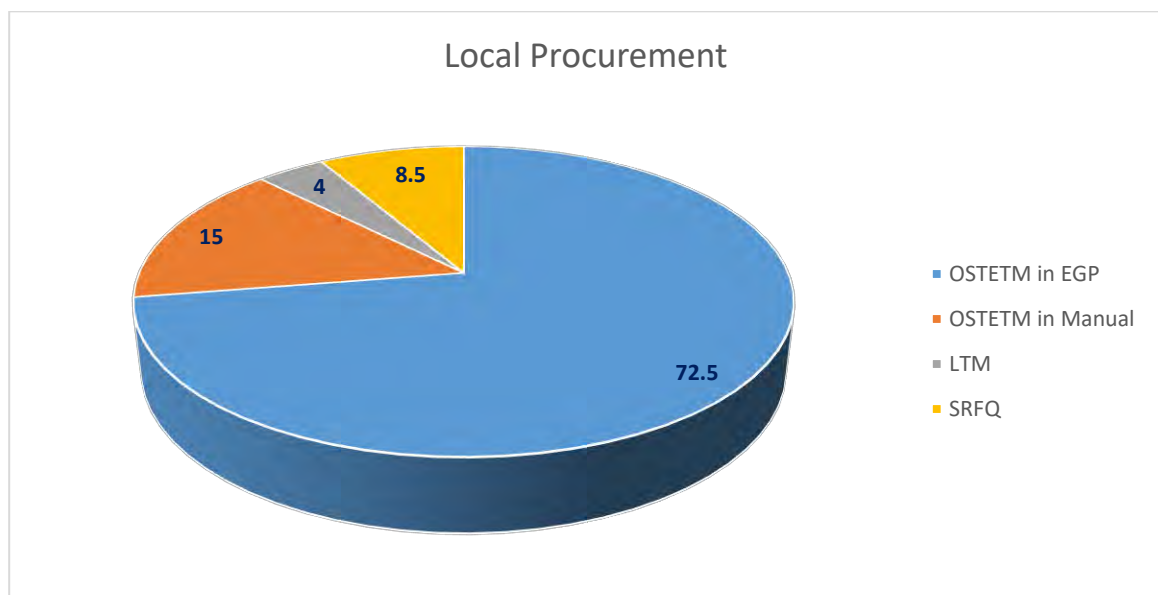
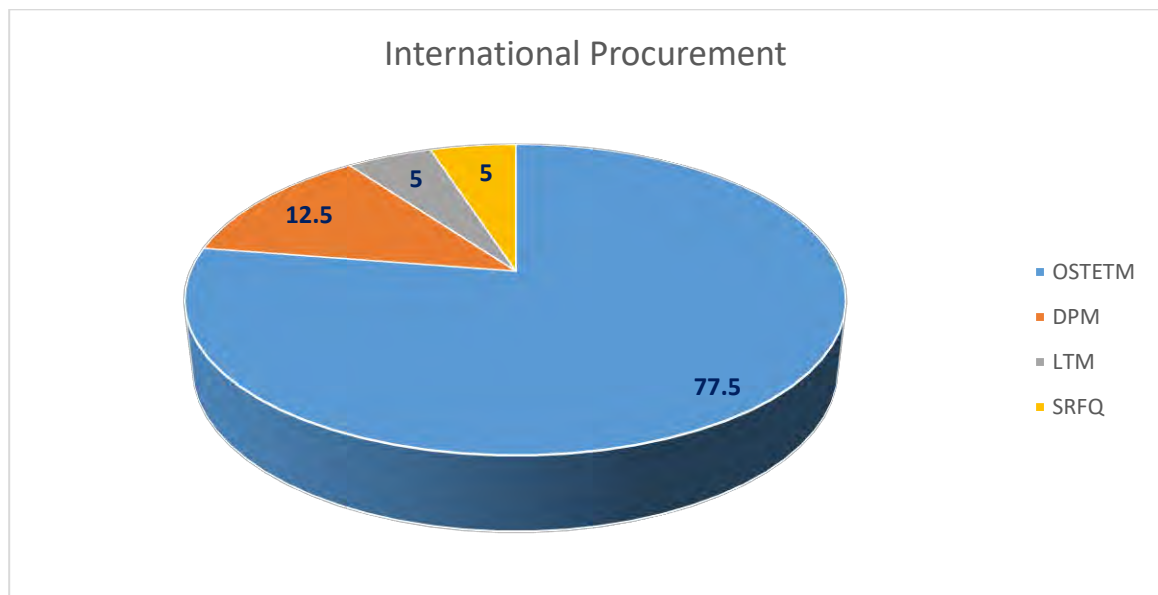
This DATA management now R&D division has been providing data to local companies as well as IOC's in accordance with the guidelines of Petrobangla and the relevant rules and regulations.

4.9 Selection of The Vendors and suppliers of the resources

BAPEX is engaged in joint operation under some production sharing contracts (PSCs) concluded under Bangladesh Offshore Bidding Round, 2012 with different IOC's at 10% credit share basis. Also participate in exploration activities along with IOC's considering their expertise.

As a both service provider and service seeker during seismic survey, drilling and gas production; BAPEX always confirms the quality and international standards (API / AGA/ ASME / BSTI/ BSTM / ISO etc) and practice. For this function different International renowned vendor and supplier is assigned and selected as per approval by competitive bidding during procurement.

4.10 Comparison of procurement process:



A team of concern specialties from different division prepared a technical specification and official cost estimate to prepare a Tender Document as per guided SOP. Procurement is process by following OTM (OSTETM) / DPM / LTM / SRFQ. Different type of International renowned vendor and supplier list provided with procurement and Tender Documents.

4.11 Matter of Logistic for the resources get into BAPEX

There are different criteria is followed as a logistic concern.

Considering Siesmic Survey, a huge manpower and transport facilities should be confirmed. In the manner BAPEX mobilized its equipment and resources by hiring third party logistic

company.

On the other hand for executing of the drilling / work-over operation BAPEX has to mobilized its heavy and huge of RIG and equipment to different locations. In these situation BAPEX has a huge setup of transport, logistic support facilities (such as Different capacities of Crane, Traylor, Truck, Fork Lifter, Bulldozer, Vouger, Tank Lorry etc.) and trained operator / personal. The support team has the capabilities to maintain the international standard and shortest lead time to mobilize, demobilize and installation of Drilling RIG.

Above all the local and foreign materials are shipped and transported to project site via ship and air way as mentioned in the Specification.

The Central Automobile and Electric Shop is an essential part of the Chittagong regional office as there is an automobile shop, an electric shop as well as various light and heavy vehicles are maintained. All the light and heavy vehicles such as long body trucks, pipe careers, trailers, careers, pick-ups, jeeps etc are repaired and maintained here. Electrical repair and maintenance are done of various machines, vehicles and generators in the electrical workshop. All the vehicles are used to carry all the materials into the complex as well as to the various locations as required.

There is a central machine shop and a drilling equipment shop in this department. Various as Rig and drilling spares as well as vehicles spares are made, repaired and assembled here.

Process of providing various training in various phases to the newly appointed officers including foundation training, professional development, management skills, procurement, HSE etc. in different government and private organizations.

4.12 Inventory through Online E-store Management System:

BAPEX has a central and modern warehouse at Chattogram. BAPEX has to equip variety of tools to conduct its plethora of tasks. All the foreign materials related to the exploration and production after clearing from the part as well as all the locally procured materials are stored in the go down, open sheds and open yards with due documentation. Necessary indexing, marking and ranking are also done for the materials.

BAPEX has established its web-based store management system to make store management more effective and efficient. All sort of imported foreign materials checked and stored in this warehouse by using a digital online inventory management system. There are also individuals warehouse located in each gas fields and different project site. All of these stoked items is entered into this software and monitored centrally.

For transparency in procurement almost all of the local tender of BAPEX's Goods and Works are being processed by e-GP system.

4.13 Level of Procurement Activities

BAPEX has 13 (Thirteen) divisions at Head Office, 10 Gas Field offices, 1 Regional Office at Ctg District offices and 6-10 Drilling, Seismic Site offices depending on active projects. Divisional office is headed by General Manager, Regional Gas Field office is headed by Field In charge, 6 Drilling / Seismic Site offices Drilling Superintend / DIC / Party Chief. In Project context Project Director is acted as Head of Procurement entity. And for rest others revenue expenditure and procurement Managing Director is acted as Head of Procurement entity of BAPEX. In regular procurement Three PE offices works for procurement as Goods, Works & Services.

For the procurement for the regular maintenance work under the revenue aspect, after taking and evaluate demand from each divisions, for Goods purposes General Manager (Administration) call tenders, for Works purposes General Manager (Construction) call tenders and for Services purposes General Manager (Planning / Administration / Construction) call tenders. But for all development projects of BAPEX, Project Director call tenders as per approved DPP / RDPP.

CHAPTER - 5

**Findings & Importance of
Sustainable Procurement and
Study of Project Management for
BAPEX**

5.1 Findings:

During the report preparation author decided to develop a questionnaire to collect such information and feedback that could finalize the conclusion of the report. After taking minimum survey & awareness meeting on sustainability, such analysis and discussion was done to find out the different findings.

The questionnaire mainly focused on the following:

- Readiness on sustainability of procurement by authority and PE.
- Capacity & degree of practices on Sustainability in Procurement at Management level
- Feedback, Comments and Suggestions

5.2 Consideration of sustainable development in context to public Entity:

The main principle of sustainability means Equity. By the principle, any business organizations can meet their necessity requirement considering the value for money throughout the product's life cycle. In long run these provide benefits to society, people and the environment over time.

By comparing the factors (such as time, cost, money, quality, visit and location) the process confirms **the purchaser secure the required items, services, or work at the premier affordable price.**

But in some constraint It's crucial to harmonize three core elements (People, Profit & Environment); interconnected and are all crucial for the wellbeing of individuals and societies.

Implantation of the following mandatory exercise may be achieved to establish sustainable procurement within the business:

- Adhere to existing EIA guidelines and environmental laws and goals
- Elimination of undesirable and potentially threatening items from the supply chain
- Ensure about the supplier's practices on fair & ethical labor management.
- Ensure the maximum use of eco-friendly materials, chemicals etc.

In the long run, sustainable procurement target oriented policies will ensure the well-being for businesses by improving advisability, product ownership, robustness of their monetary views & facts.

5.3 Traditional process used that impact the Environment by the Oil and Gas Sector

No matter how we frame it, oil and gas production isn't a "clean" process, but the crude oil produced by this industry is used to make petroleum products that fuel cars, trucks, and airplanes, as well as heat homes, and are used as ingredients in plastics and medicines. Like some of the ways the oil and gas industry by the process of BAPEX exploration activities may involve in affects the environment include the following.

- ✓ **Water usage and recycling** — Offshore oil & gas production consumes a significant amount of seawater. Also, extraction operations both crude oil and raw gas in onshore create production water, which is considered a waste.
- ✓ **Flaring and venting** — Flaring during natural gas production as well crude oil extraction is the controlled burning of waste gas which produces methane, a potent greenhouse gas. Venting is the controlled release of gas during production.
- ✓ **Drill cuttings** — When drilling below the surface to explore mines, drill cuttings are the loose pieces of clay, mud chemicals or rock that are left over, which may contain chemical additives from the process.
- ✓ **Drilling fluids** — Also drilling fluids (such as mud chemicals, bentonite, barite etc) can be discharged after treatment due to toxic waste disposal regulations.

By using of innovative purification technical process & tools such as ETP, Soak pit Management, Multi stage of water separation as well as by reducing the amount of waste the technical team produce, reusing disposals items instead of throwing them away, and recycling as much as possible, we can reduce the amount of waste that ends up in landfills and pollutes our environment. Another way to make our environment safe and clean is to use eco-friendly products.

5.4 Readiness of the procurement department and PE.

During questioners with sorting the feedback as well as arranging meeting with different division of BAPEX along with common stakeholders, Its observed, almost maximum officers have adequate conception about sustainability issues while processing the public procurement. It is found that they have engaged themselves in different trainings in PPR and qualified about public procurement of Bangladesh. Especially as now government instruct to provide necessary training and workshop among them.

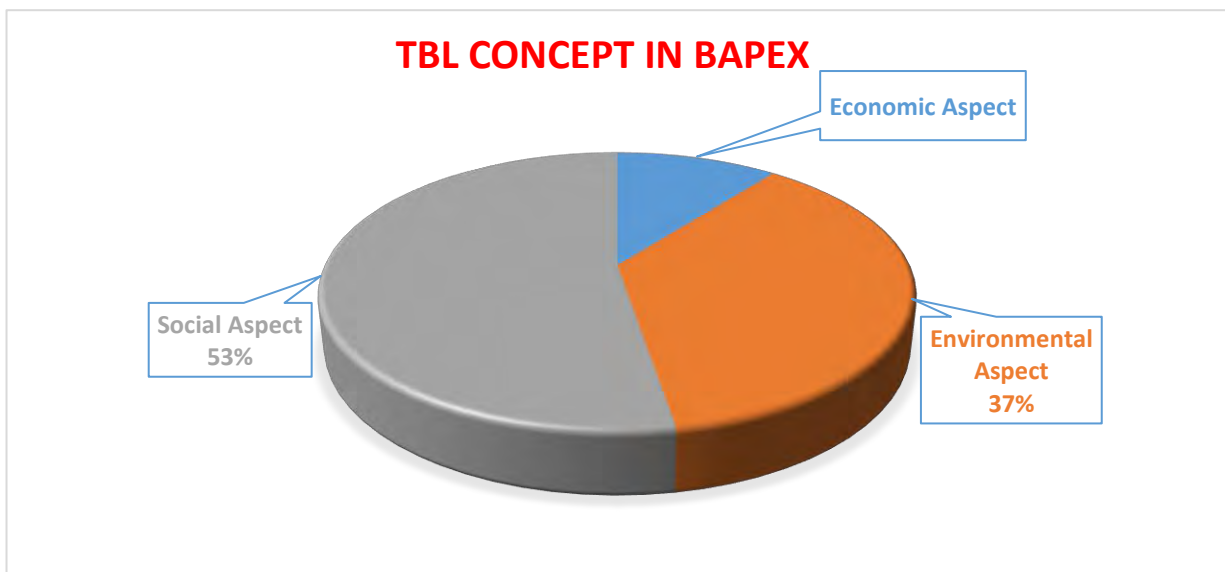
Also in this regard more than half of officer believe they are getting necessary support from their management, suppliers, office staffs and HQ, etc about the issues of sustainability. But one third anticipate it's limited and rest 10% deliberate they don't get adequate support as per their expectancy to execute.

Again most of all personal of Project put their opinion that regarding economic and social considerations there are scopes to include possible and feasible sustainable criteria in procurement process. But not least of 20%-30% anticipate that it is not always feasible to

include all types of criteria in bidding proposal that could ensure the sustainability due to such constraint considering not to maintained by the contractor during execution especially in construction.

5.5 Sustainability Practices in BAPEX's Procurement:

The questionnaire have also prepared to get the feedback from the respondents' comments on the common practices of sustainability in procurement considering the basic three categories.



- **Economic Aspect:** Considering the economic aspects, some (20-23%) agreed that PE office considers whole life costing rather than lowest price in procurement, but most of them think this practice is partial and least (10%) think it never happens. About 76% agreed about putting criteria in procure to encourage local contractors' participation.
- **Environmental Aspect:** In consideration of environmental aspect, most of them agreed that PE office should have Environmental Management System (EMS). Few of them consider environmental criteria for reducing noise level during construction but maximum said it cannot be considered always, but partial consideration is possible. In addition most of respondents agreed with practices of reducing water consumption, but others agreed for sometimes. For considering on reuse, recycle and disposal 20% officers agreed about doing so always, 60% said it is partial and 10% said it never happens.
- **Social Aspect:** The last sustainability issues considering the social or ethical issue on which the respondents agreed most among themselves with the different criteria. About cent percentage agreed that they follow principle of equality and comply with legal provisions in public procurement. Also 60% agreed about putting criteria regarding workers health and safety issues while 40% said they put it sometimes. 80% agreed

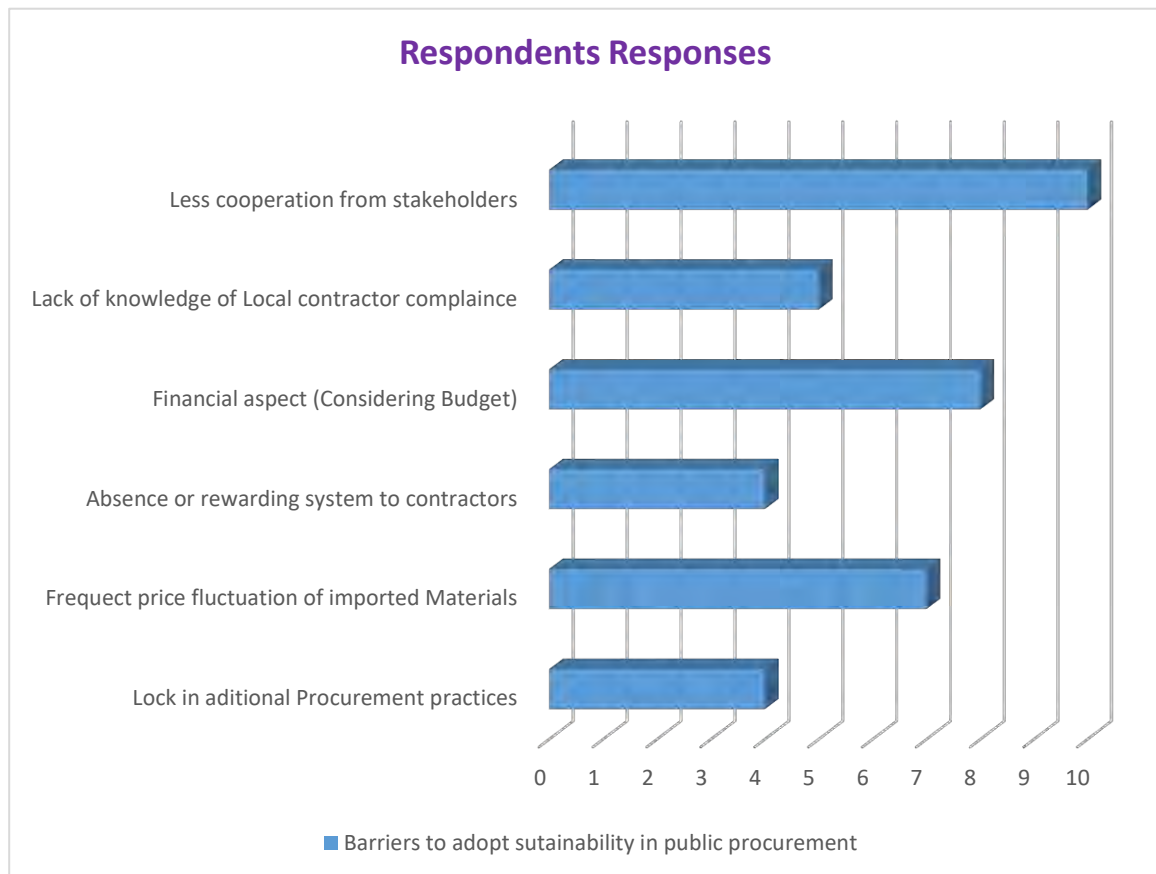
focusing on capacity development activities, 20% said they focus sometimes. About putting criteria regarding child labor and gender issues, 65% agreed that it happens sometimes but 35% said they always consider this criteria. And most of all believe that there is no regular compliance audit along with performance audit for suppliers code of conduct instead of traditional commercial audit in the procurement process.

5.6 Feedback and suggestions from the Procurement officials:

Finally, the comment is being collected by data from the last section of questionnaire. The officers' comments on 05 points are as follows.

- Main notable issue to be considered for conceive of New procurement for project (such as Drilling, Seismic, Production) for sustainability the possible findings in this regard are,
 - Proper demand and need assessment.
 - Consideration of Standard operating procedure.
 - Considering whole-life costing
 - Land availability and approval for Acquisition.
 - Proper Funding.
 - Appropriate Feasibility.
 - Preparation of most advantageous tender.
 - Competitive bidding must be utilized.
 - Consideration of availability of goods, works & service compromising quality and international standard.
- The meaningful matter to be considered for sustainability of the repair and maintenance and Procurement of equipment, The findings are,
 - Quality Work
 - Disposal Management
 - Ethical supplier
 - Low carbon emission
 - ETP / WTP Management.
 - Green Procurement.
 - Consideration of whole life-cycle cost
- Recommendation on any initiatives that the department may consider to adopt to meet the requirement on sustainability are as follows:
 - Maximize the use of alternative eco friendly green bricks instead of fired burn Brick for herringbone in drilling site, machinery foundation and approach / connecting road construction
 - Initiation to take measure regarding low carbon emission during plant design and installation.
 - Capacity Development of different entities (FIC / DIC / PC / DS etc.)
 - Confirming use of renewable energy as much as possible.

- Such obstacles is noted in exercising sustainable procurement & development at Field site, The following findings should be overcome for the successfulness of sustainability:
 - Bureaucratic Complex involvement.
 - Red tape pestering.
 - Fewer co-support from other local entities
 - Lack of know - how about public procurement by local suppliers/contractors.
 - Complexity & difficulties of Land acquisition.
 - Challenges of unpredictable weather condition.
 - Lock in conventional procurement enactment.
 - Rapid price & currency variation of materials.
 - Commonly barrier from Financial point of view.
 - Non practice of gratifying to the contractors who compliance the sustainability.
 - Non ethical supplier's influence.
 - Lack of top management support
 - Considering the biding winner with quoted by lowest price as the main selection principle.
 - Conception that sustainable procurement is expensive



- The further applicable motions regarding procurement point of view if they have,
 - Rigorously follow the rule & regulation of PPA-2006 and PPR-2008
 - Perform the proper need analysis and feasibility assessment as per rules of Business
 - Spontaneous cooperation and meeting with the stakeholders is important
 - Come out from the practice of execution of sustainability criteria for not only donor funded projects but it would be for all projects as a mandatory
 - Reward & Recognition should be given to successful & ethical Officials / Contractors / Supplier.
 - Reduce the financial barriers as minimum that will improve the quality of supplied goods, construction works and services.
 - The issue of recycling material may increase the difficulty of buyer quality.
 - Inadequacy guideline & knowledge on implementing the smart technology like ERP, online based service tools.
 - Employee always seeks a high turnover from his own organization.
 - In sufficiency procurement cycle time. Because most of sustainable based raw materials is not available near about the country and its needed to import from different outsourced whereas purchaser intend to allow short lead time for orders.

5.7 Such technical recommendation or possible ways the Oil and Gas Industry is Approaching Sustainability

Since oil and gas will remain a significant part of the global energy mix for many years to come, companies will need to develop transparent and proactive sustainability strategies. Here are several ways the oil and gas industry is approaching sustainability.

1. Improving Freshwater Usage

Considering not only BAPEX as onshore area, in offshore oil & gas industry water is a vital part of the oil production process, particularly in fracking operations. Each day in the oil and gas industry, hundreds of millions of barrels of freshwater are used. In case of BAPEX's gas process area especially during dispose of oily water after to soak pit, addition of two or three step water filtration could reduce the impurity of that dirty oil water when it exposed to environment.

2. Streamlining Processes

When oil and gas companies can operate more efficiently, this can reduce waste and make the entire operation more sustainable. For example, O&G companies can use advanced analytics to reduce bottlenecks, waste, and on-site accidents. They can also use things like 3D imaging to inspect the inside of oil wells to make more informed decisions about safe and efficient operations.

3. More Used Oil Recycling

Not all oil & produced gas is usable. But traditional oil disposal methods are wasteful and harmful to the environment. More oil and gas companies are starting to use small-scale waste-oil systems that refine used oil and transform it into diesel fuel to minimize the pollution.

4. Reducing Methane Leaks

According to the International Energy Agency, methane emissions are the second-largest cause of global warming, and many originate from the energy sector. By addressing malfunctioning equipment, using better components, and pledging Net Zero Emissions by 2050, oil and gas companies can play an essential role in minimizing the adverse impacts of this activity. But in gas processing industries its not technically feasible to recirculate the low pressured flare gas to main stream. But in some constraint we could use cold burning instead of hot burning system.

5. Greater Use of Renewable Energy

Although in context of BAPEX and such oil / gas industries in Bangladesh its yet not started to plan to invest in clean energy, but for all project execution started to invest in renewable energy (solar energy) to meet the guideline of environmental rules in small scale.

6. Green procurement:

During procurement now a days a practice is being started to select the vendor who satisfy the ISO 14000 (relevant to maintain the environmental guideline). In this way BAPEX ethically committed to the sustainability procurement.

CHAPTER - 6

[Practicum challenges and Recommendation]

6.1 Procurement Challenges:

Officer engaged in procurement has to play with a great mixture of challengeable tasks. The head of procurement (HOPE) are repeatedly distressed about controlling public funded money during enforcing procurement policies mentioned in PPR. The aspect of procurement is being overrun by innumerable procedures, maintaining inventory, monitoring product lifecycle, contract management & negotiation, notification of award, L/C, request management, Payment & Billing and more.

Some of the following typical procurement issues that affect businesses in different aspects:

- **Avoiding of different risks:** The major concern in the construction works, procurement process is supply risk. The most common risk in sourcing of foreign goods are exchange rate, inflation, market risks, embryonic deceit, political instability, cost of production, investment inadequacy, quality, standard, and delivery & transportation threats.
- **Long process cycle:** As BAPEX's activity is act as emergency basis as well as connected with the policy of national economy development. So to meet the emergency of operation most of the cases procurement of highly technological materials, equipment, materials and relevant services are executed on a short notice and under different compulsion. In the manner, the ultimate actual lead times and procurement timeline usually take notably prolonged than desired plan or anticipated.

The findings of usual causes for delaying of procurement process:

- Delay due to the preparation of technical specification collecting information & requirement from different department.
 - Lack of proper attention in the procurement schedule & BAR Chart.
 - Unnecessary stretch out the cut off point for bid submission and proposals.
 - Overlooking the schedule and prescribe time limit of Bid evaluation.
- **Inaccurate information:** To the information is the power for preparing a good bid document. Nevertheless, in some time it's not provide in time with desired information. In this case, there a possibility of incorporate of misinformation that means procurement decisions & process would not be accurate and trustworthy. Also lack of information can be a cause of shortage in inventory, excess inventory, excess unnecessary expenditure and other procurement difficulties that may have a direct impact on the organization's overall performance.
 - **Strategic procurement:** At the beginning of the business everyone notice the positive impact of having a strong procurement strategy in place as the procurement process becomes more strategic and collaborative. But a major issue is figuring out how to implement each phase's strategic implications across all functional business units.
 - **Issues from Suppliers point of view:** The communication and management issue with supplier and vendor is one of the enormous challenge in procurement. Especially selection of the appropriate and efficient vendor / contractor and ensure the steady supply of prime and quality good, service & works are all challenging tasks.

As development means improving in all aspect (social, economic & environmental), so now a days the importance of non-economic factors along with the economic factor in public funded procurement has been increasing remarkably with the concept SMART development worldwide.

After several discussion as well as awareness campaign among officer it is noted that officials have equitable understanding on the different sustainability issues because they had attend in several trainings, workshop on PPR, E-gp, E-governance, Speedy energy Special act, Contract Management and relevant academic certification with such experiences on public procurement. In addition, as per their dedication & sincerity in own job responsibility to optimize the target of sustainable as per availability of use of natural resources and public properties accordingly.

Again, It's fact that sustainable procurement cannot be carried out beneficially unless procurement activities are processed in a professional manner and efficient way. So, the procurement process should be carried out by the dedicated official with know how on details of procurement as per prescribed PPR.

At the end of practicum, it is noted that the official are trying to follow all of the guideline on sustainability, but in Table 2 it derived the current degree of practices of them following the scopes addressed in PPR guideline,

Table 2: Comparison of Practices with Sustainability addressed in PPR

SI	Sustainability issues addressed in different rules Public Procurement PPR 2008	Practices of Sustainability during Public Procurement implementation as per DPP (Practiced / Not Practiced /Partially Practiced)
01	As per PPR-2008: [Rule: 15(2), 15(7), 29(2), 29(3)]	Practiced. Considering the works activity its found from the feedback of respondents that official estimated cost is prepare following the prescribed schedule of rates of PWD / LGED. Especially in local cent percentage bidding is processing by e-GP system that ensure the maximization of local participation. The above practices in local Tenderers help to comply these rules of PPR by confirming generalized specifications, statement, level playing field of participation as well as use of local goods and resources etc.

SI	Sustainability issues addressed in different rules Public Procurement PPR 2008	Practices of Sustainability during Public Procurement implementation as per DPP (Practiced / Not Practiced /Partially Practiced)
02	As per STD-PW3: [GCC 27.1] [GCC 28.1] [GCC 29.1] [GCC 29.3]	<p>Partially Practiced. As per point of finance person it always express “Sufficient fund allocation is not always available & reduce the cost of procurement”. So due to financial barriers, lack of understanding on quality in terms of cost, the evaluation of bidding process may not carried out properly as per PPR.</p> <p>Although during execution of project the issue related to the health and safety of working force is not practiced as usual. But in recent different agency & system is develop to ensure the practice of HSE, EIA regarding compliance issues with legal framework. Also now its maintained and treated effectively by involving knowledgeable members in TEC.</p>
03	As per STD-PW3: [GCC 30.1] [GCC 37.1]	<p>Partially Practiced. As per guideline of donor-funded projects such benchmark regarding forced labor, underage labor, juvenile exploitation, child slavery, child servitude, gender equality are actively practiced, whereas it is not adopted actively in other projects (GOB, Own funded) due to some neglect.</p>
04	[GCC 27.1, STD-PW3]	<p>Practiced. Prescribed Environment Management guideline and criteria (i.e: green procurement) regarding sound & air pollution on the basis of noise level & dust level, polluting the source of water, water consumption etc. incorporated in tender documents are well practiced at Project Site. Especially EIA, IEA study should be complied before conceive any project and trying to adopt and maintain the guideline of the certification.</p>

6.2 Conclusion:

Bangladesh is going an emerging country in recent decades and as per different opinion its noted Bangladesh is the 30th largest economies in 2023 with a GDP size of 467.9 billion USD. So in this aspect sustainability is considered as the prime concern everywhere using the public fund. During the correspondence & feedback it has been narrated that the readiness level of the procurement entity considering sustainability is quite notable but the practice level is not achieved at confident level. Regardless of facing different challenges and difficulties, lots of way are open to practices with the issues for the successfulness of sustainable procurement in different programs and projects.

In addition, both procurement officials & associated field officials are willing to coping sustainability practices with each other entities, stakeholders (i.e: local authority, political figure & leaders, contractors, journalist, mass beneficiaries) but facing the different drawback like land inadequacy, process of land acquisition, source of funding, natural calamity ,weather challenges, bureaucratic complexity etc pull them back to traditional bidding environment .

Also in recent decade as per policy of green procurement, different type of innovative carbon management technology and instrument is accordingly to reduce the carbon emission as per capabilities as well as for ensuring the business. In conclusion, for the overall successfulness of the execution of sustainable procurement, its should be required a proper formal support from top management as well as from government agencies. Otherwise, sustainability cannot be implemented except an idea of thought.

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HCU: Hydrocarbon unit : [https:// hcu.gov.bd/](https://hcu.gov.bd/)

BAPEX: [https:// www.bapex.com.bd](https://www.bapex.com.bd)

Investopedia: www.investopedia.com

Planning Commission of GOB: plancomm.gov.bd

Ref: <https://greenprojectmanagement.org/>

BAPEX AGM Report-2022, 2023

APPENDIX A: Questionnaires / Agenda of Discussion in Meeting

Title of Dissertation: Sustainable procurement policies and practices in BAPEX's Project Management to the SDGs.

Name: Mohammad Ahsanul Amin, Project Director, Drilling of Bhola 3 wells, BAPEX

[N.B: To conduct a report on finding the readiness of practices of sustainable procurement in BAPEX for the purpose of the degree 'MPSM' at the BGID, BRAC University the attached survey questionnaire is requested to provide your valuable feedback.]

1.0 General

1.1 Title of the Division & Project

1.2 Position of service in BAPEX

(a) Admin (b) Technical. (c) Finance (d) Project Based (e) Other. (Specify)

1.3 Designation:

2.0 Basic Procurement involvement:

2.1 Comment about the Organizations Annual turn over and volume of procurement of goods, works & services? (in approx. Lakh Taka)

2.2 Your role in the procurement (Goods / works / services with %).

3.0 Regarding Economic Aspect

3.1 What's your thought of preference between lowest price or lowest whole life costing during procurement ?

3.2 What's your comment to encourage participation of local firms in the tender documents by including criteria / consideration regarding sustainability?

4.0 Environmental Aspect

4.1 What's the HSE policy / SOP / Environmental measure system in BAPEX or projects of BABPEX? (If Yes, Please specify)

4.2 How the guideline or KPI checklist is defined to measure the performance of its development partner / vendor / supplier /Consultants regarding environmental aspect? Please describe if brief.

4.3 Your experience that you are carrying out / have faced relevant to environmental initiatives?

4.4 Is BAPEX set any guideline which could enhance environmental performance of BAPEX such as carbon emission by process industry, fuel use in vehicle?

4.5 What is the consideration so that the development partner / EPC confirm the limited legal standard during procurement (e.g. noise level, carbon emission, leakage of disposal)?

4.6 Is there any action plan to manage the end use (i.e. disposal; such as saline water, drilling cuttings, Mud Chemicals, explosive etc.) of products / process / services in BAPEX's drilling site & gas field?

5.0 Social Aspect

5.1 Is all potential suppliers / contractors apply equally participated or exclude some suppliers/ contractors from participating as per prepared specification?

5.2 Do your PE put any criteria in tender document or contract for evidence of ethical labour practices (i.e: applicable & compliance HSE standards) from the suppliers / contractors during bidding?

5.3 Do the suppliers/ contractors comply on the standard of child labor force participation and gender equality?

6.0 Valuable feedback about the readiness on sustainability.

6.1 Considering the TBL aspects (Environmental / Social / Economical) of sustainable procurement as per SDG's , please suggest more distant initiative that can boost up BAPEX to fulfil the goal of SP 7?

6.2 From your experience in public procurement which would be possible obstacles to delay the reediness of sustainable procurement in BAPEX?

Thanks for your heartiest co-operation.

Table : 1 List of BAPEX RIG

Name of Rig	Year of Procurement	No of Drilling & WO
IDECO, Mechanical Drilling Rig (1700 HP)	1983	22 (06 Work-Over)
IPS Cardwell, Electrical Drilling Rig (1500 HP)	1987	23 (05 Work-Over)
BIJOY 10 (ZJ70DBS), Electrical Drilling Rig (2000 HP)	2010	06
BIJOY 11 (ZJ40DBT), Electrical Workover Rig (1000 HP)	2011	06 (06 Work-Over)
BIJOY 12 (ZJ50DBS), Electrical Drilling Rig (1750 HP)	2014	02
XJ650T, Mechanical Workover Rig (650 HP)	2018	01 (01 Work-Over)
P-80, Mechanical Workover Rig (Auctioned)	1980	15 (15 Work-Over)

Table : 1 List of BAPEX Gas Field

Name of the Gas Field	Production Capacity	No of Well	No Of Producing wells	Current Flow (MMSCFD)	Type of Process Plant
1.Salda Nadi	5	4	1	5	30 MMSCFD TEG
2. Fenchuganj	12	5	2	12	60 MMSCFD Silica Gel Type
3. Shahbazpur	135	5*	4	85	70 MMSCFD + 60 MMSCFD TEG + 20 MMSCFD TEG
4. Semutang	1	6	2	1	30 MMSCFD TEG
5. Sundalpur	8	2	1	7	30 MMSCFD TEG
6. Sreekail	38	4	3	29	60 MMSCFD Silica Gel Type
7. Begumganj	8	3	1	8	30 MMSCFD TEG
8. Rupganj		1	0	0	30 MMSCFD TEG
9. Bhola North (Not Producing)	40	2*	0	0	Possible capacity: 40 MMSCFD
10. Illisha	20	1*	0	0	Possible capacity: 20 MMSCFD

Company wise **Drilling** by BAPEX

Table : 2 List of Drilling activities:

Drilling at BAPEX

Well name	year	Well name	year
Zaldi-1,2,3	1964-70	Salda-4	2015
Semutang 1,2,3,4	1967-69	Sreekail-4	2017
Muladi 1,2	1975-81	Mobarakpur-1	2017
Begamgonj 1,2	1976-77	Sundalpur-2	2017
Singra -1	1980-81	Shahbazpur East-1	2017
Fenchuganj-1	1985-88	Bhola North-1	2018
Patharia-1	1989-92	Salda North-1	2018
Shahbazpur-1	1993-95	Kasba-1	2018
Saldanadi-1	1996	Semutang South-1	2019
Saldanadi-2	1999	Jakigonj-1	2021
Fenchuganj-3	2004	Sreekail East-1	2020
Sreekail-1	2004	Tabgi-1	2022
Shahbazpur-2	2008	Bhola North-2	2023
Sundalpur-1	2011	Sreekail North a-1	2023
Saldanadi-3	2011		
Fenchuganj-4	2011		
Kapasiasia-1	2012		
Sreekail-2	2012		
Sunetra-1	2013		
Sreekail-3	2013		
Begamgonj -3	2013		
Fenchuganj-5	2014		
Rupganj-1	2014		
Semutang 6	2014		
Shahbazpur-3	2014		
Shahbazpur-4	2014		

Drilling at BGFCL**Drilling at SGFL**

Well name	year
Feni-1	1980-81
Kamta-1	1981-82
Sitakunda-1	1983-88
Meghna-1	1990
Narshingdi-1	1990
Titas-16	2005
Titas-15	2005
Narshingdi-2	2007
Habiganj-11	2007
Titas-17	2013
Bahrabad-9	2013
Titas-18	2013
Titas-27	2014
Bagura-1	1988-89
Feni-2	1994
Bangura-6	2016

Well name	year
Bijanibazar-1	1980-81
Atgram-1	1981-82
Kailastiala-1,2,3,4	1995
Kailastiala- 3	1996
Kailastiala-4	1997
Kailastiala-5	2006
Kailastiala-6	2007
Kailastiala-7	2015
Sylhet-9	2020

Table : 3 List of Workover activities:

Work over at BAPEX		Work over at SGFL	
Well name	year	Well name	year
Shahbajpur Well-1	2004		
Fenchuganj well-2	2008		
Semutang-5	2011		
Salda-3	2011		
Salda-1	2012		
Shahbajpur-4	2016		
Shahbajpur-2	2017		
Shahbajpur-1	2018		
Shahbazpur-3	2020		
Srikail-4	2020		
Fenchuganj-4	2021		
Fenchuganj-3	2022		
Saldanadi-2	2022		
Semutang-5	2022		

Workover at BGFCL

Well name	year	Well name	year
Kamta Well-1	1984	Bakhrabad Well-9	2013
Chatak Well-1	1986	Titas-27	2014
Titas Well-1	1987	Bakhrabad Well-5 (3rd)	2014
Titas Well-3	1987	Titas-11	2016
Feni Well-1	1988	Titas-21	2016
Titas Well-4	1992	Titas-10	2016
Bakhrabad Well-4	1993	Titas-2	2016
Bakhrabad Well-5	1993	Titas-5	2016
Bakhrabad Well-5	2009	Titas-1	2017
Bakhrabad Well-2	2009	Hobigonj-1	2018
Titas-14	2009	Titas-15	2017
Titas Well-4 (2nd)	2010	Bakhrabad-1	2019
Hbj-11	2010	Narshingdi-1	2019
Megna-1	2010	Titas-13	2019
Titas Well-12	2010	Titas-9	2019
Titas-17	2013	Titas-7	2020
Titas-18	2013	Titas -24	2023