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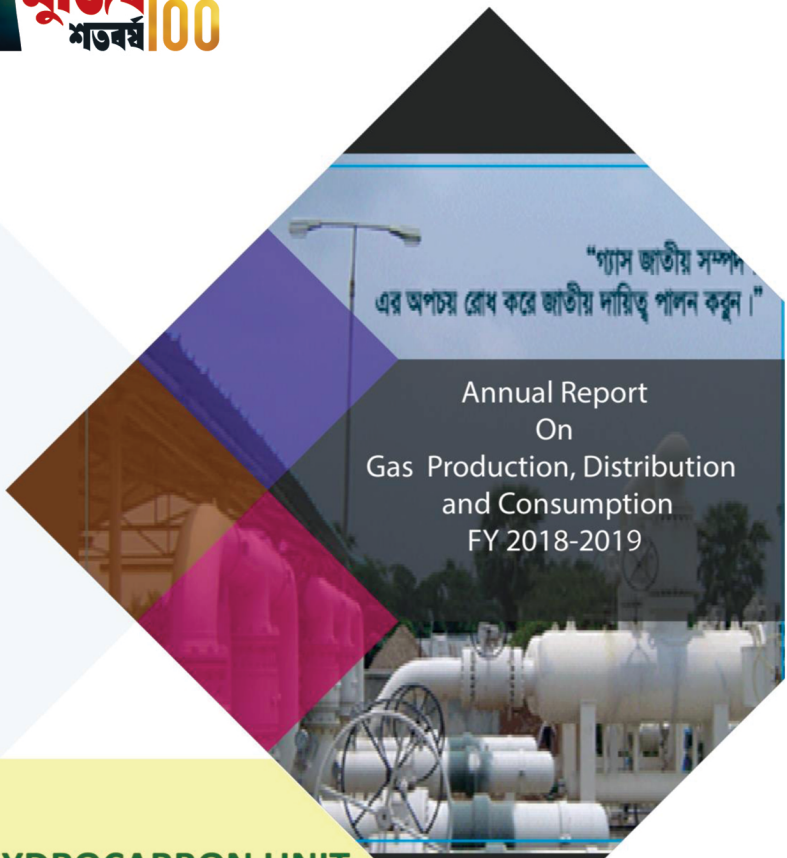

Annual Report On Gas Production, Distribution and Consumption FY 2018-2019

HYDROCARBON UNIT
Energy and Mineral Resources Division
Ministry of Power, Energy and Mineral Resources

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Preface

Annual Report entitled Gas Production and Consumption was prepared and published by Hydrocarbon Unit for the first time in October 2005. The present one is the issue of Annual Report on Gas Production and Consumption for the period of July 2018 to June 2019. In this report, gas production by State-owned Enterprise (SoE), International Oil Companies (IOC) and Joint Venture Undertakings in Bangladesh have been reflected. Daily average gas production rate and Condensate-Gas ratio have been included in the report as well. Moreover, sector-wise gas supply and consumption along with Unaccounted for Gas (UFG) have been illustrated with a monthly graphical presentation.

This report has been prepared based on the data available from the Monthly Reserve and Gas Production Report of HCU and Monthly Information System (MIS) of Petrobangla.

It is expected that the report will be helpful as reference book and elements of interest for the concerned.

The report will also be available at HCU's website: www.hcu.org.bd

Date: November 2019

A S M Manzurul Quader
Director General (Joint Secretary)

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1.0 Background:

First exploration in Bangladesh is recorded at the beginning of 1908. It was BOC (Burmah Oil Col Co). BOC conducted surface geological mapping in Chittagong area. During 1910 to 1914 exploratory wells were drilled in Staked and presence gas was recorded. These wells were drilled by BOC and IPPC (Indian Petroleum Prospecting Company). Due to First World War exploration activities ceased. After the 1st World exploration activities resumed and during 1923-33 two wells were drilled by BOC in Path aria structure in Baralekha Bazar. Both the wells had oil and gas shows. After the Second World War due to political reason exploration activity remained suspended. However after end of World War II, due to political reason exploration activity remained suspended.

After Independence of India and Pakistan in 1947, exploration activities resumed in 1951. Pakistan Petroleum Limited (PPL), a subsidiary of Burmah Oil Company (BOC), started exploration in greater Sylhet area. This resulted in first discovery of gas in Sylhet (1951-55). Four years later in 1959 gas was discovered in Chattack. Pakistan Petroleum Limited (PPL) was the operator for of these two gas fields. Pakistan Shell Oil Company (PSOC), a subsidiary of Shell Oil started exploration and discovered gas in Rashidpur (1960), Titas (1962), Kailas Tila (1962) and Habiganj (1963).

Gas Production in this part of the world started in 1960-61 fiscal year when Sylhet and Chattack, both the gas fields were open for production. Production from Titas and Habiganj gas fields started in 1968. State participation in petroleum exploration started in 1960

when Oil & Gas Development Corporation was created with technical assistance from former Soviet Union. Semutang Gas Field was discovered in 1970-71.

After independence of Bangladesh, technical assistance from former USSR (former) reestablished and exploration activity picked up momentum. Begumganj, Feni, Kamta gas fields were discovered during this period. Offshore area of the country was awarded to international companies. During last decades new gas discoveries were made by both national and international companies. Updated estimate placed GIIP at 35.80 Tcf and reserve at 28.69 Tcf (Updated Report on Gas Reserve Estimation 2010, Gustavson Associates LLC, USA).

2.0 Summary:

2.1 Gas

Annual gas production report is based on gas and condensate production data received from gas production companies. Information on gas sales and purchase by the producers and distributers is collected from MIS report of Petrobangla. In 2018-19 fiscal years total production of gas logged 964.74 Bcf and daily average production was 2643.12 MMcfd. During the year well wise maximum daily gas production was 1270.52 MMcfd and well wise minimum gas production was 0.76 MMcfd. During the two Eid holidays gas consumption is significantly reduced. During the year some of the wells were shut down. At the same time a number of new wells were open for production. i Production is little higher than previous year . In 2017-18 fiscal year total gas production was 960.77 Bcf and daily average production 2633.25 MMcfd.

In 2018-19 increase of annual gas production was 3.97 Bcf and daily gas production was 10.88 MMcfd. Total producing gas field was 20. Gas production is largely depended on Bibiyana, Titas, Jalalabad and Habiganj gas fields. This four gas fields provided 84 percent (2220.41 MMcfd out of total daily gas production is 2643.12 MMcfd)

During the year 112 wells in 20 gas fields were flowing. However during the year a number of wells were shut down. On the other hand new wells were added to the production stream. At the end of the year 112 wells were flowing. During this year National Companies produced 376.10 Bcf gas from 70 wells which equals to 1030.41 MMcfd. Minimum gas production was recorded from Semutang gas field (0.76 MMcfd).

Chevron and Tullow Oil these two international companies remained active during the period. IOCs production logged 588.64 Bcf which equals to 1612.71 MMcfd. .

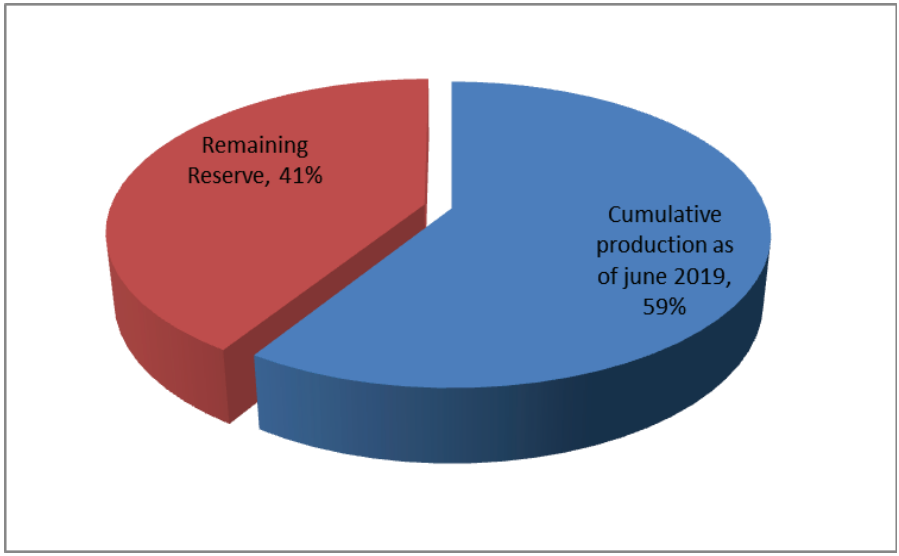
Report on annual gas production of this year 2018-19 is prepared using daily gas and condensate production data. Information on gas and condensate production was received from the gas production companies. Information on gas purchase and sales is collected from MIS report (June 2019) of Petrobangla.

In the current year four gas fields, Bibiyana, Titas, Jalalabad and Habiganj gas fields produced 810.45 Bcf gas and average gas production was 2220.41 MMcfd. Remaining 154.29 Bcf gas is produced by 15 gas fields.

Table 1: Reserve and Production up to June 2019 at a glance

Gas Initially in Place (Proven + Probable)	35,796.19 Bcf	35.80 Tcf
Recoverable (Proven + Probable)	28,685.40 Bcf	28.69 Tcf
Cumulative Production as of June 2019	16,928.12 Bcf	16.93 Tcf
Remaining Reserve	11,757.28 Bcf	11.76 Tcf

Figure 1 : Gas already Consumed & the Remainder



2.2 Liquified Natural Gas (LNG)

To meet the growing energy demand of the country, the government initiated the import of LNG from abroad. At present, a total capacity of 1000 mmcfd LNG is added to the national grid.

Since August 2018, total 115.89 Bcf LNG is added to the national grid.

- Agreement with Excelerate Energy, Singapore has been signed for setting up FSRU. Already, floating LNG terminal of capacity daily 500 mmcf re-gasified LNG has been installed in Maheshkhali in Cox's Bazar district. Since August 2018, total 106.03 Bcf LNG is added to the national grid by Excelerate Energy.
- SUMMIT LNG Terminal Co. (Pvt) Ltd. has signed the Agreement (BOOT) to set up FSRU at Maheshkhali in Cox's Bazar district with a capacity of supplying daily 500 mmcf re-gasified LNG. A total 9.85 Bcf LNG is added to the national grid since April 2019.

Table 2: LNG Import upto June 2019 at a glance

Total LNG Import in June 2019	**16.56**	**Bcf**	**0.02**	**Tcf**
Cumulative LNG Import from August 2018 to June 2019	**115.89**	**Bcf**	**0.12**	**Tcf**
Cumulative MLNG Import from August 2018 to June 2019	**106.03**	**Bcf**	**0.11**	**Tcf**
Cumulative RLNG Import from April 2019 to June 2019	**9.86**	**Bcf**	**0.01**	**Tcf**

3.0 Gas Productions: (National Gas Producing Companies)

Three national and two international companies produced 964.74 Bcf gas and well wise average daily gas production was 2643.12 MMcfd. During this year increase in gas production was 3.97 Bcf and daily average gas production was 10.88 MMcfd.

Out of total production national companies share was 1030.41 MMcfd. Total production of national companies during the year was 376.10 Bcf. In the past year total production by national companies was 1055.72 MMcfd. 70 wells were open for production during the year.

Out of total production IOCs share was 1612.71 MMcfd. Total production of IOCs during the year was 588.64 Bcf. IOCs produced this volume of gas using 42 wells. During this year maximum gas production was recorded from Bibiyana Gas field. Table (Below) compares company wise gas production for 2018-19.

MMcfd	BAPEX	BGFCL	SGFL	Chevron	Tullow	Total
2018-19	115.84	788.05	126.52	1522.60	90.11	2643.12

During the year maximum condensate recovery was 8799.30 bbl/day from Bibiyana gas field. Jalalabad gas field occupied second position and daily condensate recovery was 906.91 bbl/day. Condensate recovery from Kailas Tila gas field was 474.14 bbl/day. In addition to condensate, NGL, Kerosene, HSD, and MS are recovered. Condensate recovery arranged according to volume.

Table below shows volume of liquid products in 1000 liter from well stream.

FY	MS	HSD	NGL	Condensate	SKO
2018-19	181716.36	52090.926	27305	658723.03	23081.147

In 2018-19 fiscal year BAPEXBGFCL and SGFL operating 20 gas fields in the country. Among them 17 fields are in production and 3 fields are suspended. During the year total production of national companies logged 376.10 Bcf, which equals to 1030.41 MMcfd. National companies produced through 70 wells i.e., average well wise production was 14.72 MMcfd.

3.1. Bangladesh Petroleum Exploration and Production Company Ltd. (BAPEX):

BAPEX is the Exploration and Production Company of Petrobangla. During the year this company operated 9 gas fields i.e. Begumganj, Shahbazpur, Salda, Fenchuganj, Semutang, Sundalpur, Srikail, Rupgonj and Feni gas fields. Among them Feni is suspended for a long time. Rupganj, Sundalpur and Srikail are three discoveries by BAPEX. Geologically Bangura and Srikail could be a single anticline. During the year the company produced 42.28 Bcf gas and daily average gas production rate of 115.84 MMcfd. During the year 39977.15 bbl condensate was recovered.

3.1.1 Begumganj Gas Field:

During the year this field produced 1.71 Bcf gas and daily average gas production rate of 4.68 MMcfd. In addition to gas, from this field during the year 553.26 bbl condensate was recovered.

3.1.2 Fenchuganj Gas Field:

During the year this field produced 3.41 Bcf gas and daily average gas production rate of 9.34 MMcfd. In addition to gas, from this field during the year 1438.35 bbl condensate was recovered.

3.1.3 Salda Nadi Gas Field:

Salda Nadi gas field is a small gas field. During the year one well was producing. During the year this field gas produced 1.56 Bcf and daily average gas production rate of 4.27 MMcfd. In addition to gas, from this field during the year 248.32 bbl condensate was recovered..

3.1.4 Shahbazpur Gas Field:

Shahbazpur gas field in located in Shahbazpur i.e. Bhola island. Gas supply is limited within the island. During the year this field gas produced 20.35 Bcf and daily average gas production rate of 55.75 MMcfd. In addition to gas, 2375.20 bbl condensate was recovered during the year from this field

3.1.5 Semutang Gas Field:

This gas field was discovered in 1970-71 by Oil & Gas Development Corporation. After independence the area, including the discovered gas pool was awarded Shell Oil. Shell drilled another well. Shell left the country as the reward was not attractive for them. This field was awarded to BAPEX. This well was completed as a gas producer in December 2011. During the year this field gas produced 0.28 Bcf and daily average gas production rate of 0.77 MMcfd. In addition to gas, from this field during the year 9.35 bbl condensate was also recovered.

3.1.6 Sundalpur Gas Field:

This gas field was discovered by BAPEX in 2011-12. In the same year this gas field was brought into production in March 2011-12. . During the year this field gas produced 2.52 Bcf and daily average gas production rate of 6.90 MMcfd. In addition to gas, from this field during the year 177.49 bbl condensate was also recovered.

3.1.7 Srikail Gas Field:

Srikail gas field was discovery of BAPEX. This field was brought into production in on 14 May, 2002. During the year this field gas produced 12.45 Bcf and daily average gas production rate of 34.11 MMcfd. In addition to gas, from this field during the year 35175.18 bbl condensate was also recovered. It may be mentioned here that geologically Srikail is part of Bangura structure. Tulllow is producing from this structure. A joint study on Srikail and Bangura can be initiated for better understanding of the structure.

3.1.8 Rupgonj Gas Field:

This field is suspended since November 2017.

3.1.9 Feni Gas Field

Feni gas field was handed over to NIKO Resources (Bangladesh) Ltd. and BAPEX for operation as per order of Ministry of Energy and Mineral Resources, Government of the People's Republic of Bangladesh. This gas field is suspended for a long time.

3.2 Bangladesh Gas Fields Company Ltd (BGFCL):

This is the second largest gas producer of the country behind chevron. The company operates Titas, Habiganj, Bakhrabad, Narshingdi, Meghna and Kamta gas fields. Among them Kamta is suspended for a long period. During the year this company gas produced 287.64 Bcf and daily average gas production rate of 788.05 MMcfd. In term of gas reserve, Titas is the largest gas field of the country. During the year 186,565 bbl condensate was recovered.

3.2.1 Titas Gas Field:

Titas gas field is the largest gas field of the country and second largest gas producer. During the year this field gas produced 183.36 Bcf and daily average gas production rate 502.36 MMcfd. In addition to gas, 150915 bbl condensate was recovered from this field during the year.

3.2.2 Habiganj Gas Field:

Habiganj Gas Field is the third largest gas field of the country. During the year Habiganj field gas produced 79.21 Bcf and daily average gas production rate of 217.01 MMcfd. In addition to gas, from this field during the year 7653 bbl condensate was recovered.

3.2.3 Bakhrabad Gas Field:

During the year this field gas produced 11.00 Bcf and daily average gas production rate of 30.14 MMcfd. In addition to gas, from this field during the year 5454 bbl condensate was recovered.

3.2.4 Narshingdi:

During the year this field produced 9.95 Bcf gas and daily average gas production rate of 27.26 MMcfd. In addition to gas, from this field during the year 15010 bbl condensate was recovered.

3.2.5 Meghna Gas Field:

During the year this field gas produced 4.12 Bcf and daily average gas production rate 11.29 MMcfd. Gas production rate was quite stable. In addition to gas, from this field during the year 7533 bbl condensate was recovered.

3.2.6 Kamta Gas Field:

This Gas field is suspended for a long time.

3.3 Sylhet Gas Fields Ltd (SGFL) :

This company operates five gas fields i.e. Kailas tila, Rashidpur, Beani bazar , Sylhet and Chatak. Chatak is suspended for a long time. During the year this company gas produced 46.18 Bcf and average daily gas production rate of 126.52 MMcfd. During the year 249768.52 bbl condensate was recovered. Brief description of the gas fields are provided below.

3.3.1 Kailas Tila gas field:

This is the main producer of SGFL. During the year this field gas produced 22.87 Bcf and average gas production rate of 62.66 MMcfd. During the year four wells were producing. In addition to gas, liquid product is also recovered. This gas field is quite wet and maximum recovery of liquid was achieved from this gas field. In addition to gas, from this field during the year 173062.51 bbl condensate was recovered.

3.3.2 Rashidpur Gas Field:

During the year this field gas produced 18.60 Bcf and average gas production rate of 50.96 MMcfd. In addition to gas, from this field during the year 15367.95 bbl condensate was recovered.

3.3.3 Beani Bazar Gas Field:

During the year this field gas produced 3.21 Bcf and average gas production rate of 8.79 MMcfd. In addition to gas, from this field during the year 50741.47 bbl condensate was recovered.

3.3.4 Sylhet Gas Field:

This is the oldest producing gas field of the country. Sylhet structure is known for first oil discovery of the country. During the year this field gas produced 1.50 Bcf and average gas production rate of 4.11 MMcfd. In addition to gas, from this field during the year 10596.59 bbl condensate was also recovered.

3.3.5 Chatak Gas Field:

This gas field is suspended for a long time.

4.0 Gas Productions (International Companies):

Chevron, Tullow and Santos are three international oil and gas companies (IOCs) operating in the country. During the year Chevron and Tullow gas produced 588.64 Bcf and average daily gas production rate of 1612.71 MMcfd and Santos was not in operation since October 2013. In average per well gas production of IOCs wells is much higher than that of the national companies. IOCs

produce 1612.71 MMcfd using 42 wells and average per well production of IOCs well is 38.40 MMcfd. During the year 3641569.26 bbl condensate was recovered by the IOCs and average daily recovery of condensate was 10425.33 bbl per day.

4.1 Chevron Bangladesh:

This company is the largest producer of gas of the country. Chevron operates three gas fields i.e. Bibiyana, Jalalabad and Moulavi Bazar. It may be mentioned that Bibiyana is the second largest gas field of the country and it is also the largest gas producer of the country. During the year Chevron gas produced 555.75 Bcf and average daily gas production was 1522.60 MMcfd. In addition to gas, this company producer 3543511.26 bbl condensate was recovered.

4.1.1 Bibiyana Gas field:

During the year Bibiyana Gas field gas Produced 463.74 Bcf and average daily gas production rate of 1270.52 MMcfd. In addition to gas, from this field during the year 3211743.35 bbl condensate was also recovered.

4.1.2 Jalalabad Gas field:

Jalalabad is the second gas field operated by Chevron. During the year Jalalabad gas field gas produced 84.14 Bcf and average daily gas production rate of 230.52 MMcfd. In addition to gas, from this field during the year 331021.43 bbl condensate was also recovered.

4.1.3 Moulavi Bazar gas field:

During the year Moulavi Bazar gas field gas produced 7.87 Bcf and average daily gas production rate of 21.56 MMcfd. In addition to gas, from this field during the year 746.48 bbl condensate was also recovered.

4.2 Tullow Bangladesh Limited:

4.2.1 Bangura gas field:

Tullow Oil operates Bangura gas field. During the year Bangura gas field gas produced 32.89 Bcf and average daily gas production rate of 90.11 MMcfd. In addition to gas, from this field during the year 98058 bbl condensate was also recovered.

4.3 Santos Bangladesh Limited

4.3.1 Sangu gas field:

Sangu is the lone offshore gas field operated by Santos from Australia. This gas field is is suspended at October 2013.

5.0 Gas Production (Total Scenario):

During the year gas production has been recorded 964.74 Bcf and average daily gas production was 2643.12 MMcfd. Sector wise gas consumption during the year 1041.65 Bcf (including LNG) and average daily gas supply rate of 2853.84 MMcfd is shown in Table 29 and Figure 22.

Table 3 : Company wise Gas Production in FY 2018-19

Sl No.	Name of Company	Total well	Production well	Suspended well	Bcf	MMcfd
1.	BAPEX	35	15	20	42.28	115.84
2.	BGFCL	51	44	7	287.64	788.05
3.	SGFL	29	11	18	46.18	126.52
4.	Chevron	44	37	7	555.75	1522.60
5.	Tullow	7	5	2	32.89	90.11
6	Santos	9	0	9	Suspended	Suspended
Total		**175**	**112**	**63**	**964.74**	**2643.12**

Source: HCU Data bank

Figure 2 : Company wise Gas Production

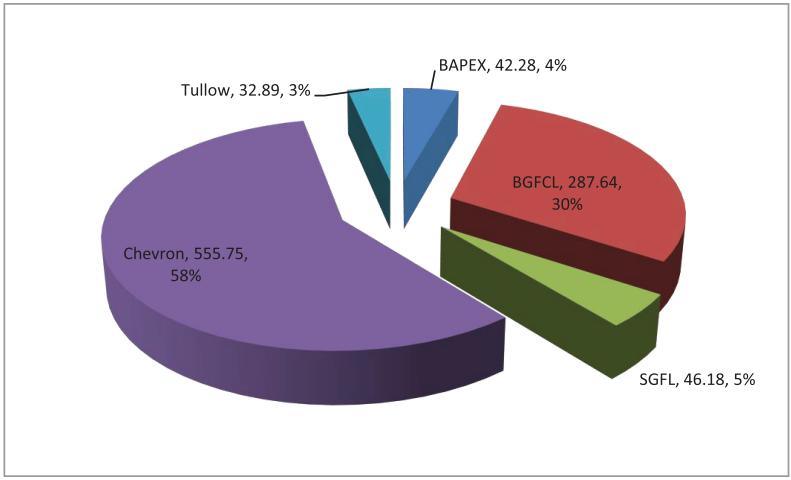


Table 4 : Field wise Gas Production in FY 2018-19

SI No.	Name of Gas field	Total well	Production well	Suspended well	Bcf	MMcfd
1.	Begumganj	3	1	2	1.71	4.68
2.	Shahbazpur	5	4	1	20.35	55.77
3.	Semutang	6	2	4	0.28	0.76
4.	Fenchuganj	5	2	3	3.41	9.34
5.	Salda Nadi	4	2	2	1.56	4.28
6.	Srikail	4	3	1	12.45	34.12
7.	Sundalpur	2	1	1	2.52	6.90
8.	Rupgonj	1	0	1	0.00	0.00
9.	Feni	5	0	5	0.00	0.00
10.	Meghna	1	1	-	4.12	11.28
11.	Narshingdi	2	2	-	9.95	27.25
12.	Habiganj Gas field	11	8	3	79.21	217.03

13.	Bakhrabad	9	7	2	11.00	30.14
14.	Titas Gas field	27	26	1	183.36	502.35
15.	Kamta	1	0	1	0.00	0.00
16.	Bibiyana Gas field	26	26	-	463.74	1270.52
17.	Moulavi Bazar	9	4	5	7.87	21.57
18	Jalalabad Gas field	9	7	2	84.14	230.52
19.	Kailas Tila	7	4	3	22.87	62.66
20.	Sylhet	8	1	7	1.50	4.11
21.	Rashidpur	11	5	6	18.60	50.97
22.	Beani Bazar	2	1	1	3.21	8.78
23	Chatak	1	0	1	0.00	0.00
24	Bangura	7	5	2	32.89	90.11
25	Sangu	9	0	9	0.00	0.00
Total		**175**	**112**	**63**	**964.74**	**2643.12**

Source: HCU Data bank

Figure 3 : Field wise Gas Productions

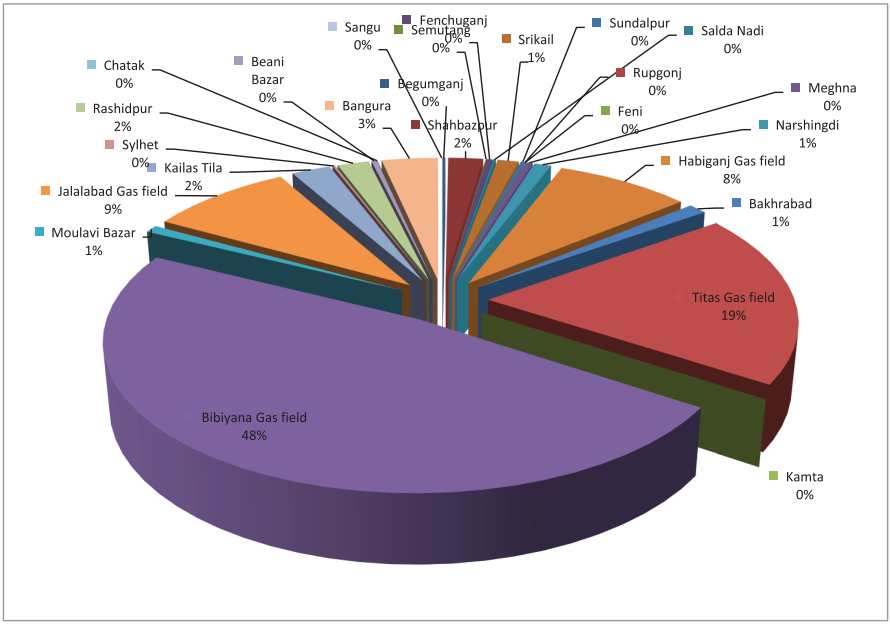


Table 5: Major four (4) Gas producing fields in FY 2018-19

SI No.	Name of Gas field	Total well	Production well	Suspended well	Bcf	MMcfd
1.	Habiganj	11	8	3	79.21	217.01
2.	Titas Gas field	27	26	1	183.36	502.36
3.	Bibiyana Gas field	26	26	0	463.74	1270.52
4.	Jalalabad Gas field	9	7	2	84.14	230.52
Total		73	67	6	810.45	2220.41

Source: HCU Data bank

Figure 4 : Major four (4) Gas producing fields

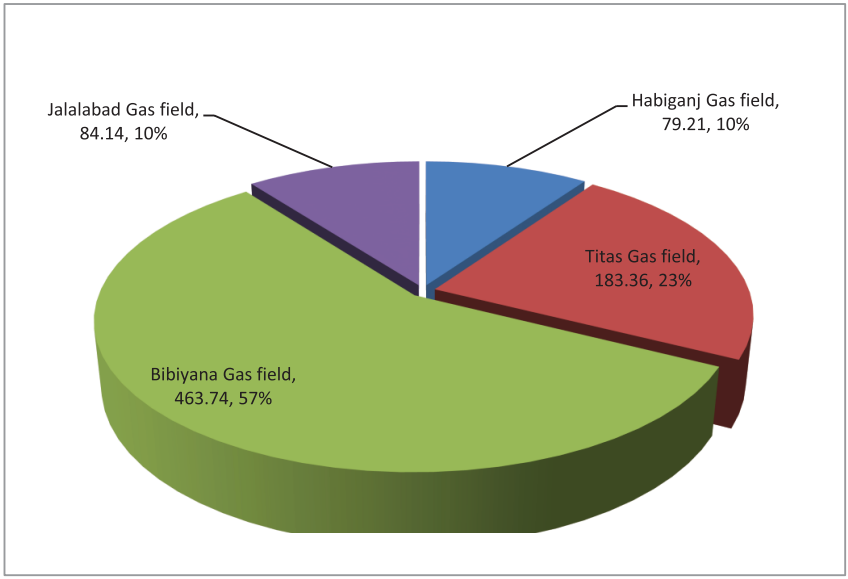


Table 6 : Comparison of Annual Gas Production by National Companies in FY 2018-19

SI No.	Name of National Company	Total well	Production well	Suspended well	Bcf	MMcfd
1.	BAPEX	35	15	20	42.28	115.84
2.	BGFCL	51	44	7	287.64	788.05
3.	SGFL	29	11	18	46.18	126.52
Total		115	70	45	385.34	376.10

Source: HCU Data bank

Figure 5 : Comparison of Annual Gas production by National Companies

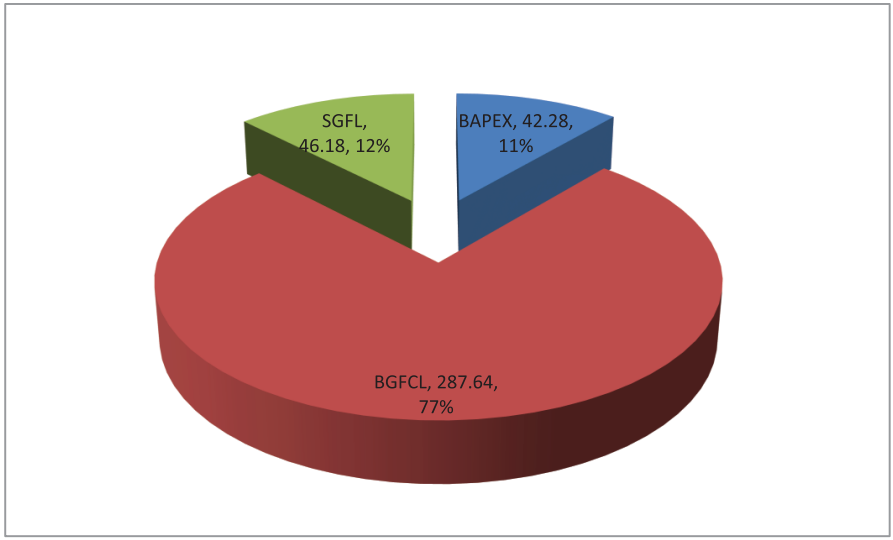


Table 7 : Field wise Annual Gas Production of Gas Fields Under National Companies, FY 2018-19

Sl No.	Name of Gas field	Total well	Production well	Suspended well	Bcf	MMcfd
1.	Begumganj	3	1	2	1.71	4.68
2.	Shahbazpur	5	4	1	20.35	55.75
3.	Semutang	6	2	4	0.28	0.77
4.	Fenchuganj	5	2	3	3.41	9.34
5.	Salda Nadi	4	2	2	1.56	4.27
6.	Srikail	4	3	1	12.45	34.11
7.	Sundalpur	2	1	1	2.52	6.90
8.	Rupgonj	1	0	1	0.00	0.00
9.	Feni	5	0	5	Suspended	Suspended
10.	Meghna	1	1	-	4.12	11.29
11.	Narshingdi	2	2	-	9.95	27.26
12.	Habiganj Gas field	11	8	3	79.21	217.01
13.	Bakhrabad	9	7	2	11.00	30.14
14	Titas Gas field	27	26	1	183.36	502.36
15.	Kamta	1	0	1	Suspended	Suspended
16	Kailas Tila	7	4	3	22.87	62.66
17	Sylhet	8	1	7	1.50	4.11
18	Rashidpur	11	5	6	18.60	50.96
19	Beani Bazar	2	1	1	3.21	8.79
20	Chatak	1	0	1	Suspended	Suspended
Total		115	70	45	376.10	1030.41

Source: HCU Data bank

Figure 6 : Field wise Annual Gas production of National Companies

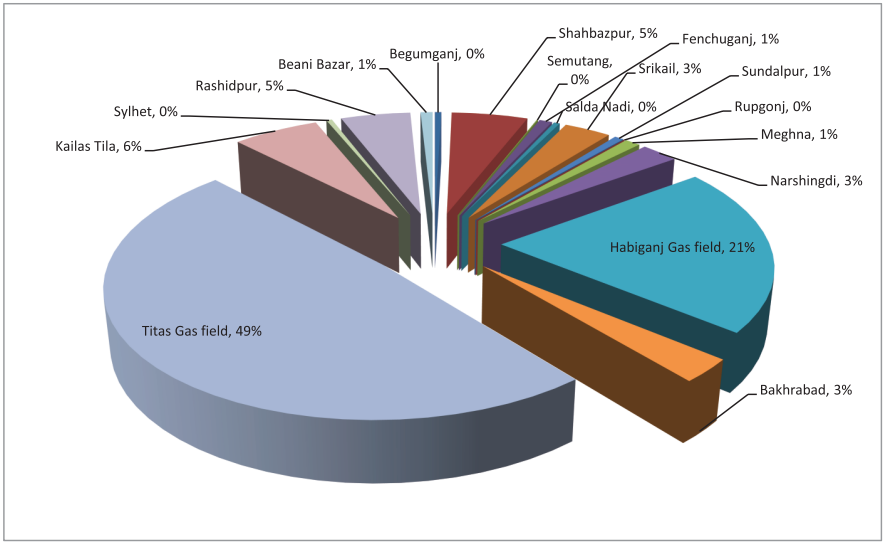


Table 8 : Field wise Gas Production in BAPEX in FY 2018-19

SI No.	Name of Gas field	Total well	Production well	Suspended well	Bcf	MMcfd
1.	Begumganj	3	1	2	1.71	4.68
2.	Shahbazpur	5	4	1	20.35	55.75
3.	Semutang	6	2	4	0.28	0.77
4.	Fenchuganj	5	2	3	3.41	9.34
5.	Salda Nadi	4	2	2	1.56	4.27
6.	Srikail	4	3	1	12.45	34.11
7.	Sundalpur	2	1	1	2.52	6.90
8.	Rupgonj	1	0	1	0.00	0.00
9	Feni	5	0	5	0.00	0.00
		35	15	20	42.28	115.84

Source: HCU Data bank

Figure 7 : Field wise Gas Production in BAPEX

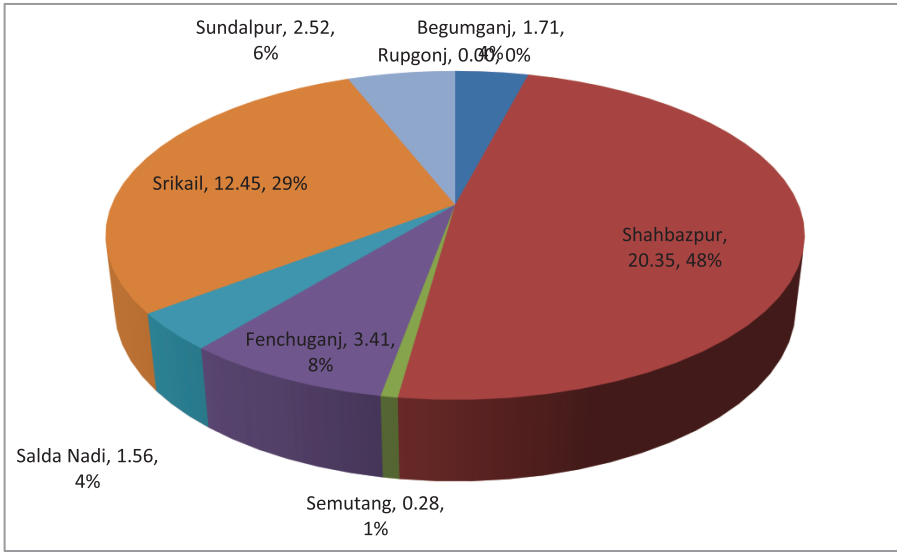


Table 9 : Field wise Gas Production in BGFCL in FY 2018-19

SI No.	Name of Gas field	Total well	Production well	Suspended well	Bcf	MMcfd
1.	Meghna	1	1	-	4.12	11.29
2.	Narshingdi	2	2	-	9.95	27.26
3.	Habiganj Gas field	11	8	3	79.21	217.01
4.	Bakhrabad	9	7	2	11.00	30.14
5.	Titas Gas field	27	26	1	183.36	502.36
6.	Kamta	1	0	1	Suspended	Suspended
Total		51	44	7	287.64	788.05

Source: HCU Data bank

Figure 8 : Field wise Gas Production in BGFCL

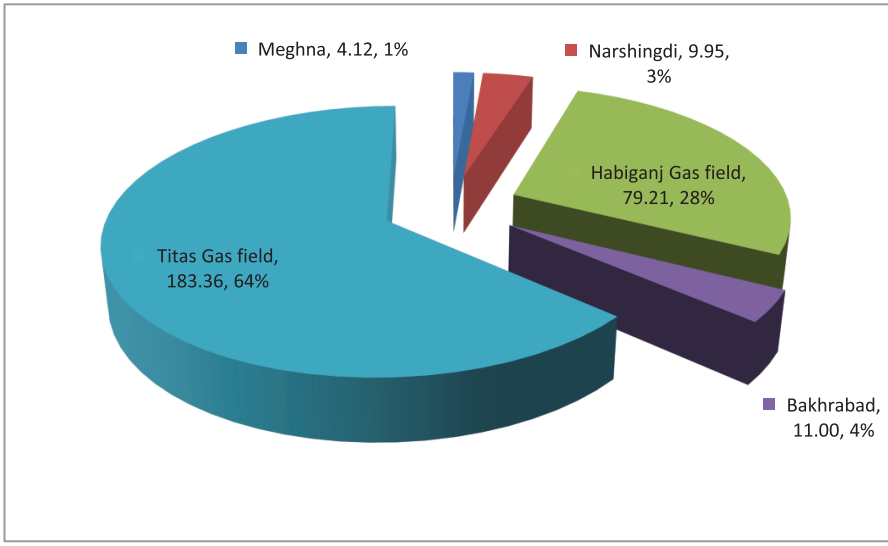


Table 10 : Field wise Gas Production in SGFL in FY 2018-19

SI No.	Name of Gas field	Total well	Production well	Suspended well	Bcf	MMcfd
1.	Kailas Tila	7	4	3	22.87	62.66
2.	Sylhet	8	1	7	1.50	4.11
3.	Rashidpur	11	5	6	18.60	50.96
4.	Beani Bazar	2	1	1	3.21	8.79
5.	Chatak	1	0	1	Suspended	Suspended
Total		29	11	18	46.18	126.52

Source: HCU Data bank

Figure 9 : Field wise Gas Production in SGFL

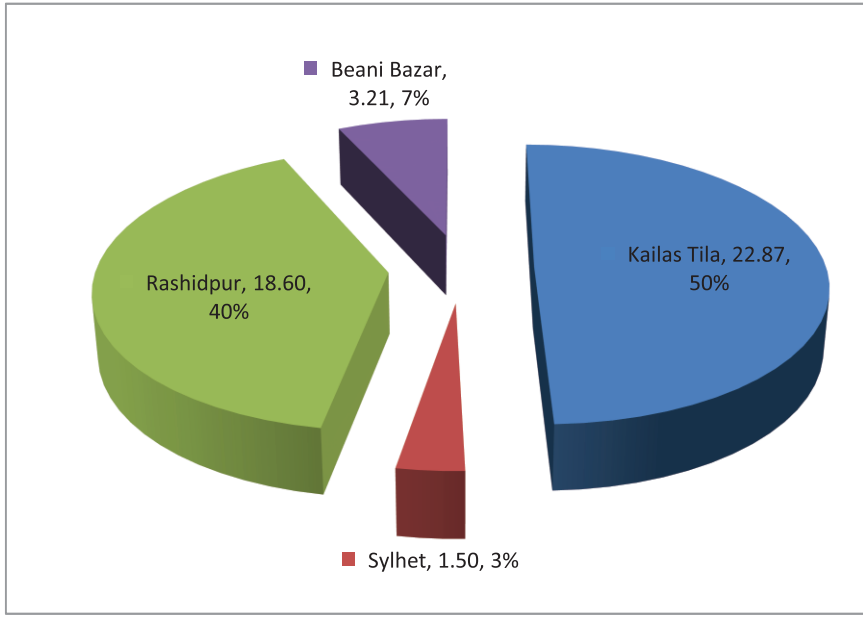


Table 11 : Comparison of Annual Gas Production by International Companies in FY 2018-19

SI No.	Name of Company	Total well	Production well	Suspended well	Bcf	MMcfd
1.	Chevron	44	37	7	555.75	1522.60
2.	Tullow	7	5	2	32.89	90.11
3.	Santos	9	0	9	Suspended	Suspended
Total		60	42	18	588.64	1612.71

Source: HCU Data bank

Figure 10 : Comparison of Annual Gas Production by International Companies

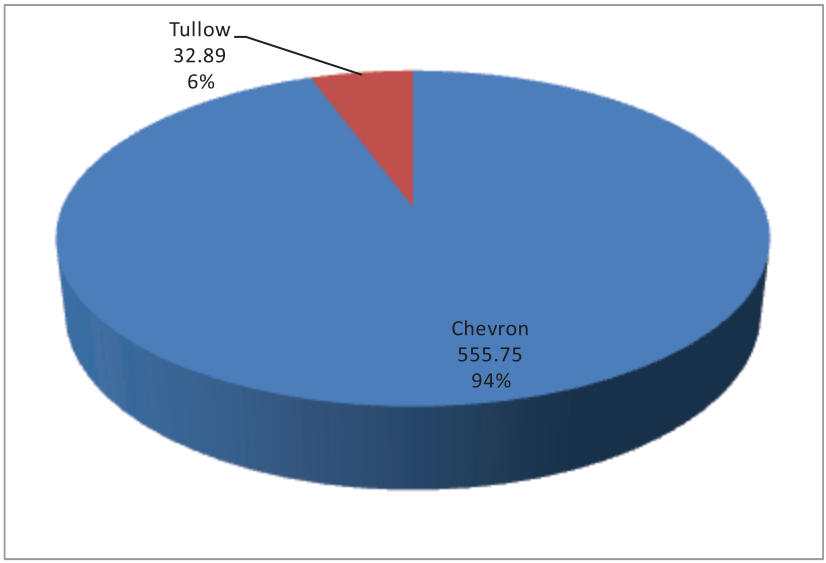


Table 12 : Field wise Gas Production by IOCs in FY 2018-19

SI No.	Name of Gas field	Total well	Production well	Suspended well	Bcf	MMcfd
1.	Bibiyana Gas field	26	26	-	463.74	1270.52
2.	Moulavi Bazar	9	4	5	7.87	21.56
3.	Jalalabad Gas field	9	7	2	84.14	230.52
4.	Bangura	7	5	2	32.89	90.11
5.	Sangu	9	0	9	Suspended	Suspended
Total		60	42	18	588.64	1612.71

Source: HCU Data bank

Figure 11 : Field wise Gas Production of IOCs

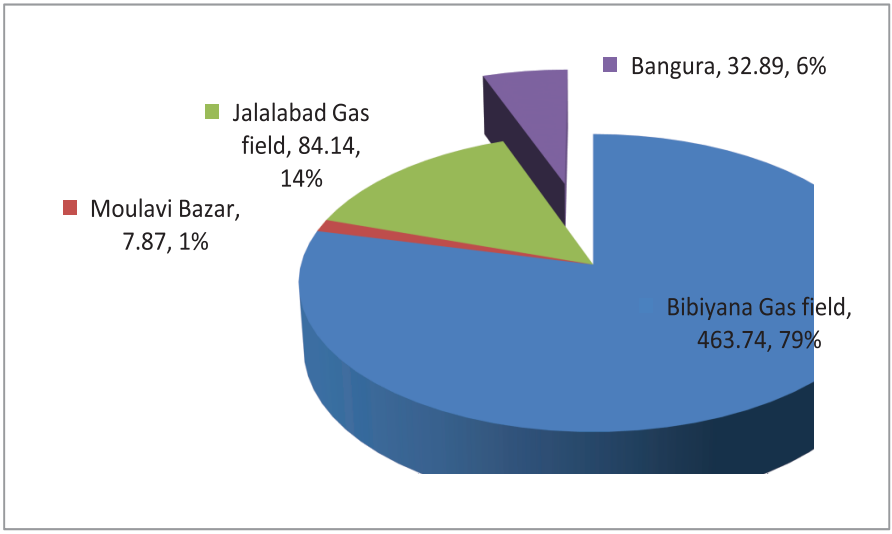


Table 13 : Field wise Gas Production by Chevron Operated Gad Fields in FY 2018-19

[SI No.	Name of Gas field	Total well	Production well	Suspended well	Bcf	MMcfd
1.	Bibiyana Gas field	26	26	-	463.74	1270.52
2.	Moulavi Bazar	9	4	5	7.87	21.56
3.	Jalalabad Gas field	9	7	2	84.14	230.52
Total		44	37	7	555.75	1522.60

Source: HCU Data bank

Figure 12 : Field wise Gas Production by Chevron operated Gas Fields

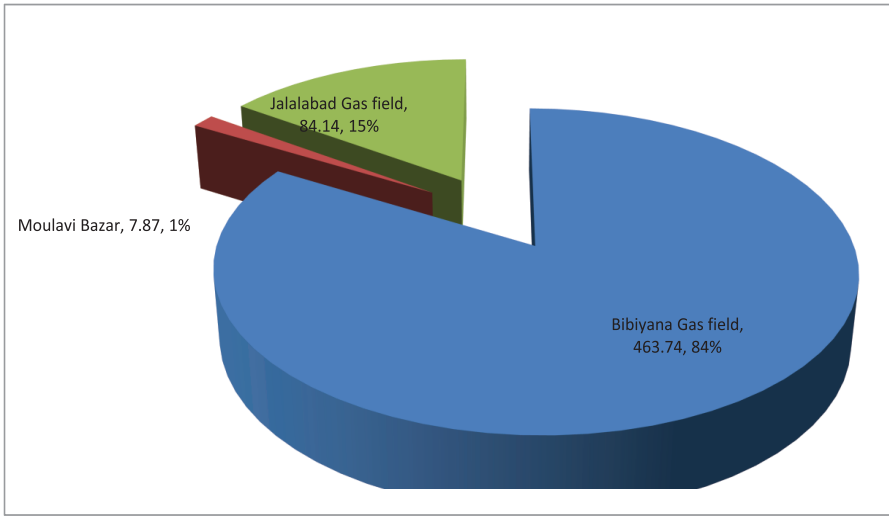


Table 14 : Field wise Condensate Recovery in FY 2018-19

SI No.	Name of Gas field	Total well	Production well	Suspended well	bbl/year	bbl/month	bbl/day
1	Begumganj	3	1	2	553.26	46.11	1.52
2	Shahbazpur	5	4	1	2375.20	197.93	6.51
3	Semutang	6	2	4	9.35	0.78	0.03
4	Fenchuganj	5	2	3	1438.35	119.86	3.94
5	Salda Nadi	4	2	2	248.32	20.69	0.68
6	Srikail	4	3	1	35175.18	2931.27	96.37
7	Sundalpur	2	1	1	177.49	14.79	0.49
8	Rupgonj	1	0	1	Suspended	Suspended	Suspended
9	Feni	5	0	5	Suspended	Suspended	Suspended

10	Meghna	1	1	-	7533.00	627.75	20.64
11	Narshingdi	2	2	-	15010.00	1250.83	41.12
12	Habiganj Gas field	11	8	3	7653.00	637.75	20.97
13	Bakhrabad	9	7	2	5454.00	454.50	14.94
14	Titas Gas field	27	26	1	150915.00	12576.25	413.47
15	Kamta	1	0	1	Suspended	Suspended	Suspended
16	Bibiyana Gas field	26	26	-	3211743.35	267645.28	8799.30
17	Moulavi Bazar	9	4	5	746.48	62.21	2.05
18	Jalalabad Gas field	9	7	2	331021.43	27585.12	906.91
19	Kailas Tila	7	4	3	173062.51	14421.88	474.14
20	Sylhet	8	1	7	10596.59	883.05	29.03
21	Rashidpur	11	5	6	15367.95	1280.66	42.10
22	Beani Bazar	2	1	1	50741.47	4228.46	139.02
23	Chatak	1	0	1	Suspended	Suspended	Suspended
24	Bangura	7	5	2	98058.00	8171.50	268.65
25	Sangu	9	0	9	Suspended	Suspended	Suspended
Total		**175**	**112**	**63**	**4117879.93**	**343156.66**	**11281.86**

Source: HCU Data bank

Figure 13 : Field wise Condensate Recovery in BBL/Day

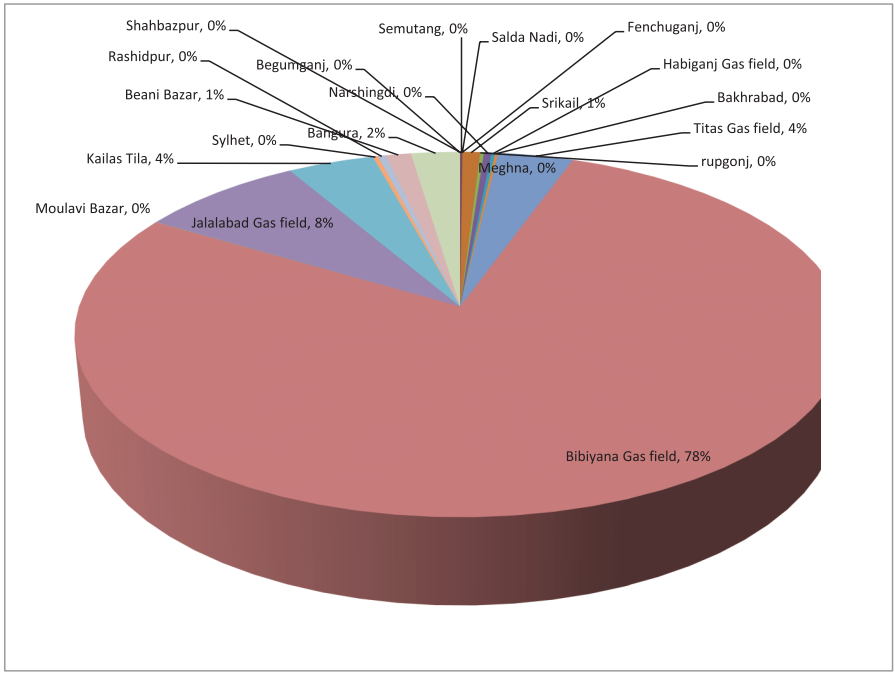


Table 15 : Comparison of Condensate Production by National Companies in FY 2018-19

SI No.	Name of National Company	Total well	Production well	Suspended well	BBL/Year	BBL/Month	BBL/Day
1.	BAPEX	35	15	20	39977.15	3275.95	107.70
2.	BGFCL	51	44	7	186565.00	16038.12	527.28
3.	SGFL	29	11	18	249768.52	23523.11	773.36
Total		115	70	45	476310.67	42837.18	1408.35

Source: HCU Data bank

Figure 14 : Comparison of Condensate production by National Companies

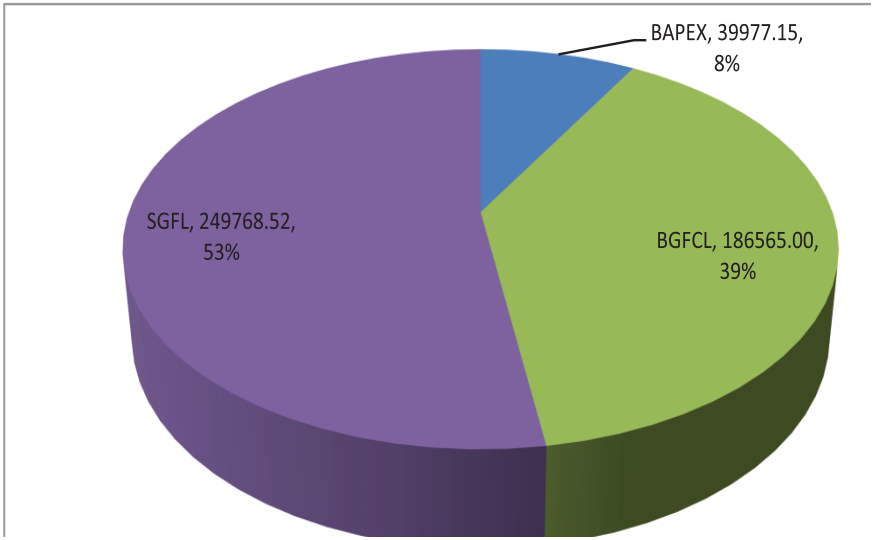


Table 16 : Comparison of Condensate Production by IOCs in FY 2018-19

SI No.	Name of Company	Total well	Production well	Suspended well	BBL/Year	BBL/Month	BBL/Day
1.	Chevr	44	37	7	354351	308863.	10154.
2.	Tullo	7	5	2	98058.0	8240.00	270.90
3.	Santos	9	0	9	Suspend	Suspend	Suspen
Total		60	42	18	364156	317103.	10425.

Source: HCU Data bank

Figure 15 : Comparison of Condensate production by International Companies

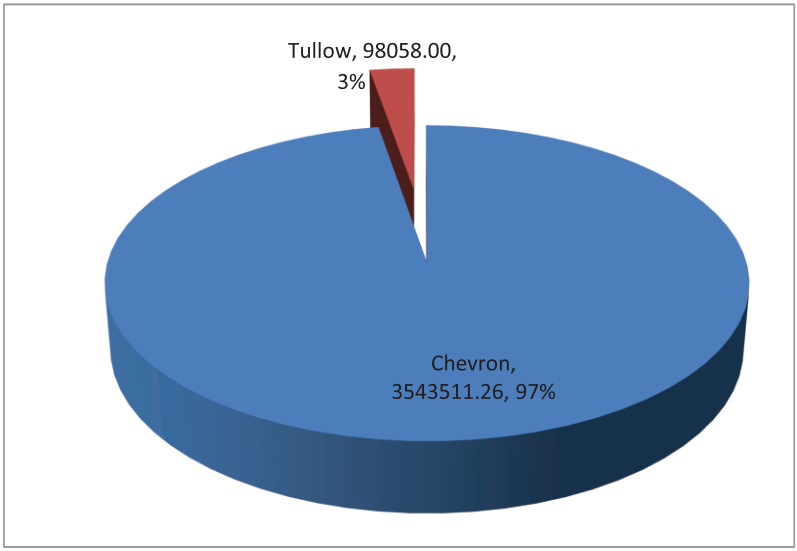


Table 17 : Field wise Condensate Production in BAPEX in FY 2018-19

SI No.	Name of Gas field	Total well	Production well	Suspended well	BBL/Year	BBL/Month	BBL/Day
1.	Begumganj	3	1	2	553.26	46.11	1.52
2.	Shahbazpur	5	4	1	2375.20	197.93	6.51
3.	Semutang	6	2	4	9.35	0.78	0.03
4.	Fenchuganj	5	2	3	1438.35	119.86	3.94
5.	Salda Nadi	4	2	2	248.32	20.69	0.68
6.	Srikail	4	3	1	35175.18	2931.27	96.37
7.	Sundalpur	2	1	1	177.49	14.79	0.49
8.	Rupgonj	1	0	1	Suspended	Suspended	Suspended
9	Feni	5	0	5	Suspended	Suspended	Suspended
Total		35	15	20	39977.15	3275.95	107.70

Source: HCU Data bank

Figure 16 : Field wise Condensate Production in BAPEX

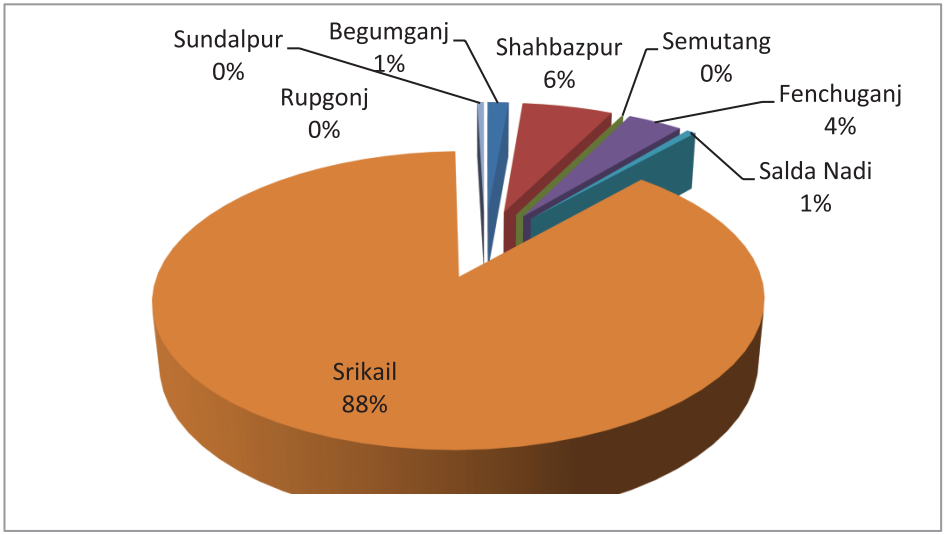


Table 18 : Field wise Condensate Production in BGFCL in FY 2018-19

SI No.	Name of Gas field	Total well	Production well	Suspended well	BBL/Year	BBL/Month	BBL/Day
1.	Meghna	1	1	-	7533.00	627.75	20.64
2.	Narshingdi	2	2	-	15010.00	1250.83	41.12
3.	Habiganj	11	8	3	7653.00	637.75	20.97
4.	Bakhrabad	9	7	2	5454.00	454.50	14.94
5.	Titas Gas field	27	26	1	150915.00	12576.25	413.47
6.	Kamta	1	0	1	Suspended	Suspended	Suspended
Total		51	44	7	186565.00	16038.12	527.28

Source: HCU Data bank

Figure 17 : Field wise Condensate Production in BGFCL

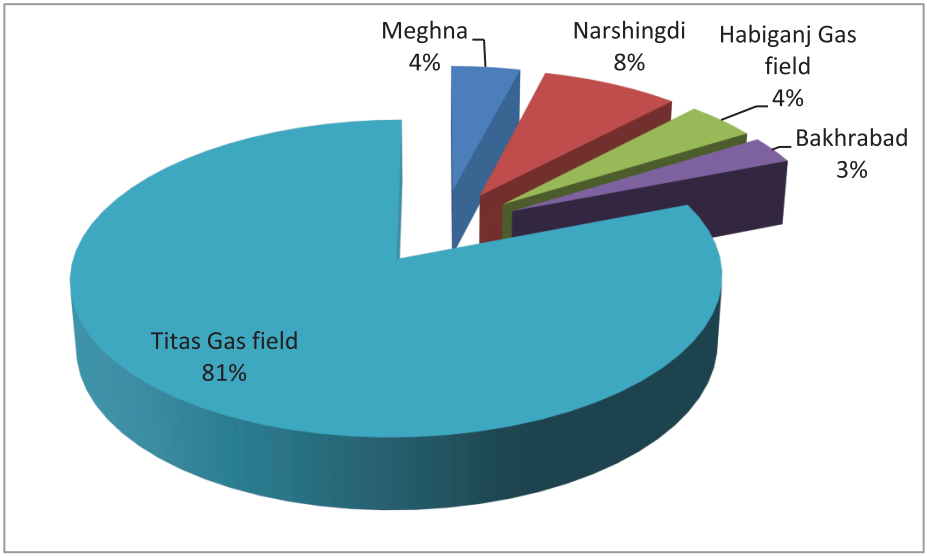


Table 19 : Field wise Condensate Productions in SGFL in FY 2018-19

SI No.	Name of Gas field	Total well	Production well	Suspended well	BBL/Year	BBL/Month	BBL/Day
1.	Kailas Tila	7	4	3	173062.51	14421.88	474.14
2.	Sylhet	8	1	7	10596.59	883.05	29.03
3.	Rashidpur	11	5	6	15367.95	1280.66	42.10
4.	Beani Bazar	2	1	1	50741.47	4228.46	139.02
5.	Chatak	1	0	1	Suspended	Suspended	Suspended
Total		29	11	18	249768.52	23523.11	773.36

Source: HCU Data bank

Figure 18 : Field wise Condensate Productions in SGFL

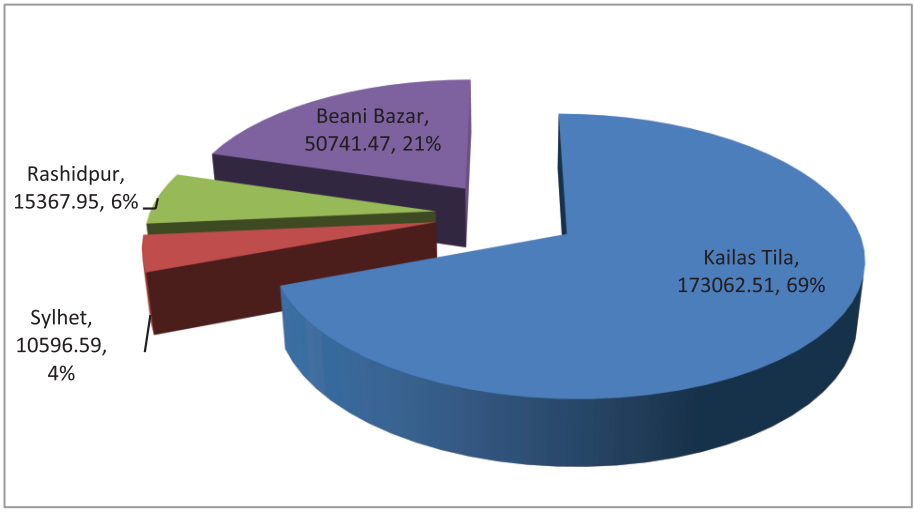


Table 20 : Field wise Condensate Production by IOCs in FY 2018-19

SI No.	Name of Gas field	Total well	Production well	Suspended well	BBL/Year	BBL/Month	BBL/Day
1.	Bibiy	26	26	-	321174	267645.	8799.3
2.	Moula	9	4	5	746.48	62.21	2.05
3.	Jalala	9	7	2	331021.	27585.1	906.91
4.	Bang	7	5	2	98058.0	8171.50	268.65
5.	Sangu	9	0	9	Suspended	Suspended	Suspended
Total		60	42	18	3641569	317103.	10425.

Source: HCU Data bank

Figure 19 : Field wise Condensate Production by IOCs

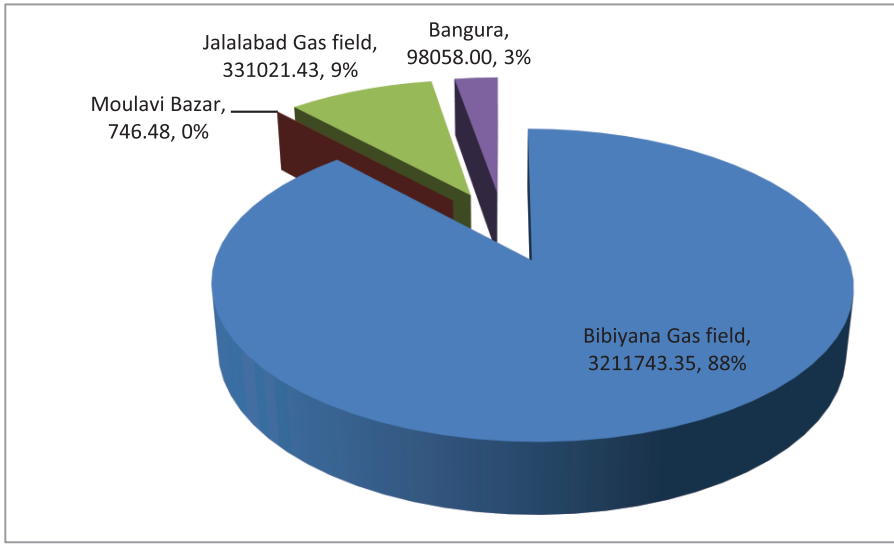
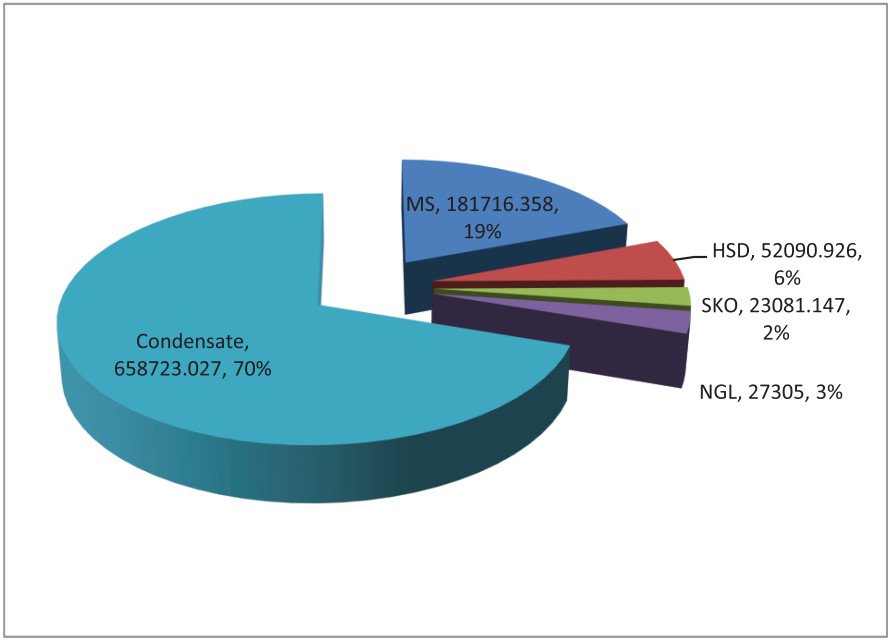


Table 21 : Annual Recovery of Liquid in 1000 Liter FY 2018-19

SI	Name of Product	Liter
1.	MS	181716.36
2.	HSD	52090.926
3.	SKO	23081.147
4.	NGL	27305
5.	Condensate	658723.03
		942916.46

Source: MIS Report, Petrobangla

Figure 20 : Annual Recovery of Liquid in 1000 liter



6.0 Gas distribution scenario in the FY 2018-19

The following distribution companies purchase gas from the different production companies of Petrobangla & IOCs and sell to the end-users in different sectors.

- Titas Gas Transmission & Distribution Company Limited (TGTDCL)
- Bakhrabad Gas Distribution Company Limited (BGDCL)
- Jalalabad Gas Transmission and Distribution System Limited (JGTDSL)
- Pashchimanchal Gas Company Limited
- Karnaphuli Gas Distribution Company Ltd. (KGDCL)
- Sundarban Gas Company Limited (SGCL)

6.1 Gas purchase from production companies by distribution companies:

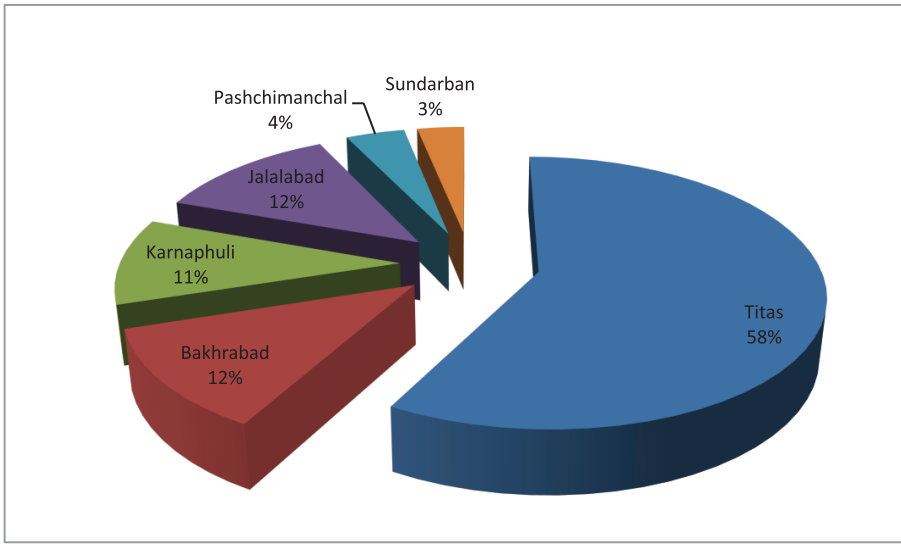
Amount of Gas purchase by different distribution companies from the production companies of Petrobangla & IOCs is shown below:

Table 22 : Amount of Gas Purchase by Distribution companies

Name	Titas	Bakhrabad	Karnaphuli	Jalalabad	Pashchimanchal	Sundarban	Total
MMCM	17659.26	3656.52	3163.69	3753.07	1217.64	971.65	30421.82
BCF	623.55	129.11	111.71	132.52	42.99	34.31	1074.19

Source: Petrobangla MIS Report

Figure 21 : Gas Purchase by Distribution Companies



6.2 Gas distribution in different sectors by distribution companies:

The purchased gas is sold to end-users in variety of sectors (e.g., electricity producing companies, fertilizer companies etc.).

Table 23 : Gas sale by Titas Gas Transmission & Distribution Company Limited (TGTDCL)

Consumer	Electricity		Fertilizer factory		Captive Power		Industries		Commercial	
	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)
Govt. organization	88.11	6284.41	13.91	726.78	0.00	0.00	2.04	120.02	0.13	39.95
Non-Govt. organization	85.32	15610.58	0.00	0.00	128.79	35136.78	133.21	30408.75	3.72	2013.90
Total	**173.43**	**21894.99**	**13.91**	**726.78**	**128.79**	**35136.78**	**135.25**	**30528.77**	**3.85**	**2053.85**

Consumer	Brick fields		CNG		Households		Total	
	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)
Govt. organization	0.00	0.00	0.29	51.36	2.48	761.96	106.97	7984.48
Non-Govt. organization	0.00	0.00	24.12	22133.59	102.93	25339.12	478.08	130642.72
Total	**0.00**	**0.00**	**24.42**	**22184.95**	**105.41**	**26101.08**	**585.05**	**138627.20**

Source: Petrobangla MIS Report

Table 24 : Gas sale by Bakhrabad Gas Distribution Company Limited (BGDCL)

Consumer	Electricity		Fertilizer factory		Captive Power		Industries		Commercial	
	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)
Govt. organization	72.55	6486.82	9.46	726.04	0.45	124.73	0.00	0.12	0.00	0.09
Non-Govt. organization	14.85	1339.74	0.00	0.00	3.24	948.75	2.32	612.34	1.44	193.33
Total	**87.40**	**7826.56**	**9.46**	**726.04**	**3.69**	**1073.48**	**2.32**	**612.46**	**1.44**	**193.42**

Consumer	Brick fields		Households		Tea		CNG		Total	
	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)
Govt. organization	0.00	0.00	0.53	138.31	0.00	0.00	0.00	0.00	82.99	7476.02
Non-Govt. organization	0.00	0.00	18.00	4643.89	0.00	0.00	6.52	5990.31	46.38	14303.97
Total	**0.00**	**0.00**	**18.53**	**4782.20**	**0.00**	**0.00**	**6.52**	**5990.31**	**129.36**	**21779.99**

Souce: Petrobangla MIS Report

Table 25 : Gas sell by Karnaphuli Gas Distribution Company Ltd. (KGDCL)

Consumer	Electricity		Fertilizer factory		Captive Power		Industries		Commercial	
	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)
Govt. organization	25.35	2276.20	7.82	601.72	1.12	322.31	1.34	305.52	0.00	0.56
Non-Govt. organization	5.29	475.74	14.54	4943.02	14.86	4282.43	14.93	3942.84	1.29	674.32
Total	**30.64**	**2751.94**	**22.36**	**5544.74**	**15.98**	**4604.74**	**16.27**	**4248.36**	**1.29**	**674.88**

Consumer	Brick fields		Households		Tea		CNG		Total	
	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)
Govt. organization	0.00	0.00	1.27	330.19	0.00	0.00	0.04	37.50	36.95	3874.00
Non-Govt. organization	0.00	0.00	20.37	5276.23	0.02	4.51	5.22	4751.68	76.51	24350.77
Total	**0.00**	**0.00**	**21.63**	**5606.42**	**0.02**	**4.51**	**5.26**	**4789.18**	**113.46**	**28224.77**

Source: Petrobangla MIS Report

Table 26 : Gas sell by Jalalabad Gas Transmission and Distribution System Limited (JGTDSL)

Consumer	Electricity		Fertilizer factory		Captive Power		Industries		Commercial	
	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)
Govt. organization	52.44	4692.50	11.93	877.00	0.24	69.00	0.34	75.40	0.00	0.00
Non-Govt. organization	38.48	3444.00	0.00	0.00	6.94	1889.20	8.53	1875.30	1.12	546.40
Total	**90.92**	**8136.50**	**11.93**	**877.00**	**7.18**	**1958.20**	**8.87**	**1950.70**	**1.12**	**546.40**

Consumer	Brick fields		Households		Tea		CNG		Total	
	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)	Amount (Bcf)	Price (million taka)
Govt. organization	0.00	0.00	0.52	140.70	0.00	0.00	0.00	0.00	65.47	5854.60
Non-Govt. organization	0.00	0.00	7.72	1975.60	0.99	213.10	4.76	4345.00	68.53	14288.60
Total	**0.00**	**0.00**	**8.24**	**2116.30**	**0.99**	**213.10**	**4.76**	**4345.00**	**134.00**	**20143.20**

Source: Petrobangla MIS Report

Table 27 : Gas sell by Pashchimanchal Gas Company Limited

Consumer	Electricity		Captive Power		Industries		Commercial		CNG		Households		Total	
	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)
Govt. organization	26.21	2448.01	0.00	0.00	0.09	27.15	0.00	0.26	0.00	0.00	0.18	50.78	26.49	2526.21
Non-Govt. organization	8.15	807.01	1.74	503.41	1.42	338.82	0.24	123.14	2.41	2182.39	4.73	1220.76	18.69	5175.53
Total	34.36	3255.02	1.74	503.41	1.52	365.97	0.24	123.40	2.41	2182.39	4.91	1271.54	45.17	7701.74

Source: Petrobangla MIS Report

Table 28 : Gas sell by Sundarban Gas Company Limited (SGCL)

Consumer	Electricity		Captive Power		Industries		Commercial		CNG		Households		Total	
	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)	Amount (Bcf)	Price (million Tk)
Govt. organization	34.06	3048.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.06	3048.45
Non-Govt. organization	0.00	0.00	0.13	34.30	0.26	57.45	0.00	1.92	0.00	0.00	0.14	37.25	0.54	130.92
Total	34.06	3048.45	0.13	34.30	0.26	57.45	0.00	1.92	0.00	0.00	0.14	37.25	34.60	3179.37

Source: Petrobangla MIS Report

7.0 Gas consumption scenario in the FY 2018-19

Natural gas consumed in different sectors for the purpose of end-user usage are summarized below:

Table 29 : Sector wise Gas Consumption in FY 2018-19

(1CM=35.31CF)

SI No.	Name of Specification	MMCM	Bcf	MMcfd
1.	Power	12767.39	450.82	1235.11
2.	Industry	4658.44	164.49	450.66
3.	Captive	4460.52	157.50	431.51
4.	Fertilizer	1633.13	57.67	157.99
5.	Commercial	224.97	7.94	21.76
6.	Domestic	4499.04	158.86	435.24
7.	CNG	1228.16	43.37	118.81
8.	Tea estate	28.59	1.01	2.77
	Total	**29500.24**	1041.65	2853.84

Source: MIS Report, Petrobangla

Figure 22 : Sector wise Gas Consumption

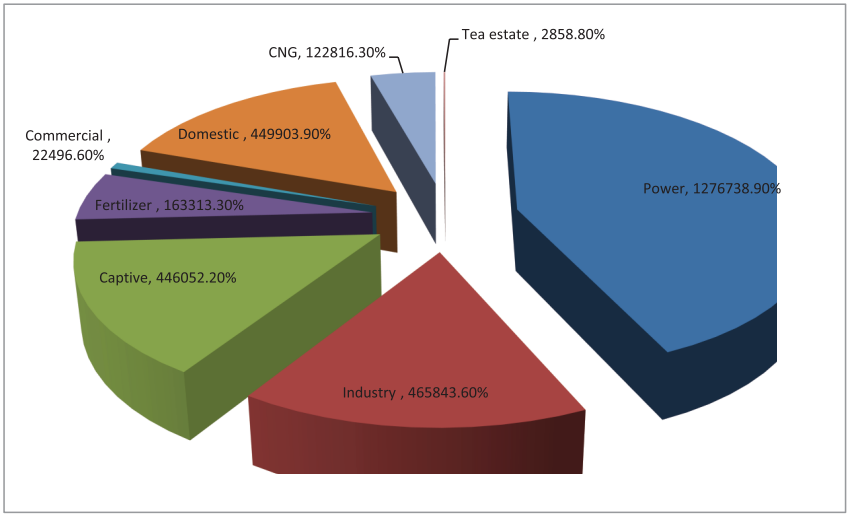
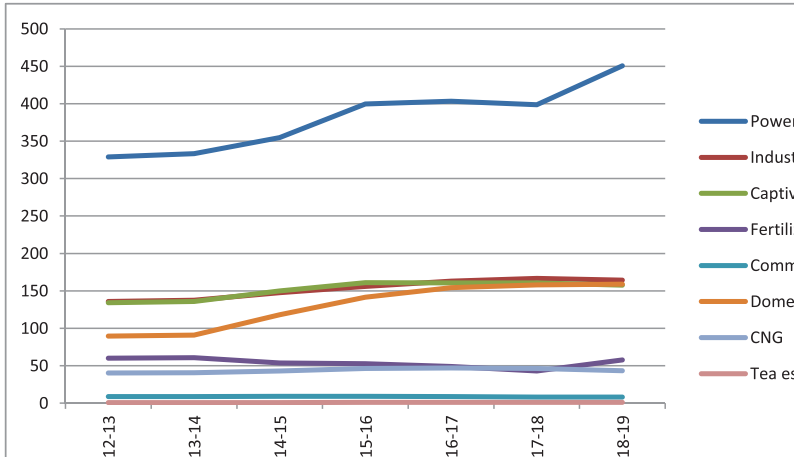


Table 30 : Fiscal Year Sector wise Gas Consumption

(in Bcf)

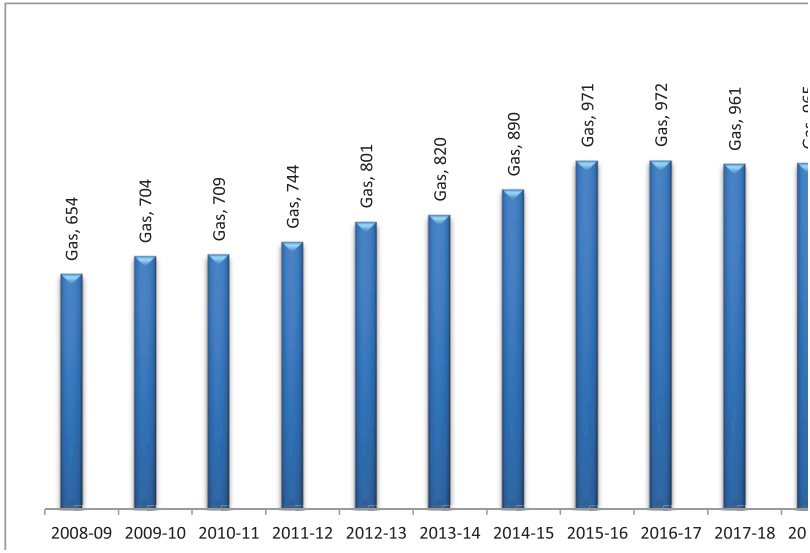
Fiscal Year	Power	Industry	Captive	Fertilizer	Commercial	Domestic	CNG	Tea estate	**Total**
2012-13	328.80	135.72	134.12	59.94	8.80	89.73	40.15	0.79	**798.05**
2013-14	333.37	137.61	135.98	60.78	8.93	90.98	40.70	0.80	**809.15**
2014-15	354.71	147.70	150.02	53.81	9.09	118.17	42.92	0.80	**877.22**
2015-16	399.59	155.98	160.83	52.62	8.98	141.44	46.46	0.91	**966.81**
2016-17	403.51	163.10	160.48	49.10	8.65	154.40	46.95	0.97	**987.16**
2017-18	398.59	166.53	160.51	42.97	8.17	157.93	46.19	0.94	**981.84**
2018-19	450.82	164.49	157.50	57.67	7.94	158.86	43.37	1.01	**1041.65**

Figure23: Fiscal Year Sector wise Gas Consumption



8.0 Historical Gas Production Scenario

Figure24 : Historical Production of Gas (2008-2019) in Bcf



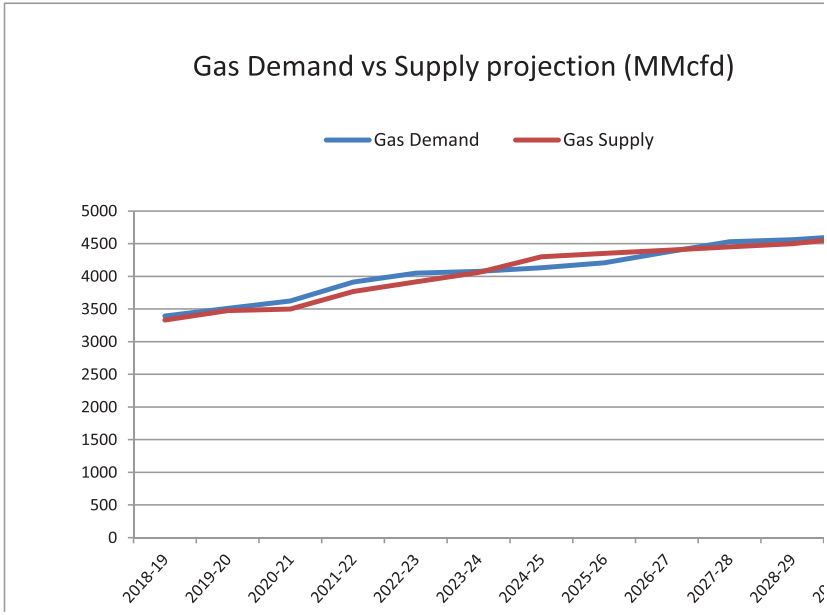
9.0 Gas demand vs Supply projection

Table 31 : Demand vs Supply

Year	* Power	Fertilizer	Cap. Power	Industry	Domestic	CNG	Commercial & Tea	Total Demand	Total Supply
2019	1284	316	480	710	425	139	38	3392	3331
2020	1334	316	480	776	425	139	38	3508	3477
2021	1384	316	480	842	425	139	38	3624	3500
2022	1662	316	432	908	425	130	38	3911	3769
2023	1786	316	389	974	420	125	38	4048	3915
2024	1780	316	350	1040	431	120	38	4075	4061
2025	1803	316	315	1106	442	110	38	4130	4300
2026	1844	317	283	1172	453	100	38	4207	4350
2027	1958	319	255	1238	465	100	38	4373	4400
2028	2087	321	230	1304	476	75	38	4531	4450
2029	2060	323	207	1370	488	75	38	4561	4500
2030	2058	325	186	1440	500	75	38	4622	4600

(*) **Source :** HCU Data Bank

Figure 25 : Demand vs Supply projection



10. Gas remaining reserve against expenditure of Bangladesh from 1961-2031

Table 32 : Gas remaining Reserve vs Expenditure

Year	Expenditure (Tcf)	Remaining (Tcf)
Recoverable(Proven+Probable)	0.000	28.52
1961-1970	0.066	28.45
1971-1980	0.235	28.22
1981-1990	1.063	27.16
1991-2000	2.489	24.67
2001-2010	5.175	19.49
2011-2018	6.87	12.62
2019-2024 (Projection)	6.804 (Projection)	5.816
2025-2031 (Projection)	5.816 (Projection)	0.00

Figure 26: Remaining Reserve (Tcf) vs Cumulative Expenditure (Tcf)