

**EFFECTS OF PETROLEUM LEGISLATION ON
HYDROCARBON EXPLORATION AND
DEVELOPMENT IN BANGLADESH**

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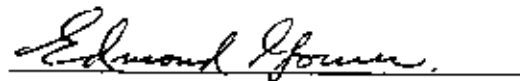


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ABSTRACT

Exploration, development and production of natural gas in Bangladesh are of great importance and plays vital role in our economy. In Bangladesh exploration activities commenced from the beginning of the nineteenth century. After several phases of exploration work by government organizations and international oil companies (IOCs) an overall good success ratio in drilling has been achieved . Despite our geologically prospective areas our exploration and development of reserves is limited because of our technical and financial limitations

After independence, Bangladesh has made several policy changes including legislative and contractual frameworks and competitive incentives offered in favour of foreign participation. The international scenario in oil and gas sector is changing and in this regard Bangladesh is getting positive responses from a number of IOCs to develop this sector This report reviews Bangladesh's exploration history and reveals gas development strategies. It also discusses the current situation and forwards key suggestions in our present policy and contractual framework.

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LIST OF ABBREVIATIONS

APPI	Asia Pacific Price Index
BOC	Burma Oil Company
BOGMC	Bangladesh Oil, Gas and Mineral Corporation
BAPEX	Bangladesh Petroleum Exploration Company
BTU	British Thermal Unit
BOPD	Barrel of Oil Per Day
CUFL	Chitagong Urea Fertilizer Limited
GOB	Government of Bangladesh
IOC	International Oil Company
JFCL	Jamuna Fertilizer Company Limited
KAFCO	Kaurnafuly Fertilizer Company
LPG	Liquified Petroleum Gas
LNG	Liquified Natural Gas
MPSC	Model Production Sharing Contract
MMSCFD	Million Standard Cubic Feet per Day
NEP	National Energy Policy
NG	Natural Gas
NGL	Natural Gas Liquid
OGDC	Oil and Gas Development Corporation
PPL	Pakistan Petroleum Limited
PDB	Power Development Board
TCF	Trillion Cubic Feet
UFFL	Urea Fertilizer Factory Limited
ZFCL	Zia Fertilizer Company Limited



Chapter I

INTRODUCTION

Bangladesh contains a large sedimentary area with favorable geological conditions for hydrocarbon exploration. Several phases of exploration have been adopted since early century. Bangladesh is considered as a good hydrocarbon potential zone but our exploration and development activities in this sector has been poor because of our limited technical, financial and infrastructural facilities.

From its inception, Bangladesh is trying to develop its economy using its only natural resource, natural gas. The use of natural gas began in 1960 and since then the use has been diversified and demand for gas has been on the rise. Every time with the commissioning of a fertilizer factory or a gas turbine power plant, there has been a sudden increase on the demand curve for natural gas. Exploration and development activities increased whenever the demand for gas exceeded the availability of producer's capacity and the supply system. As a consequence, the importance of natural gas was realized and its exploration and development strategies were revived.

In 1973, two years after liberation, a comprehensive policy was recommended for a new legal framework to safeguard the national interest and to optimise the benefits to the national economy. The purpose was to meet the increasing demand of natural gas by encouraging rapid exploration and development of our oil and gas sector.

Following this, a favorable petroleum act was promulgated in 1974, a new Model Production Sharing Contract (MPSC) was prepared in 1988 that was again revised in 1993. This contract is now available for potential investors both from inside and outside with suggestions incorporated from the Petroleum Policy of 1993 and the National Energy Policy of 1995. These changes and incentives were offered to attract foreign oil companies to play an active role under a new Production Sharing Contract system. Similar measures have achieved significant success in attracting international oil companies in Indonesia, Malaysia, Egypt and China. Model Gas Purchase and Sale Agreement of 1995 is also available now. Several round table conferences were arranged inside and outside the country to focus Bangladesh as a potential oil and gas zone to international oil companies. In this regard Bangladesh made several policy changes in favor of foreign participation. With renewed interest in gas and favorable condition for foreign investment in Bangladesh, a number of IOCs are keen to invest in this sector now. This paper reviews Bangladesh's petroleum exploration history, legislative changes, current situation and some key suggestions regarding future prospect of our hydrocarbon exploration and development.

Chapter II

OBJECTIVES

After the first commercial production of natural gas in 1960, the use has been diversified and its demand increased steadily. Today around 75% of our power generation is dependent on natural gas. Several projections (Petrobangla, NEP 1995) of natural gas show that this demand would increase around 7-10% in fertilizer sector, 10-13% in power generation and 7% in industrial use. Under the present pace of development in the power and fertilizer sectors, by 2005, it is realistic to expect that 1000 MW of electric power and one 500,000 ton urea/year plant are to be added to the existing capacity requiring additional 150 mmscfd gas for power and 50 mmscfd for urea (Quader, 1999). During 2006-2010, another 500 MW of electric power will be added requiring additional 75 mmscfd gas.

To meet this growing demand, several changes have been made in the legal framework to attract international oil companies to play an active role to raise the present recoverable reserves by increasing exploration and development activities.

The objectives and possible outcome of this study are as follows:

- To identify any shortcomings in legislative procedures (Petroleum Acts, Policies, etc) that may have created hindrance to promote exploration and development of Bangladesh gas sector.
- To identify the changes in policy that attracted International Oil Companies (IOCs) to invest in Bangladesh.
- To compare Production Sharing Contracts (PSCs) of different countries, and to identify any weakness of our PSCs and make suggestions to improve them.

Chapter III

PROSPECTS OF OIL AND GAS

Bangladesh constitutes one of the largest deltas of the world. To evaluate the prospect of oil and gas in Bangladesh needs detailed knowledge of geology and the techniques for identification of promising areas of resources. Because of the poor exposure of rocks and the limited wells drilled so far, the geology of Bangladesh is not adequately known (REIMANN, 1993). The site selection of drilling for oil and gas depends on the detailed geological and geophysical mapping and its accurate interpretation in relation to stratigraphy, structure, sedimentation and depositional environments of sedimentary rocks of the regions. Without which the oil and gas accumulation can not be accurately identified.

Petrobangla in co-operation with the German Geological Advisory Group carried out geological investigations on a 1:50,000 scale in 1977 for sedimentological studies of rock sections between Ranirhat and Rangamati and between Chandraghona and Kaptai in Chittagong Hill Tracts. A geological study was done close to the Indian border in Chittagong Hill Tracts and also in areas near Cox's Bazar, Sitakund and Sandwip with the aim of obtaining specific information on unconformities and thrust faults in these areas (Khan, 1980). The objectives were to better understand the regional geologic and tectonic features of the south-eastern part of the country. Carbon-isotops ($^{13}\text{C}/^{12}\text{C}$) analyses on gas samples from all producing onshore gas fields and from natural gas seepages elsewhere were carried out in the laboratories of Federal Institute for Geosciences in German. The results indicate that all these natural gases are derived from marine organic substances and are not from coal or humic organic matter. These gases may well have

been generated together with oil but were subsequently separated from it during migration. If that was the case, there is a good chance to find oil as well in this seemingly highly gas-prone country.

Considering the above available parameters and on the basis of geological structures, the promising areas are clearly shown in Figure-3.1 and described below-

3.1 Surma Basin or Sylhet Trough

Geological rock sequences of sub-surface conditions of Surma Basin based on the available geological logging and interpretation of geophysical data indicate that the rocks of Eocene, Oligocene and Miocene ages are present. These rock types characterizes the source rock, reservoir and cap rocks and requisite conditions favourable for generation of oil and gas. The present striking rate of gas fields of the regions give positive evidences for prospecting of gas in BokaBil Formation of Miocene age or the possibility of finding oil in Barail formation of Oligocene age.

3.2 Folded Belt, The Hilly Regions

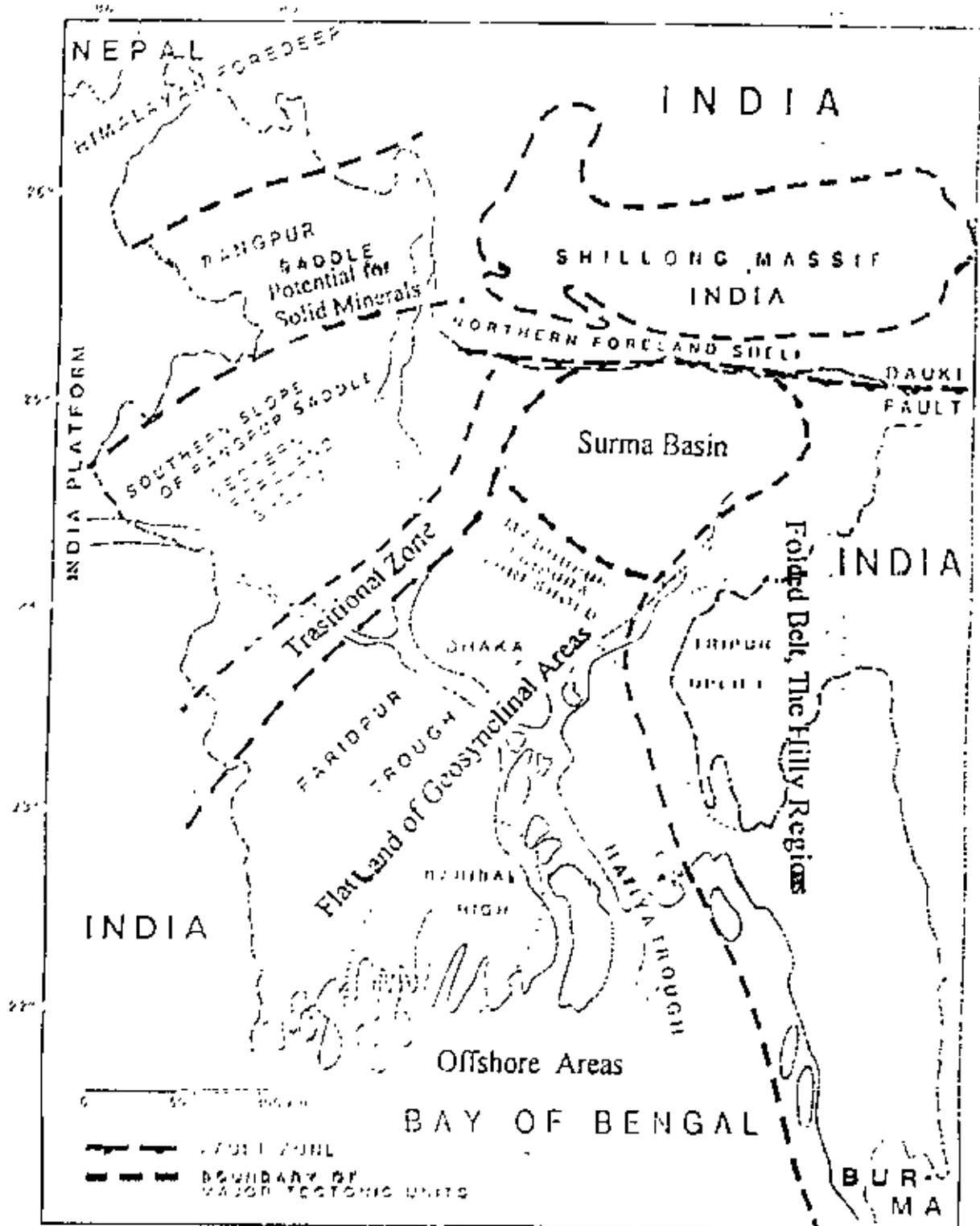
The rocks of BokaBil or Bhuban Formations are exposed in the folded-belt. The correlation of similar rock types and its geological conditions of oil fields of Assam give possible evidences that gas may be available in lower Bhuban rocks of miocene age or in Barail formation of oligocene age, but drilling site selection must be in the suitable anticlinal structures of the regions.

3.3 Flat Land of Geosynclinal and Offshore Areas

The detailed geological and geophysical data needed for interpretation of sub-surface conditions suitable for petroleum geological parameters for prospecting of oil and gas. The correlation between environmental conditions and the behaviour of major structural elements need detailed geological and geophysical study of these geosynclinal and offshore areas.

3.4 Transitional Zone (North-Western Part)

The transitional zone between the Shelf region (not suitable due to narrow thickness of sedimentary rocks) and geosynclinal areas, may be considered as areas for prospecting of oil and gas. Identification of the promising sub-surface areas need presence of suitable structures or the favorable facies conditions due to transgression and regression of sea during Eocene to Miocene ages.



Source: Geology of Bangladesh - REIMANN (1993)

Figure-3.1: Geological Map for Oil and Gas in Bangladesh

Chapter IV

SECTORWISE NATURAL GAS CONSUMPTION

To understand the development of legislation in this energy sector, a clear picture of the past, present and future consumption of natural gas must be drawn. Hence, a sectorwise energy growth scenario is presented here.

During the international energy crisis of the 1970's, the rapid rise in international oil prices increased demand for natural gas in different sectors for its lower cost. A more attractive incentive to use natural gas is its easy and clean burning environment benefits. With the growth of the economy, demand for energy increased. To meet up this demand, IOCs are encouraged to invest in our gas sector by changing policy matters that included legislative and contractual framework (detailed description in chapter VII).

From Table-4.1 and Figure-4.1 it is clear that natural gas consumption in the power and fertilizer sector started increasing drastically in the mid-80s. This is because at that time most of the power plants in the eastern grid was being converted from diesel to natural gas and at the same time some new power plants based on gas were added in the national grid. In the fertilizer sector, three big urea plants were installed from the middle of 80s to the beginning of 90s. Industrial and commercial demands also increased during that period, although the overall percentages of this two sectors are not as significant as the other two.

In 1996-97, consumption of natural gas in fertilizer sector decreased due to supply crisis of natural gas in the Chittagong region. As a result, Chittagong Urea Fertilizer Factory (CUFL) stopped its production. Power sector was given priority for supplying gas at that time. After completion of Ashugonj-Bakhrabad pipeline (A-B pipeline) and commencement of gas from Sangu and Jalalabad gas field by two IOCs, CUFL again started production and natural gas

consumption in fertilizer sector increased. A similar supply shortage also occurred during 1989-91 period due to a fatal accident at Ghorasal Fertilizer Factory. Presently there is no shortage of supply and the daily demand is about 930 mmscfd.

Table-4.1: Sectorwise Natural Gas Consumption

Year	Sectors (MMSCF)					Total
	Power	Fertilizer	Industrial	Commercial	Domestic	
1967-68	225	0	0	0	0	225
1968-69	1019	0	5	9	1	1034
1969-70	1140	1828	145	26	4	3143
1970-71	3419	4225	255	41	22	7962
1971-72	3103	602	322	33	36	4096
1972-73	4513	9669	843	66	87	15178
1973-74	7419	10559	1462	115	146	19701
1974-75	6063	2098	1784	181	277	10403
1975-76	6535	11018	2334	266	489	20642
1976-77	8260	16027	3047	370	766	22410
1977-78	9327	8311	3742.17	571.27	1125.43	23076.87
1978-79	9209	11146	4557.36	854.55	1873.09	27640
1979-80	11018	11975	5182.99	1078.10	2561.84	31815.93
1980-81	13321	11210	5978.60	1342.47	3390.00	35242.07
1981-82	18010	19836	7391.06	1680.98	4214.25	51132.29
1982-83	21999	19140	7812.44	1917.57	5217.24	56086.25
1983-84	22886	25805	8687.83	2057.67	5785.14	65221.64
1984-85	38292.70	24296	11447.76	2232.62	6318.95	82588.03
1985-86	39778.27	30070.50	16352.56	2721.54	6796.95	95719.82
1986-87	51852.09	33474.5	18673.16	3415.81	6840.79	114256.35
1987-88	63054.45	50978.72	15665.47	3603.63	7590.41	140892.68
1988-89	66455.80	57886.51	14297.08	3126.15	9261.28	151026.82
1989-90	75557.45	55909.11	13892.44	3098.67	10418.70	158876.37
1990-91	82556.11	54172.33	13911.78	2930.55	10529.37	164100.14
1991-92	88105.07	61642.31	14088.55	3135.73	11645.93	178617.59
1992-93	93212.08	69176.18	15801.05	2547.99	13495.68	194232.98
1993-94	97491.11	74434.89	19895.15	2853.89	15603.05	210278.09
1994-95	107437.37	80464.44	23891.25	2896.42	18781.78	233471.26
1995-96	110827.15	90979.45	27189.53	3029.01	20776.44	252801.58
1996-97	110864.20	77828.57	29303.97	3393.48	22869.06	244259.28
1997-98	123391.93	80000.68	33046.61	3496.83	24984.67	264920.72
Total	1296281.7	998763.19	321005.81	53091.93	211908.05	2881050.76

Source: Petrobangla MIS division

In 1968-69, out of a total consumption of 1034 mmscf, power sector alone used 98% of the total gas and commercial, industrial and domestic sectors together used only 2%. With the introduction of gas in the Urea Fertilizer Factory Limited (UFFL) at Ghorasal in 1970, the total demand for gas stood at 7962 mmscf. Percentage use of gas in power, fertilizer, industrial and commercial sectors were 43%, 53%, 4% and 0.5% respectively. Domestic use of gas was 3% in 1970-71 which increased to 8% in 1979-80. Use of gas in power sector kept on increasing and in 1996-97 its share was 46%. Figure-4.2 shows percentage of gas consumption in different sectors from the beginning of its use. It is anticipated that more and more gas would be used to meet the power demand of the country

4.1 Gas Demand Projections

Over the past decades demand for gas as an economic and convenient fuel increased remarkably. There have been several projections of natural gas demand. Some of the important assumptions were.

- 7-10% increase in gas demand for fertilizer
- 10-13% increase in gas demand for gas fuelled power generation
- 7% rise in gas demand in the industrial sector

Aziz and Imaduddin (1999) studied gas demand projections and a conservative analysis by Petrobangla indicates that the total demand will increase from 948 mmscfd (avg.)/1112 mmscfd(peak) in 1999-2000 to about 1450 mmscfd (avg.) /1450mmscfd (peak) in 2004-2005 and 1900 mmscfd(avg.)/2250mmscd(peak) in 2009-2010. This conservative analysis uses the above mentioned growth rates of gas demand for forecasting. Some other projections (first five year plan, second five year plan etc.) showed much higher demand growth rates which were always proven to be far above the actual demands

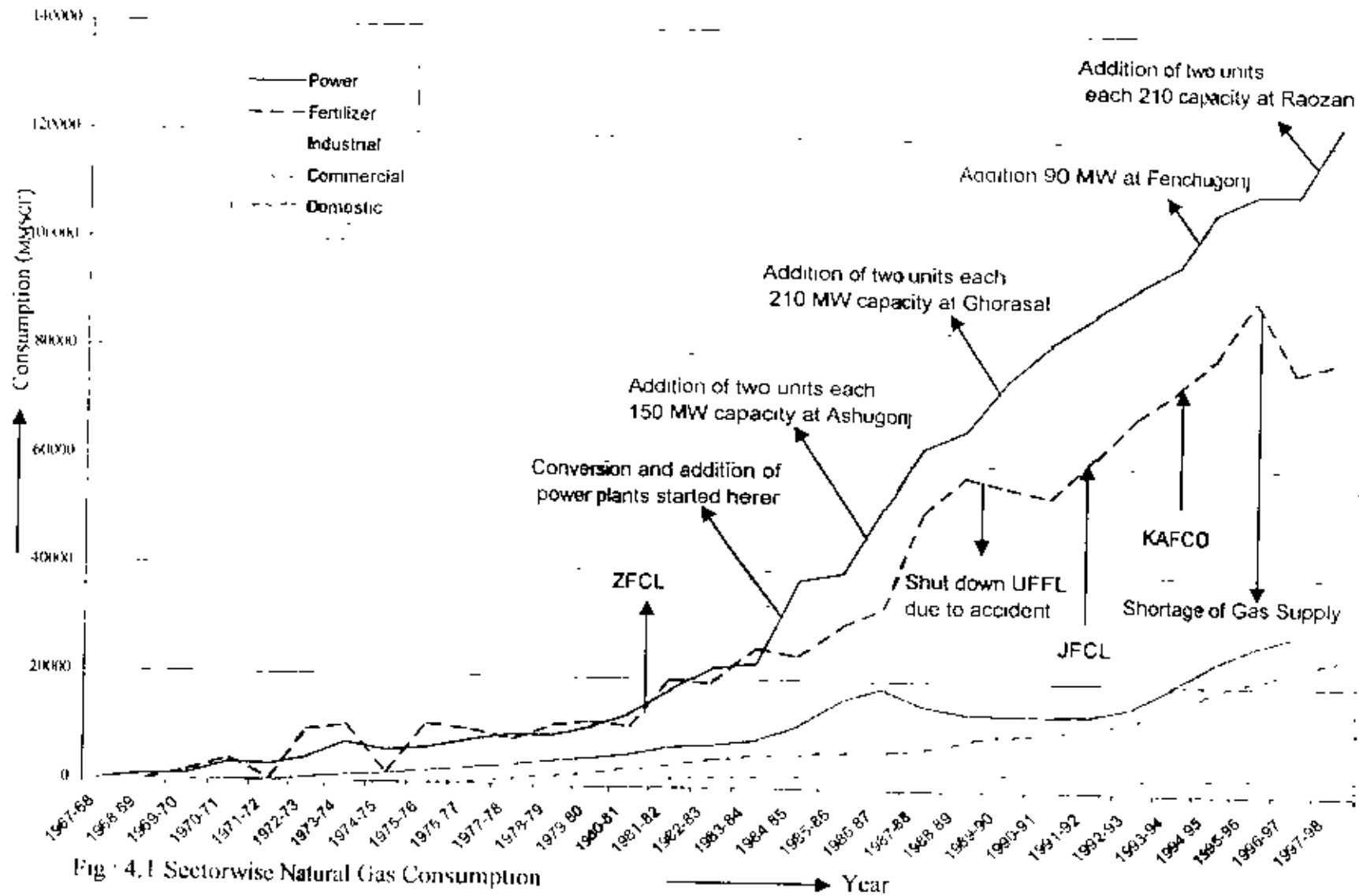


Fig. 4.1 Sectorwise Natural Gas Consumption

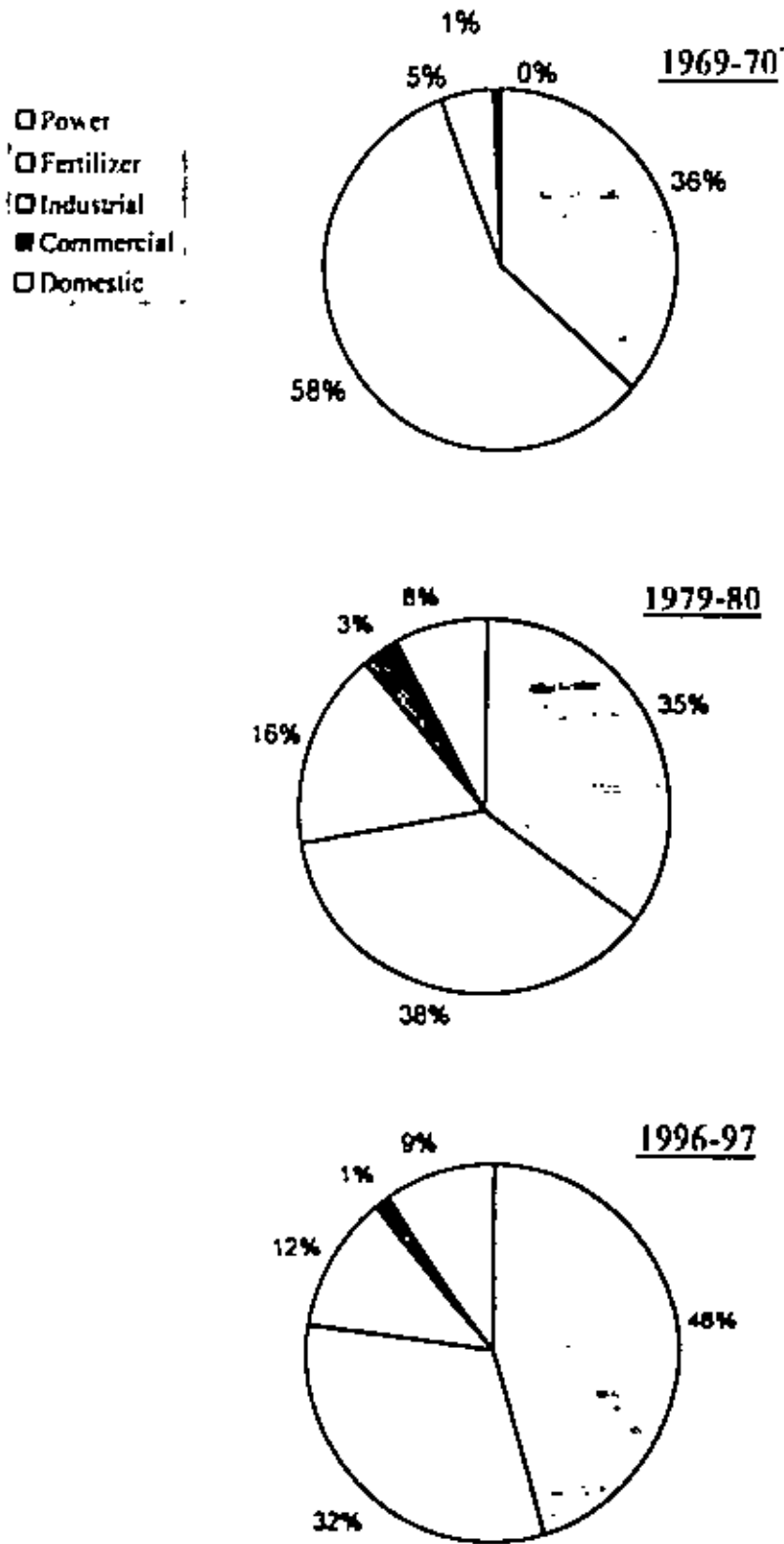


Figure-4.2: Sectorwise Natural Gas Consumption

Chapter V

TRENDS OF NATURAL GAS USES FOR POWER GENERATION

From the present trend of economic growth in different areas it is clear that most of the future gas demand would come from the power sector. A more detailed and lists of the gas demand scenario in power sector would enable us to have a better understanding of the growth projection.

Natural Gas was first introduced on a trial basis for power generation in Bangladesh (the then East Pakistan) in 1967 in a 30 MW power plant in Siddirgonj. Uses of gas to produce electricity increased steadily and in 1999 installed generating capacity by using natural gas stood at 2575 MW which is about 75% of the total installed capacity. In December 1999, natural gas was supplied to the western zone for the first time and it is expected that several gas fired power plants would be established in the power starved western zone of the country.

Table-5.1 shows that natural gas consumption started increasing in power generation from the very beginning after the installation of a 30 MW trial plant in 1967. Conversion of the old oil-fired power plants and addition of some new power plants pushed the the total demand of gas to the present value. From Figure-5.1 it is clear that in the mid-80s, natural gas fueled power generation installed capacity increased sharply. This was due to the addition of three 210 MW units at Ghorasal and three 150 MW units at Ashugonj. In mid-90s another new power plant in Raozan with two units each of 210 MW capacity was added in the national grid. A sharp rise in natural gas consumption curve can be observed during that period. Furnace oil and HSD/SKO consumed in power generation, mainly in the remote areas and western zone where natural gas is not available, remains almost same from the

beginning Natural gas completely replaced the use of naphtha and coal in power generation in 1972 and 1983 respectively.

Under the prevailing pace of development and gas demand projection by conservative analysis indicates that in the power sector around 1000 MW electric power is to be added to the existing capacity requiring additional 150 mmscfd gas by 2005 (150 mmscfd for 1 MW power plant)

Table-5 1: Trends of Natural Gas Uses for Power Generation

Year	Installed capacity by type of fuel (MW)						Total installed capacity
	Hydro	Coal	Furnace Oil	Natural Gas	Naphtha	HSD/ SKO	
1965-67	80.00	30.96	30.00			79.20	220.16
1967-68	80.00	30.96		30.00		124.59	265.55
1968-69	80.00	6.00	24.96	117.00	37.00	85.34	360.30
1969-70	80.00	4.16	20.80	181.50	43.50	89.00	418.96
1970-71	80.00	4.16	20.80	316.40	45.70	81.64	548.70
1971-72	80.00	4.16	20.80	316.40	45.70	81.64	548.74
1972-73	80.00	4.16	80.80	316.40	45.70	81.23	608.29
1973-74	80.00	Stopped	84.96	371.40	45.70	78.03	660.09
1974-75	80.00		84.96	371.40	45.70	85.38	667.44
1975-76	80.00		84.96	426.40	45.70	128.52	765.58
1976-77	80.00		84.96	426.40	45.70	129.6	766.66
1977-78	80.00		84.96	426.40	32.70	128.08	752.14
1978-79	80.00		76.64	426.40	7.20	127.74	717.98
1979-80	80.00		80.00	426.40		233.79	822.19
1980-81	80.00		80.00	426.40		226.76	813.16
1981-82	130.00		80.00	414.00		233.00	857.00
1982-83	130.00		76.64	474.00	6.50	232.1	919.24
1983-84	130.00		182.45	564.00	13.00	231.55	1121.00
1984-85	130.00		182.45	577.00	Stopped	251.55	1141.00
1985-86	130.00		170.00	633.00		238.23	1171.23
1986-87	130.00		170.00	1069.00		238.33	1607.23
1987-88	230.00		170.00	1468.00		278.23	2146.23
1988-89	230.00		170.00	1678.00		287.28	2365.28
1989-90	230.00		170.00	1678.00		274.21	2352.21
1990-91	230.00		170.00	1678.00		271.03	2349.93
1991-92	230.00		170.00	1875.00		332.68	2397.68
1992-93	230.00		170.00	1875.00		332.68	2607.68
1993-94	230.00		170.00	2175.00		332.68	2607.68
1994-95	230.00		170.00	2175.00		332.68	2907.68
1995-96	230.00		170.00	2175.00		332.68	2907.68
1996-97	230.00		170.00	2365.00		326.00	2907.68
1997-98	230.00		170.00	2365.00		436.00	3091.00
1998-99	230.00		170.00	2575.00		436.00	3411.00

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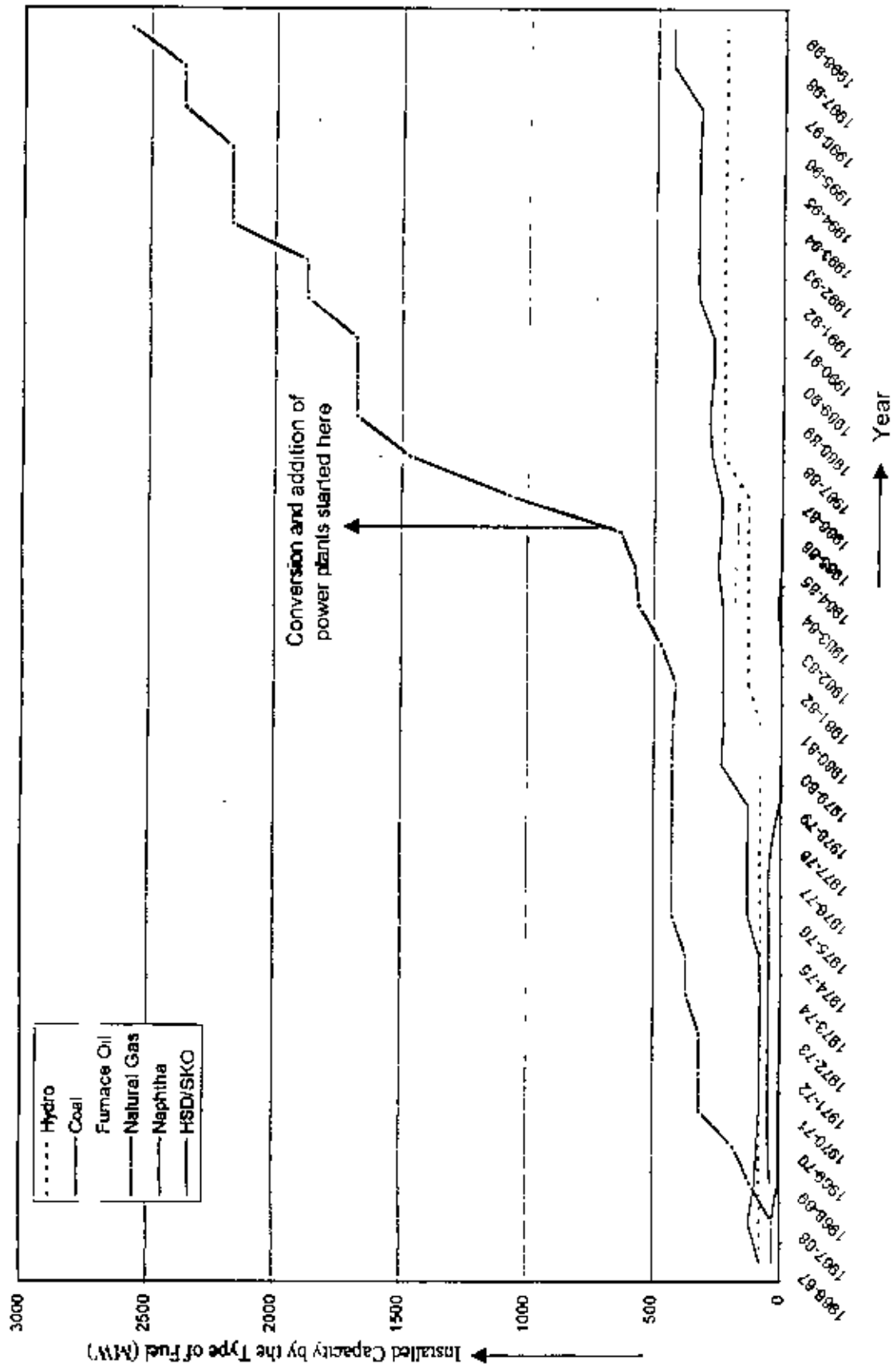


Figure-5.1: Trends of Natural Gas Uses for Power Generation

Chapter VI

EXPLORATION BACKGROUND

Petroleum exploration in Bangladesh commenced from the beginning of the current century. Increasing trends of natural gas consumption in different sectors specially in the power and fertilizer industries encouraged government to take steps to enhance exploration activities in the different areas of the country. Exploration activities took place in three phases. These phases are divided on the basis of different administrative regime such as British, Pakistan and Bangladesh tenure.

6.1 Phase-I (1910-1933)

In the first phase, three exploratory shallow wells were drilled near Sitakund on the Sitakund structure between 1910 and 1914 by the Indian Prospecting Company. The Burma Oil Company (B.O.C.) drilled the first exploratory shallow well in 1914 on the same structure. But all these wells were abandoned as dry holes. Subsequently between 1923 and 1933, the B.O.C. drilled two shallow wells in Patharia structure. Indications of oil were found but no commercial production was established. In this phase, shallow depth wells varying from 763m to 1047m were drilled and no oil or gas field was discovered.

6.2 Phase-II (1951-71)

After the disruption of World War-II, once again exploration begun and during the period 1951-71, 22 exploration wells including one offshore well were drilled. In this phase, individual well depth varied between 830m to 4500m. National Oil and Gas

development Corporation (OGDC) of Pakistan drilled 4 wells and Foreign Companies (Shell, Stanvac, Pakistan Petroleum Ltd.(formerly B.O.C.)) drilled 18 wells. OGDC discovered one gas field and the foreign companies discovered seven gas fields. The second phase of exploration added glorious chapter in the history of Bangladesh natural gas sector. Most of the present recoverable reserves were added during this period. The two largest gas field – Titas and Habiganj were discovered in 1962 and 1963 respectively. Phase-II exploration activities are shown in Table-6.1.

Table-6.1: Phase-II Exploration Activities

Sl. No	Discovered by	Year	Field	Gas Reserve(TCF)	
				In Place	Recoverable
1	PPL	1950	Chhatak	1 900	1.400
2	PPL	1955	Sylhet	0.444	0.266
3	Shell	1960	Rashidpur	2 242	1.309
4	Shell	1962	Kailashtila	3.657	2.529
5	Shell	1962	Titas	4.138	2 100
6	Shell	1963	Habiganj	3.669	1.895
7	Shell	1969	Bakhrabad	1.432	0.867
8	OGDC	1969	Semutang	0.164	0 098

Sources: Petrobangla library.

6.3 Phase-III (1972-1996)

After the emergence of Bangladesh, The Bangladesh Petroleum Act 1974 was promulgated and subsequently Petrobangla was formed in 1974 to promote and regulate exploration, production and distribution of petroleum. The years 1974-78 were focused on offshore drilling (Hossain, 1998) by six international oil companies under Production

Sharing Contracts (PSC). From the beginning of the 80's exploration was targeted on liquid hydrocarbon (Hossain, 1998) and as a result Bangladesh entered into the oil-era in December 1986, crude oil was discovered from the well in Haripur (well no. Sylhet 7)

In the third phase, 33 wells including 8 offshore wells were drilled. Individual well depth varied from 1500-4977m Petrobangla discovered 9 gas field and 1 oil field and foreign companies discovered 5 gas fields of which 2 are in the offshore area Phase-III exploration activities are shown in Table-6.2.

Table-6.2 Phase-III Exploration Activities

Sl No	Discovered by	Year	Field	Gas Reserve(TCF)	
				In Place	Recoverable
1	UNION	1977	Kutubdia	0.780	0.468
2	Petrobangla	1977	Begumgonj	0.025	0.015
3	Petrobangla	1981	Feni	0.132	0.080
4	Petrobangla	1981	Beanibazar	0.243	0.167
5	Petrobangla	1981	Kamta	0.325	0.195
6	Petrobangla	1988	Fenchugonj	0.350	0.210
7	SCIMITAR	1989	Jalalabad	1.500	0.950
8	Petrobangla	1990	Meghna	0.159	0.104
9	Petrobangla	1990	Narsindi	0.194	0.126
10	Petrobangla	1995	Shahbazpur	0.514	0.333
11	Petrobangla	1996	Saldanadi	0.200	0.140
12	CAIRN	1996	Sangu	1.157	0.798
13	Petrobangla	1986	Sylhet-7	Oil(8.2 MMBBL.)	
14	OCCIDENTAL	1999	Bibiyana	Under appraisal	
15	UNOCAL	1999	Moulvibazar	Under appraisal	

Sources: Petrobangla library

In the third phase, one drilling operation at Magurchara by Occidental suffered a blowout and by subsequent drilling in the same area, Moulvibazar Field was discovered.

Figure-6 1 shows a phase-wise exploration history of Bangladesh. From the figure, it is seen that after introduction of more favourable acts and policies, there is notable increase in exploration activities.

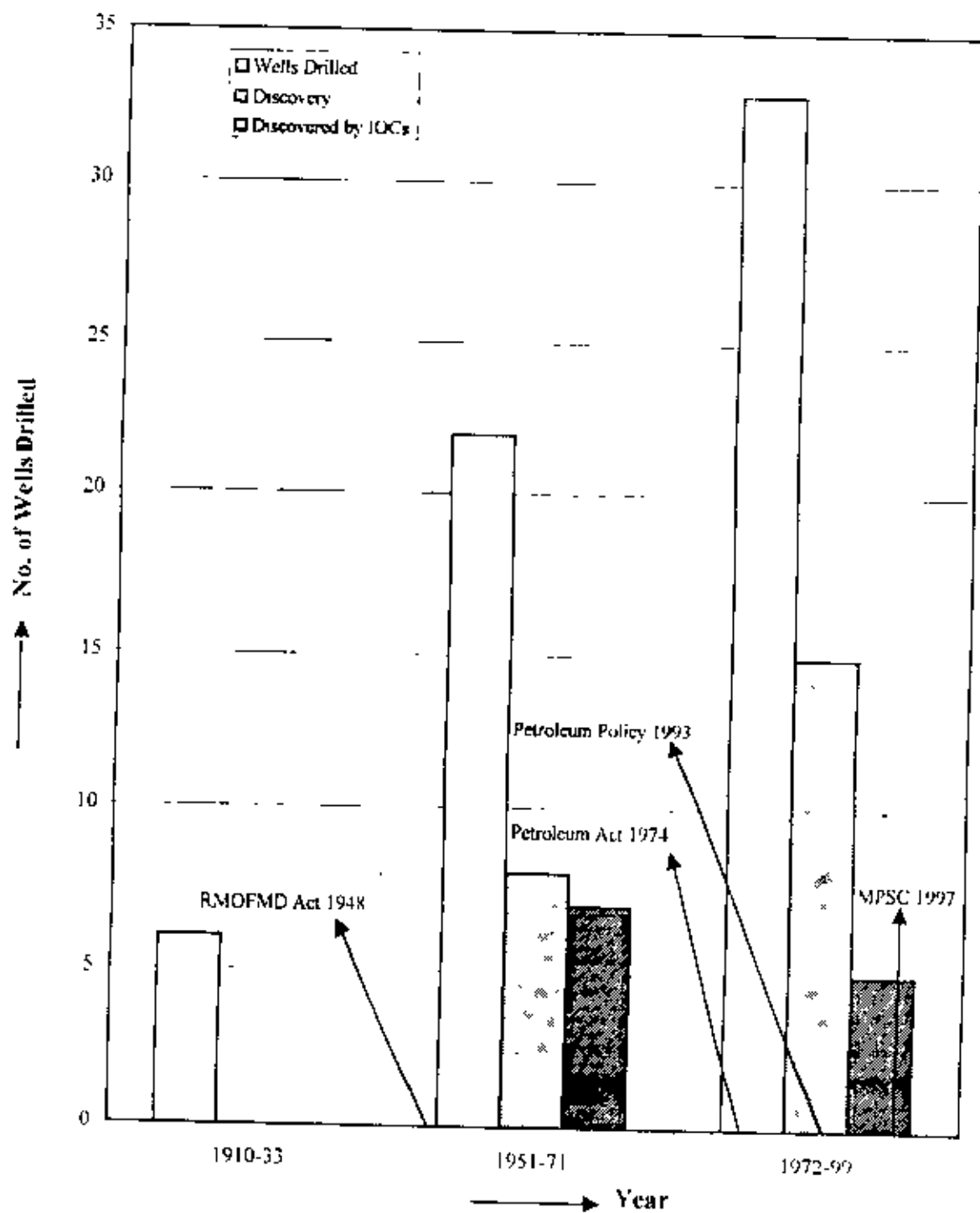


Figure-6.1: Exploration History of Bangladesh

Chapter VII

MEASURES TAKEN TO ENHANCE EXPLORATION

7.1 Petroleum Act 1934

Petroleum Act 1934 (1934) consolidated and amended the law relating to the import, transport, storage and production of petroleum and other inflammable substances. Nothing was mentioned about petroleum exploration and development in the 1934 act.

Main components of this act are:

1. No one shall import, transport (storage or distribution) any petroleum save in accordance with the following rules:
 - a) Prescribing places where petroleum may be imported and prohibiting its import elsewhere,
 - b) Regulating the import, transport and distribution of petroleum,
 - c) Regulating the places at which and prescribing the conditions subject to which petroleum may be stored,
 - d) Specifying the nature, situation and condition of all receptacles in which petroleum may be stored.
2. No one shall produce (refine, blend) petroleum save in accordance with the following rules:
 - a) Prescribing the conditions subject to which petroleum may be produced, (refined, blended) and
 - b) Regulating the removal of petroleum from places where it is produced and preventing the storage therein and removal therefrom etc

7.2 **The Regulation of Mines and Oil-Fields and Mineral Development (Government Control) Act, 1948 (RMOFMD).**

This Act (RMOFMD, 1949) was promulgated in 1948 and by this act the Government got the power to make rules to provide for all or any of the following matters;

1. The manner in which and the authority to whom, application for the grant or renewal of an exploration licence or other mining concession shall be made and the prescribing of the fees to be paid on such application.
2. The conditions in accordance with which the grant or renewal of an exploration licence or other mining concession may be made and the prescribing of forms for the execution or renewal of such licence, lease and concession,
3. The circumstances under which renewal of a licence, lease or concession as aforesaid may be refused or any such licence whether granted or renewal may be revoked,
4. The determination of the rates at which and the condition subject to which royalties, rents and taxes shall be paid by licensees or lessees,
5. The refinement of mineral oils,
6. The control of production, storage and distribution of oils,
7. The fixation of prices at which mineral oils may be bought or sold

After promulgation of this act Phase-II exploration got momentum and following this, 22 exploration wells were drilled with 8 discoveries.

7.3 Petroleum Act 1974

Petroleum Act 1974 (1974) was promulgated in 1974 and came in force in August 1974 to provide legal framework for exploration, development, exploitation, production, processing, refining and marketing of petroleum. This act covers both upstream and downstream activities of petroleum. Bangladesh Oil, Gas And Mineral Corporation (Petrobangla) was established in the same year to work as a regulatory body to implement and promote exploration, development and other activities of petroleum sector. Bangladesh Petroleum Exploration Company Ltd. (BAPEX), a government owned company was formed under Petrobangla in 1989 to commence and enhance exploration activities by Petrobangla itself and at the same time to reduce dependence on foreign companies. After promulgation of this act government found favorable condition to enter into a petroleum agreement with any person or company for petroleum exploration and development activities

Main features of this Act

1. The Government has, within the territory, continental shelf and economic zone of Bangladesh, exclusive right to explore, develop, exploit, produce, refine and market petroleum
2. The Government shall plan, promote, organize and implement programs for exploration, development, exploitation, production, processing, refining and marketing of petroleum

3 In particular and without prejudice to the generality of the following provisions, the Government may take such steps as it thinks fit :

- To carry out geological, geophysical and other surveys for the exploration of petroleum,
- To carry out drilling and other drilling operations to prove or estimate the reserves of petroleum,
- To undertake such the production of petroleum from such reserves, and the refining of such petroleum,
- To sell, distribute, transport and otherwise disperse of petroleum and its refine products,
- To contribute towards the cost of any studies, experiments or technical research connected with petroleum

Besides this act, a need for a petroleum policy was felt because policy can be updated on a regular basis for further enhancement of exploration activities by foreign companies.

7.4 Petroleum Policy 1993

Petroleum policy was formulated in 1993 (Petroleum Policy 1993, 1993) from the guideline of Petroleum Act 1974 to augment the petroleum resources base of the country and to meet the ever increasing demand of natural gas specially in the field of

power, fertilizer and industrial sectors. To achieve these objectives both domestic and foreign participations are to be attracted to this vital sector.

Main objectives of this policy are:

1. Undertake systematic survey, exploration and exploitation of petroleum resources and to ensure their rational use for sustainable development of the country,
2. Adopt uniform policy instrument for both public and private sector (local and foreign) enterprises,
3. Consider development of gas fields through private sector, as a part of government's privatization policy,
4. Increase involvement of private sector in the petroleum industry and trade. Create a competitive environment for giving the best deal to the consumer in price and quality,
5. Promote measures for environmental impact assessment in this sector.

For achieving these policy objectives some specific measures which will promote exploration and development are:

- Steps will be taken to amend the existing acts and rules to implement the policy wherever necessary.
- All applications for exploration licenses will be decided within six months and disputed or contested applications will be decided within nine months.
- The Model Production Sharing Contract (MPSC) will be reviewed at intervals.
- Repatriation of profit as per PSC provision will be allowed.

- Private and public sectors will be treated uniformly
- No administering fee or signature bonus will be necessary on signing of PSC.
- Special consideration will be given to application for PSC in offshore areas.
For offshore production, rate of bonuses and the GOB's share would be lower than onshore production
- No duty will be levied on machinery, equipment and consumables imported for petroleum operation during exploration, development or production stage.
- Companies will remain harmless of all corporate tax and such other taxes as are determined under the terms of PSC.
- Local private companies will be encouraged to seek joint ventures with foreign companies and/or with BAPEX in exploration.
- Declaration of commercial discovery will be on the basis of one well.

7.4.1 Pricing

- The pricing for non associated gas will be 75% of Singapore open market price of high sulfur fuel oil with negotiated discounts. For offshore area this price will be 25% higher than those from onshore areas.
- The price of locally produced LPG will be linked to international kerosene price on BTU basis with appropriate discount to encourage its local production.
- The value of oil from each production area will be determined on the basis of market value comparable to Asia Pacific Price Index (APPI).

7.5 National Energy Policy 1995

In recognition to the importance of energy in socio-economic development, the Government of Bangladesh paid continuing attention to the overall development of energy sector. It involved survey, exploration, exploitation and distribution of indigenous natural gas; establishment of petroleum refining facility and distribution systems; and establishment of power generation plants and networks for transmission and distribution of electricity.

Main points of the Energy Policy (National Energy 1995, 1995) for Natural Gas are:

1. Special incentive packages similar to those offered for oil and gas exploration in off-shore areas are to be given exploration of oil and gas resources in the western zone.
2. Foreign and local entrepreneurs are to be encouraged to invest in exploration for oil and gas in the country.
3. Intensive exploration need to be continued to delineate new structures in the virgin areas.
4. Steps are to be taken to drill the established structures to ascertain their status.
5. A comprehensive data base, containing all information and data required for exploration, is required to be developed by continuously updating geological, geophysical and geo-chemical information.
6. Comprehensive reservoir study of the developed gas fields is to be undertaken to determine their actual field potential.
7. Systematic appraisal of the discovered, partially developed and undeveloped gas/oil fields is to be undertaken to determine actual recoverable reserves.

7.6 Contractual Framework

An essential and intricate part of any petroleum agreement involves the actual framework for cost and profit sharing. In a way, this contractual framework actually plays the vital role in attracting private participation in any government venture. A model Production Sharing Contract was drafted in 1997. Several incentives were offered to the IOCs in this contract. Main features of the model PSC (1997) are:

7.6.1 Parties

1. The Government of the People's Republic of Bangladesh (represented by the Ministry of Energy and Mineral Resources) and Bangladesh Oil, Gas and Mineral Corporation (Petrobangla).
2. Contractor(s) i.e. local or foreign oil companies

7.6.2 Contract Area

Designated blocks. Two blocks can be in one contract if geologically justified and in that case separate work program for each block

7.6.3 Contract Period

1. Exploration: The initial exploration period shall be three contract years from the effective date. Contractor shall have the right to extension of the exploration period for upto two successive periods of two contract years each provided contractor has fulfilled its obligations of minimum work program for the current period.

2. **Appraisal:** Up to maximum three years if contractor by its notice to Petrobangla proposes to undertake an appraisal of the discovery within which contractor shall commence and complete the appraisal program.
3. **Production:** In the event of commercial discovery, the production period shall be twenty years from the date of Petrobangla's approval of the development plan for a oil field and shall be twenty five years from the date of Petrobangla's approval of the development plan for a gas field. If commercial production of an oil field or gas field remains possible beyond the applicable time contractor may request by notice to Petrobangla at least six months prior to the end of such production period to have the duration of this contract extended with respect to such field up to an additional five years on terms and conditions to be mutually agreed between Petrobangla and contractor.

7.6.4 Relinquishment

Contractor can relinquish to Petrobangla a portion of the contract area and rights to conduct petroleum operations in the following way;

1. Twenty five percent (25%) of the original contract area not later than the end of third year;
2. An additional twenty five percent (25%) of the contract area not later than the end of the fifth contract year,

3. All portions the contract area not later than the end of the seventh contract year;
4. All portions of the contract area not designated as production areas, not later than the end of the last such extension.

Prior to relinquishment the contractor shall perform all necessary clean-up activities including removal of equipment or installation or take action necessary to prevent hazards to human life or property.

7.6.5 Minimum Work Program

Contractor shall commence exploration operations not later than sixty days after the effective date, and continue such exploration diligently for the duration of the exploration period and for any such extensions. Minimum work obligation is negotiable. Extended exploration period should carry well commitments.

7.6.6 Cost Recovery

Cost Recovery means by which the contractor recover costs of exploration, development and operation out of gross revenues. The concept is, one who put up the capital should at least get their investment back. The cost recovery mechanism is one of the most common features of PSC. It is slightly different than the cost recovery techniques used in the most concessionary systems. Most PSCs have a limit to the amount of revenues the contractor may

claim for cost recovery but will allow unrecovered costs to be carried forward and recovered in succeeding years. Cost recovery limits typically ranges from 30%-60% but sometimes this may be upto 100% such as in Thailand and Norway. In Bangladesh cost recovery limit ranges from 50% for oil and 60% for oil and following provisions are applicable for recovering costs.

Subject to the auditing provisions of the contract, contractor can recover all costs and expenses of all the exploration, appraisal, development and related operations with respect to the contract area and out of the recovery limits as set out below;

1. All operating expenses incurred after the commercial production from the contract area shall be recoverable in the calendar year in which such expenses are incurred and paid.
2. All tangible costs relating to drilling wells and other capital costs incurred by the contractor under development plan approved by Petrobangla, prior to or after commercial production, will be recovered either in the calendar year in which the expenditure was made or the calendar year in which commercial production occurs, whichever occurs first. A sample cost recovery agreement between the government and an operating contractor is discussed in chapter VIII

7.6.7 Natural Gas

1. Following good reservoir management practices, contractor shall have the right to produce annually a total volume of gas up to 7.5% of the proven total recoverable gas reserves for each gas field
2. Contractor can use with priority any natural gas in the contract area for the purpose of increasing the recovery of oil, where good reservoir practices indicate that the use of natural gas for this purpose is required.
3. Contractor shall have the right to export any marketable natural gas produced from the contract area in the form of liquefied natural gas (LNG) either directly or via third party subject to negotiation with the government. Such volume shall consist of:
 - a. Contractor's cost recovery natural gas,
 - b. Contractor's profit natural gas,
 - c. Petrobangla's cost recovery natural gas and profit natural gas or where applicable, the remaining share of Petrobangla's natural gas

Where the contractor intends to export the natural gas as LNG, the related LNG facilities shall be constructed and operated on the basis of a special LNG export agreement between contractor and Petrobangla.

3. Contractor has the option to sell contractor's share of gas in the domestic market to a third party, subject to Petrobangla's right of refusal first.

7.6.8 Gas Pricing

The pricing for non-associated gas will be 75% of Singapore open market price of high sulfur oil with negotiated discounts. Offshore gas will be priced at 25% higher than those from onshore areas.

The market price shall be calculated for each calendar quarter based on the arithmetic average of the Asian Petroleum Price Index (APPI) quotations of high sulfur Fuel oil (HSFO) 180 CST. This means the price of gas produced by IOCs is to be bought by paying in the range US \$ 1.28 to 2.78 per 1000 scf depending on the price of HSFO in Singapore.

7.6.9 Taxation

All taxes to be paid by Petrobangla excluding income tax of subcontractors and employees of contractors and sub-contractors.

7.6.10 Domestic Consumption

Contractor shall provide up to a maximum of 25% of his profit oil at 15% discount and remaining if required to GOB/Petrobangla at full fair market price in convertible currency. The government has the first right to purchase contractor's gas. The contractor will be assured a domestic market outlet within 12 months of commercial discovery of gas failing which the contractor would be free to find market outlet within the country.

7.6.11 Management of Operations

A Joint Review Committee comprising of representative from Petrobangla and GOB and representatives from the contractor shall coordinate work program. A joint management committee will replace joint review committee after declaration of a commercial discovery.

7.6.12 Assignment

Contractor, may with prior written approval of Petrobangla assign any or all of its rights, interests and obligations under the contract to any of its Affiliates. Affiliated assignee shall be as qualified as the assignor with respect to its technical and financial competence. The assignor shall remain jointly liable with its affiliates for all obligations under the contract.

Subject to the prior written approval of GOB/Petrobangla, the contractor may assign any part or all of its rights, interests and obligations under the contract to a non-affiliated third party. Any assignment made shall be free of any transfer taxes, stamp duty charges or other fees.

7.6.13 Currency Control

Contractor is allowed to repatriate its income from petroleum operation freely.

Chapter VIII

COST RECOVERY AGREEMENT BETWEEN GOB AND AN OPERATING IOC

In a concession type petroleum contract profit calculation is done throughout the project period on a yearly basis. On the other hand in a PSC, this yearly battle between the two participating sides is eliminated by agreeing on a pre-determined set of production sharing rule. The major dispute in this type of contracts mostly arise from the cost recovery calculation. A closer look at the provisions of such cost recovery agreement by GOB is discussed here.

Subject to the auditing provisions of the contract, contractor shall recover all costs and expenses of all the exploration, appraisal, development and related operations with respect to the contract area to the extent of and out of the recovery limits as set out below:

1. A maximum of forty percent (40%) per calendar year of oil produced from any individual oil field with estimated initial recoverable oil reserves exceeding 85 million barrels. For field sizes of 85 million barrels recoverable or less, the cost recovery figure will be 45%.
2. A maximum of
 - fifty five percent (55%) per calendar year of natural gas produced from any individual gas field in an onshore area,

- sixty percent (60%) per calendar year of natural gas produced from any other individual gas field.
3. For NGLs, a maximum of thirty percent (30%) per calendar year of NGLs produced from any individual oil or gas field. Irrespective of the estimated reserves of such NGLs in such field.
 5. The initial recoverable reserve estimate for a producing oil field or gas field is to be calculated by the contractor and agreed by Petrobangla, using all relevant and available data; the initial recoverable reserve estimate will be reviewed annually or as and when deemed appropriate and the cost recovery associated with this estimate shall be applied on an historic and future basis until so otherwise re-determined.

Such costs and expenses shall be allocated to Oil or Natural Gas and shall be recovered from the applicable cost recovery oil or cost recovery natural gas in the following manner:

- All operating expenses incurred after the first commercial production from the area shall be recoverable in the calendar year in which such expenses are incurred and paid.
- Below ground installations and equipment, together with all drilling and associated costs, shall be recoverable on an expensed basis in the later of the Calendar Year in which the expenditure for such is incurred and paid or the calendar year in which commercial production commences in the contract area.

Moveable and fixed above ground installations and equipment shall be recoverable at the rate of 30% per year on a declining balance basis, commencing in the later of the calendar year in which the expenditure for such is incurred and paid or the calendar year in which commercial production commences in the contract area.

- All pre-commercial production costs not covered by above two paragraphs incurred prior to the date of initial commercial production in the contract area, shall be recovered on a straight-line basis at 25% per year commencing in the calendar year in which commercial production commences in the contract area.
- To the extent that in a calendar year costs or expenses recoverable under above paragraphs related to the contract area exceed the value of all cost recovery oil or cost recovery natural gas from the contract area for such contract Year, the excess shall be carried forward for recovery in the next succeeding calendar year until fully recovered, but in no case after termination of the contract.

8.1 Production Sharing

The remaining petroleum, including any portion of cost recovery petroleum not required to cover costs, shall be allocated between Petrobangla and contractor in the following proportions, based on average daily production over the month from any individual oil field or gas field

8.1.1 Profit Oil

Oil produced and saved from the contract area and not including cost recovery oil or oil used in petroleum operations	PETROBANGLA Share(%)	Contractor Share(%)
Up to fifteen thousand barrels per day	65	35
Portion in excess of fifteen thousand and up to thirty thousand barrels per day	67.5	32.5
Portion in excess of thirty thousand and up to fifty thousand barrels per day	70	30
Portion in excess of fifty thousand and up to one hundred thousand barrels per day	75	25
Portion in excess of one hundred thousand barrels per day	80	20

8.1.2 Profit Natural Gas

Natural gas produced and saved from the contract area and not including cost recovery natural gas or natural gas used in petroleum operations	PETROBANGLA Share %	Contractor Share %
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Onshore Gas

Portion up to one hundred and fifty mmscf per day	62.5	37.5
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Offshore Gas

Up to one hundred mmscf per day	50	50
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Portion in excess of one hundred mmscf per day and up to one hundred and fifty mmscf per day.	55	45
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Onshore and Offshore Gas

Portion in excess of one hundred and fifty mmscfd and up to two hundred and fifty mmscfd	65	35
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Portion in excess of two hundred and fifty mmscfd and up to three hundred and fifty mmscfd	75	25
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Portion in excess of three hundred and fifty mmscfd and up to four hundred and fifty mmscfd	85	15
--	----	----

Portion in excess of four hundred and fifty mmscfd and up to six hundred mmscfd	87.5	12.5
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Portion in excess of six hundred mmscf per day	90	10
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8.1.3 Profit NGLs

NGLs produced and saved from the contract area and not including cost recovery NGLs or NGLs used in petroleum operations	PETROBANGLA Share %	Contractor Share %
	-----	-----

Up to three thousand barrels per day	65	35

Portion in excess of three thousand and up to six thousand barrels per day	67.5	32.5

Portion in excess of six thousand and up to ten thousand barrels per day	70	30

Portion in excess of ten thousand barrels per day	75	25

8.2 Non Recoverable Cost

1. Costs incurred before the effective date of the contract that were not incurred within the relevant work program and budget.
2. Costs of goods and services in excess of the international market price for goods or services of similar quality supplied on similar terms prevailing in South East Asia at the time such goods or services were contracted by contractor
3. Any costs not included in an approved work program and budget(unless resulting from an emergency).
4. Costs incurred beyond measurement point.
5. Income taxes and other taxes incurred outside Bangladesh.
6. Fines and penalties imposed by any authority.
7. Donations or contributions, unless previously approved by Petrobangla.
8. Costs for which records do not exist
9. Charges for goods and services which are not in accordance with the relevant agreement with the sub-contractor or supplier.

Chapter IX

PSC ACTIVITIES IN BANGLADESH

Although exploration activities in Bangladesh for oil and gas commenced in the early of the current century but drilling activities under Production Sharing Contract (PSC) started after promulgation of Act, 1974. PSC activities in Bangladesh are mainly divided into two phases.

9.1 First Phase PSC Activities

Petroleum Act, 1974 opened the opportunity for international petroleum companies to explore, develop and produce oil and gas under Production Sharing Contract (PSC). Following this petroleum act, six PSCs were signed in the same year with major IOCs like ARCO, Union Oil, BODC(Nippon Oil), Canadian Superior Oil, Inaflaplin (Yugoslav State Oil) and Ashland Oil Company. Table-9.1 shows exploration activities during first phase. The IOCs which had submitted bids were evaluated on the basis of clearly established criteria. Each was graded on 40 points. Ten points were awarded for each of the four criteria, which included financial capability, technical capability, experience and work program. It was restricted to employ a local agent before signing an agreement with GOB to prevent lobbying. The companies were invited directly to engage in negotiations with the negotiating committee which was established, from the best available professionals. The companies were evaluated on the basis of the point system. Each was then invited in the order of merit to negotiate on the basis of the model production sharing contract

Table-9.1: First Phase Activities

First Phase PSC Activities			
Contractor	Period	Drilling	Discovery
ARCO	1974-76	1	0
Union Oil	-do-	1	1
Inanaftaplin	-do-	2	0
BODC(Nippon Oil)	-do-	3	0
Ashland	-do-	0	0
Canadian Superior Oil (CSO)	-do-	0	0

Source: Petrobangla

At the end seven contracts were accepted for offshore exploration. The activities of the above IOCs were limited to the offshore areas. An offshore discovery was made by UNION OIL which encountered commercial gas reserve (Kutubdia Gas Field), but due to the economic environment relating to gas in the 70s, UNION OIL decided not to develop the gas discovery.

Since the IOCs perceived Bangladesh to be gas prone, with prospects of finding gas higher than the prospects of finding oil, their interest in entering into exploration contracts diminished. The oil price crash in 1986 further reduced the interest of the IOCs worldwide to develop gas fields. In 1987 SCIMITAR, an international oil company signed a production sharing contract with Petrobangla and ended with one discovery (Jalalabad Gas Field). But due to funding problem and adverse political situation against Scimitar in the country it finally decided not to continue their activities.

9.2 Present PSC Activities

The entire international scenario for gas development has undergone a dramatic change since the end of the eighties. A review of the policy and legal framework carried out under the World Bank's Petroleum Exploration Promotion Program in 1987 pointed out that there were bright prospects for gas exploration which would attract international oil companies. As a follow up to that recommendation, Occidental, Cairn Energy PLC and Holland Sea Search, Rexwood-Okland and UMC Bangladesh Corporation are active in exploration under 6 different PSCs. Table-9.2 shows present activities. The IOCs which had submitted bids were evaluated on the basis of the following six items: (1) cost recovery ratio, (2) profit of oil/gas sharing ratio, (3) work program, (4) performance guarantee in support of work program, (5) discovery bonus and (6) production bonus.

Table-9.2: Present PSC Activities

Present PSC Activities				
Contractor	Block No.	Date of Signing	Drilling	Results
Cairn Energy Plc and Holland Sea Search Bangladesh B.V.	16 (Offshore)	05.05 1994	1expl.+5dev	Sangu Gas Field
Occidental Bangladesh Ltd.	12	11.01 1995	9	Bibiyana Gas Field
Occidental Bangladesh Ltd	13 & 14	11.01 1995		
Cairn Energy Plc and Holland Sea Search Bangladesh B.V.	15	12.06 1995	3	Dry
Rexwood-Okland International Joint Venture	17 & 18	18.01 1997	✓	
UMC Bangladesh Corporation	22	16.02 1997	✓	

Source: Petrobangla

It is significant that IOCs presently operating in Bangladesh have met with good success in the beginning and created huge enthusiasm in the exploration activities. Shell is now producing around 100 mmscfd gas from offshore Sangu Gas Field and supplying to our national grid which was discovered in 1996. After development of Jalalabad Gas Field UNOCAL is also supplying around 100 mmscfd gas to national grid under the PSC. Jalalabad was not discovered by this company and it is more of a development and production contract, that is not a regular PSC. Present status of IOCs active in first phase PSC activities are described below:

Cairn Energy plc transferred its 50% share (out of total 75%) to Shell in 1999 and Shell now working as an operator in block-16. UNOCAL has taken over full rights of Occidental in 1999 but assignment as an operator is yet to be finalized. Rexwood-Okland transferred their 80% share to Tullow Oil plc an Irish company in 1999 and completed a drilling (exploratory well) in block-17. UMC merged with Ocean Energy, an American company, in 1998. UMC did not start drilling activities in block-22 due to its late negotiation for merging with Ocean Energy and asked for an extension up to year 2000 to fulfil its obligation to drill an exploratory well in block-22.

9.3 2nd Bidding Round Offer

Bangladesh has been divided into seventeen onshore and six offshore blocks of different sizes ranging from 1650 to 13500 sq. km. for petroleum exploration. Among these, five onshore and three offshore blocks have already been assigned under PSC. The remaining 12 onshore and 3 offshore blocks are open for interested international oil

companies for petroleum exploration, development and production under PSC. List of blocks open for 2nd bidding round is given in Table-9.3.

Table-9.3: Blocks Open For 2nd Bidding Round

Blocks open for 2 nd Bidding round									
Onshore Blocks								Offshore Blocks	
Block Number	Area Sq km.	Block Number	Area Sq km.	Block Number	Area Sq km.	Block Number	Area Sq km.	Block Number	Area Sq km.
1	5740	4	9402	7	9985	10	8702	19	11170
2	10034	5	10976	8	7290	11	7787	20	12153
3	9538	6	9442	9	7846	23	13500	21	12454

Source: Petrobangla

9.3.1 Present Status of the 2nd Bidding Round Offer

In the second bidding round, negotiation with IOCs and GOB started several times for block distribution but till to date nothing has been finalized. By this time different foreign companies showed frustration and assigned their rights partly/fully to other companies. Negotiation of block-5 and block-10 is nearly finalized in favour of Shell and block-7 for UNOCAL. ENRON gave proposal to sit on negotiation with GOB for block-3 and block-6.

Chapter X

COMPARISON OF DIFFERENT FISCAL SYSTEMS

There are more petroleum fiscal systems in the world than there are countries. This is because many countries negotiate several terms. Thus one contractor may have different terms than another in the same country. Some countries use more than one system during transition periods when they are introducing new terms. Some countries offer both concessionary arrangements as well as service or production sharing contracts. Peru has this option. The design of an efficient fiscal system must take into consideration the political and geological risks as well as the potential rewards (Johnston, 1994). Regardless of the system used, the bottom line is a financial issue that addresses how costs are recovered and profits are divided. Table-10.1 presents a summary of different fiscal systems presently used in many countries.

The objective of the host government is to maximize wealth from its natural resources by encouraging appropriate levels of exploration and development activities. The objective of oil companies are to build equity and maximize wealth by finding and producing oil and gas reserves at the lowest possible cost and highest possible profit margin. In order to do this, they must search for huge fields. Unfortunately, the regions where huge fields are likely to be found are often accompanied by tight fiscal terms. The oil industry feel comfortable with tough terms if they are justified by sufficient geological potential. Malaysia has one of the toughest fiscal systems in the southeast Asia. Because Malaysia has good geological potential and many oil companies like to explore in Malaysia.

Governments and companies negotiate their interests in one or two basic systems: contractual and concessionary. The fundamental difference between them is the ownership of mineral resources. Under contractual systems the government retains ownership of minerals. Oil companies have the right to receive a share of production or revenues from the sale of oil and gas in accordance with a production sharing contract (PSC) or a service contract. Contractual arrangements are divided into production sharing contract and service contract. The difference between them depends on whether or not the contractor receives compensation in cash or in kind

In the petroleum industry, Indonesia is the pioneer of the PSC, with the first contract signed in 1966. Indonesia is the standard of comparison of all PSCs. There were over 50 operating companies in Indonesia and over 100 PSCs had been signed there by 1994. Because so many companies have participated in Indonesia, it is one of the best known systems in the world. In Philippines the government alternately refers to their contractual arrangement as either a service contract or a PSC. In service contracts the contractor is paid a fee for conducting exploration and production operations. Service contracts are also two types; pure service contract and risk service contract. The difference between them depends on whether the fee is based on profits or not. In pure service contract, the contractor carries out exploration or development work on behalf of the host country for a fee. All risk borne by the state. This arrangement is characteristic of the Middle East where the state has substantial capital but seeks outside expertise and technology. But risk service arrangement is based on profits

Concessionary systems allow private ownership of mineral resources. This concept of ownership comes from Anglo-Saxon legal tradition. In most countries the government

owns all mineral resources, but under concessionary system it will transfer title of the minerals to a company if they are producing. The company is then subject to payment of royalties and taxes. The main difference especially from a practical and financial point of view between one fiscal system to another is how much taxation is imposed

Table-10.1: Comparison of fiscal systems of different countries

Country	Cost recovery limit %	Max. Govt. participation %	Sign. Bonus	Prod. bonus	Domestic market obligation	Tax
Bangladesh	Oil-50 Gas-60	Nil	No.	Yes	Oil-Nil Gas-Yes	Paid by Govt.
Pakistan	Concessionary system	Nil		Yes	Yes	Max. 55%
Indonesia	80	15	Yes	Yes	25% at 10% of market price	48%
Malaysia	Oil-50 Gas-60	15	Yes	None	Nil	38%
Myanmar	40	Nil	Yes	Yes	Yes	38%
Thailand	100	Nil	Yes	No	Nil	50%
Norway	100	80%	No		Nil	28% income tax 30% Special tax
Philippines	70	Nil	Yes	No	Yes	Paid by Govt.
Egypt	30-40	Nil	Yes	Yes	Nil	Paid by Govt.

Source: Petroleum fiscal system -by Daniel Johnston(1994)

In addition to the main families, there are a few arrangements that appear to be a type of fiscal system. They include,

1. Joint ventures

2. Technical assistance contracts.
3. Rate of return contracts.

Joint ventures are common in the petroleum industry through standard joint operating agreements and working-interest arrangements between companies. Governments also get directly involved through joint ventures. Russia and Eastern Europe prefer joint ventures. Technical assistance contracts are used for enhancing oil recovery projects or rehabilitation/redevelopment schemes administered under a PSC or concessionary system. Rate of return (ROR) features are also found in both systems. There are flexible terms in rate of return contracts. The most common method used for creating a flexible system is with sliding scale terms. Government take increases as project profitability increases with a flexible rate of return system. This is the objective of sliding scale as well as ROR system.

For better understanding of different fiscal systems the following basic negotiation terms elements is briefly discussed here below,

10.1 Cost Recovery

Cost recovery means by which contractor recover costs of exploration, development and operations out of gross revenues. Most PSCs have a limit for cost recovery but allow unrecoverable costs to be carried forward and recovered in succeeding years. Cost recovery limit normally ranges from 30%-60% but some countries like Norway, Thailand and Norway, this limit is upto 100%. 60% cost recovery means contractor will take 60% of the total gross revenues as the cost of exploration, development and operation. The rest 40% will be treated as the profit oil/gas and will be divided between the government and the contractor as per

negotiation. Similarly 100% cost recovery means contractor will first recover full exploration and development costs from the total revenues earned and after recovering full costs profit oil/gas will be divided as per negotiation. This is normally done to provide more incentives to the contractor to expedite exploration and development activities.

There is few exceptions to cost recovery limit in some countries. The second generation of Indonesian PSC had no cost recovery limit. Some PSCs have no cost recovery. Such as Peruvian model contracts made no allowance for cost recovery. The government simply granted the contractor a share of production which ranges from 44%-50% depending upon the contract area. This type sharing arrangement also found in Trinidadian offshore contract with Mobil

10.2 Government Participation

Many fiscal systems provide option for the host country to participate in exploration and development works. Under participation arrangements, the contractor bears the cost and risk of exploration. If there is a discovery, the government backs-in for a percentage. Government participation normally ranges from 10%-15%. The government is usually carried through the exploration phase and may or may not reimburse the contractor for past exploration costs. Government's contribution to capital and operating costs is normally paid out of production. In Colombia the government has the right to take upto 50% of any successful exploratory wells. In China the government participation is 51% upon commercial production which is the highest of direct government involvement.

Contractors normally prefer no government participation. This is not totally selfish because joint operations of any sort can have a negative impact on operational efficiency as well as on economy. This is particularly true when the interests of government and an oil company is polarized.

10.3 Domestic Market Obligation

Many production sharing contracts have provisions for the domestic requirement of oil/gas of the host country. Usually a certain percentage of the contractor's profit oil/gas be sold to the government at a negotiated discount to the world's prices. The government is to pay for the domestic oil/gas in local currency at a predetermined exchange rate. Revenues are normally taxable.

10.4 Bonus

The signature bonus and production bonus for the host country are well known in the oil industry and negotiated for each contract. The signature bonus can easily be part of any negotiated deals and payment occurs at or as a function of contract signing. Most of the PSCs have provisions for signature bonus and production bonus and some PSCs have provisions for discovery bonus. Some production bonus specify that added bonuses be paid at various production levels or cumulative production landmarks. Indonesian bonuses payment are relatively modest. Bonuses are not recoverable through cost recovery provisions. Provisions for bonuses in the contract have no direct negative impact on government's share

10.5 Bangladesh Context

Comparing PSC of Bangladesh (Chapter VIII) with other countries (Table -10.1) it is found that the condition of cost recovery, government participation, tax system, bonuses and domestic market obligation are more or less similar with Indonesian PSC model. Malaysian model has a tight fiscal system which is a combination of contractual and concessionary system and can be followed in geologically potential zone of Bangladesh. For lesser potential areas like western zone and deep offshore areas cost recovery limit can be increased upto 100% with other incentives to attract IOCs. The weakness of our side is that do not have adequate and appropriate professionals in oil and gas sector for monitoring PSC activities. This sector now depends on foreign experts to justify costs and reserves estimated by IOCs which is the core of success of any contract. National oil/gas exploration company BAPEX is financially and technically not strong enough to compete for blocks with IOCs. If possible it can be made mandatory in the PSC so that BAPEX can jointly work with IOCs, specially in the potential zone. Otherwise, Bangladesh would never be able to develop its own human resources and eventually would fail to gain control of its operations.

Chapter XI

CONCLUSIONS/RECOMMENDATIONS

It is found from the study that after every new legislation and policy changes, exploration activities were increased (Figure-6.1). Petroleum Act 1974 is the milestone of our petroleum exploration history which covers both upstream and downstream activities of petroleum. This act paved the government's way to enter into an agreement with any person/organization for petroleum exploration and development works. After promulgation of this Act, IOCs found favourable situation and four US companies-- Atlantic Richfield, Union Oil, Asland and Superior Oil signed seven contracts for offshore exploration which resulted with one gas discovery. But due to the economic environment relating to gas in 1970s, their interest in entering into further contracts diminished. In the decade of the 70s the interest of IOCs were focused on discovering oil rather than gas because international trading of gas was only possible through expensive specialized tankers in the form of Liquefied Natural Gas (LNG). Also domestic market of gas was not feasible because price was kept low by host government, which was the sole buyers of gas in most countries (Hossain, 1998).

From Table-4.1 and Figure-4.1 it is clear that natural gas consumption started increasing drastically in the major two sector power and fertilizer from the mid 80s. Industrial and commercial demands also increased significantly. To meet up these increasing demands of natural gas in 1980s, enhancement of exploration activities by IOCs were required. This is because exploration and development activities needs huge investment with uncertainties. Though a nationalized exploration company BAPEX was established in 1989, its activities were limited only in the low risk prospective areas

because of funding problem and therefore interest was focused on IOCs. Petroleum Policy 1993, National Energy Policy 1995 and MPSC 1988, 1993, 1997 opened the door for foreign participation and gave encouragement by protecting the rights of the IOCs. allowing repatriation of funds, tax free income etc. But till to date exploration activities are limited only to the eastern and north-eastern region, one exception is the well drilled in the offshore area (Sangu) Bangladesh is one of the least explored region in the world, our legislative and commercial terms require flexibility to attract investment in high-risk/high-cost areas like western part of the country and off-shore areas. The potential rewards for hydrocarbon exploration must at least equal the competitive incentives offered by other countries with similar prospects. For encouraging exploration in the western part of the country and also in the deep offshore area a separate PSC providing more incentives in the light of Petroleum Policy 1993 and National Energy Policy 1995 for IOCs is required. Deeper depth exploration activities should also be encouraged by providing more incentives in the PSC. PSC activities Jointly collaborated with BAPEX should also be encouraged. Joint collaboration works were strongly recommended in the petroleum policy but never followed in any PSC signed with IOCs so far. Provision for discovery bonus which is higher for bigger reserves in the PSC contradicts petroleum policy and gives opportunity for the host country to accept exaggerated reserve. This figures for higher bonus system should be curtailed in the PSC or should be a fixed amount.

To maintain the whole production sharing negotiation transparent and to prevent lobbying, employment of a local agent before signing an agreement should be avoided (Chapter-IX) A group of best available professionals consisting petroleum engineers,

reservoir engineers, geologists, lawyers and accountants should be included in the negotiation team. Presently Petrobangla is lacking adequate number of professionals even for monitoring the existing PSC activities. As a result, accident like Magurchhara happened and to prevent such repetition, Petrobangla should immediately take initiatives to train and develop skilled professionals in this sector. Provisions should also be made in the PSC to get compensation from any accident like Magurchhara from non-recoverable cost. Finally it can be concluded that exploration and development activity is a dynamic one that requires frequent re-evaluation of the laws, policies and contracts to meet up the global changing circumstances. Petrobangla or GOB should have permanent committee who would review all aspects of the PSC on a regular interval.

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Appendix-A

SAMPLE FISCAL SYSTEMS

PAKISTAN (Concession)

Area	Maximum 125 km ²
Duration	
Exploration	For 3-year period, minimum work obligations to be Specified(usually seismic surveys followed by drilling one to two wells)
Development & Production	After discovery for period of 20 to 25 years, depending on location; investment plan to be approved with minimum of 1 well per year
Relinquishment	25% after 4 years + 25% after 2 more
Share holding	
Exploration Phase	Licensee = 95% Government = 5%
Royalty	12.5% of wellhead value
Crude oil price	International Market price with negotiable discounts
Gas Price	66% of fuel oil price with negotiable discounts
Repatriation of funds	Net profits can be repatriated
Domestic Market Obligation	Yes
Duties	None before commercial discovery
Taxation	Prediscovery expenditure can be set off against Income for 6 years of the license. After commercial Production expenditure can be set off against Income for 10 years.

INDONESIA
(PSC)

Area	No Restriction, designated blocks
Duration	
Exploration	3-years
Development & Production	20-years
Relinquishment	25% or 100% of no discovery
Exploration Obligations	Multiwell commitments
Royalty	Nil
Signature Bonus	Still exist, various
Production Bonus	Many variations each contract is different
Cost Recovery	80% limit 17% investment credit applies to facility, platform, pipeline costs; is recoverable but taxable
Domestic Market Obligation	After 60 months production from a field, contractor receives 10% of market price for 25% of oil
Depreciation	Oil → 25% declining balance with balance written off in year 5 Gas → 10% declining balance with balance written off in year 8
Profit Oil Split (In favour of government)	71.1574% / 28.846
Profit Gas Split (In favour of contractor)	42.3077% / 57.6923
Taxation	48% income tax
Ringfencing	Each License Ringfenced
State Participation	Up to 50% in joint operating agreement contracts

PHILIPPINES
(Service Contract)

Area	Designated blocks																		
Duration																			
Seismic Option	1-year																		
Exploration	10-year maximum																		
Production	30-years																		
Exploration Obligations	Negotiable Two-well option after seismic																		
Royalty	-7.5% (goes to contractor group) Depends upon level of Filipino ownership up to 30% onshore and up to 15% in deepwater qualifies for full 7.5%(Filipino Participation Incentive Allowance—FPIA)																		
	<table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;"><u>Filipino Participation, %</u></th> <th style="text-align: center;"><u>FPIA, %</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Up to 15%</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">15-17.5</td> <td style="text-align: center;">1.5</td> </tr> <tr> <td style="text-align: center;">17.5-20</td> <td style="text-align: center;">2.5</td> </tr> <tr> <td style="text-align: center;">20-22.5</td> <td style="text-align: center;">3.5</td> </tr> <tr> <td style="text-align: center;">22.5-25</td> <td style="text-align: center;">4.5</td> </tr> <tr> <td style="text-align: center;">25-27.5</td> <td style="text-align: center;">5.5</td> </tr> <tr> <td style="text-align: center;">27.5-30</td> <td style="text-align: center;">6.5</td> </tr> <tr> <td style="text-align: center;">30 or more</td> <td style="text-align: center;">7.5</td> </tr> </tbody> </table>	<u>Filipino Participation, %</u>	<u>FPIA, %</u>	Up to 15%	0	15-17.5	1.5	17.5-20	2.5	20-22.5	3.5	22.5-25	4.5	25-27.5	5.5	27.5-30	6.5	30 or more	7.5
<u>Filipino Participation, %</u>	<u>FPIA, %</u>																		
Up to 15%	0																		
15-17.5	1.5																		
17.5-20	2.5																		
20-22.5	3.5																		
22.5-25	4.5																		
25-27.5	5.5																		
27.5-30	6.5																		
30 or more	7.5																		
Signature Bonus	Negotiable																		
Production Bonus	No																		
Cost Recovery	70% limit																		
Domestic Market Obligation	Yes																		
Depreciation	10%																		
Profit Oil Split (in favour of government)	60% / 40% Contractor's 40% is service fee																		
Taxation	No, paid out of government Share																		
Ringfencing	Cost recovery allowed on two or more deepwater Blocks																		
State Participation	Up to 50% in joint operating agreement contracts																		

MYANMAR

Area	No Restriction, designated blocks	
Duration		
Exploration	3+1+1-years	
Production	20-years	
Relinquishment	25%+25% or 100% of no discovery	
Exploration Obligations (Initial Phase)	Negotiable U.S. \$ 12- \$88 million Averaged U.S. \$20 million	
Royalty	10% +0.5% for research & training	
Signature Bonus	U.S. \$4.0- \$7.5 million	
Production Bonus	Discovery	U.S. \$1.0 million
	10,000 BOPD	2.0 million
	30,000 BOPD	3.0 million
	50,000 BOPD	4.0 million
Cost Recovery	40% limit	
Domestic Market Obligation	Pro-rata: up to 20% of contractor's share of oil at U.S. \$1/bb	
Depreciation	10%	
Profit Oil Split (In favour of government)	<u>Production, BOPD</u>	<u>Split%</u>
	Up to 50,000	70/30
	50,001-100,000	80/20
	100,001-150,000	85/15
	150,001+	90/10
Profit Gas Split (In favour of government)	<u>Production, MMCFD</u>	<u>Split%</u>
	Up to 300	70/30
	301-600	80/20
	601-900	85/15
	901+	90/10
Taxation	30% income tax Tax holiday first 3 years under foreign investment law	
State Participation	Nil	

MALAYSIA

Area	No Restriction, designated blocks	
Duration		
Exploration	3-years + 2-year extension	
Development	2-years + 2-year extension	
Production	15-years for oil/20-years for Gas	
Relinquishment	No interim relinquishment	
Exploration Obligations	Seismic and multiwell commitments	
Royalty	10% +0.5% for research Cess	
Signature Bonus	None (Older contracts had bonuses)	
Production Bonus	None (Older contracts had bonuses)	
Cost Recovery	50% limit for oil/60% for gas	
Domestic Market Obligation	Nil	
Depreciation	10% Straight line	
Profit Oil Split (In favour of government)	<u>Production, BOPD</u>	<u>Split%</u>
	Up to 10,000	50/50
	10,001-20,000	60/40
	20,001+	70/30
	All prod. in excess of 50 MMBLS	70/30
Profit Gas Split (In favour of contractor)	For first 2 TCF	50/50
	After 2 TCF produced	70/30
Taxation	20% duty on profit oil exported (with 50% export tax exemption) 40% Petroleum income tax	
Ringfencing	Each license ringfenced Also gas development costs recovered from gas Production, and oil development costs recovered from oil production	
State Participation	Up to 15%	

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Appendix-B

THE PETROLEUM ACT, 1934

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THE SCHEDULE —[Repealed.]

- 31. 723f.
-

[9th September, 1934]

An Act to consolidate and amend the law relating to the import, transport, storage, production, ²[refining, blending, or reclaiming by recycling] of petroleum and other inflammable substances.

WHEREAS it is expedient to consolidate and amend the law relating to the import, transport, storage, production, ²[refining, blending or reclaiming by recycling] of petroleum and other inflammable substances; It is hereby enacted as follows:

PRELIMINARY

- Short title, extent and commencement.
Definition.
- 1.—(1) This Act may be called the Petroleum Act, 1934.
 (2) It extends to the whole of ⁴[Bangladesh].
 (3) It shall come into force on such date^s as the ⁶[Government] may, by notification in the ³[official Gazette], appoint.
2. In this Act, unless there is anything repugnant in the subject or context,—
- (a) “petroleum” means any liquid hydrocarbon or mixture of hydrocarbons, and any inflammable mixture (liquid, viscous or solid) containing any liquid hydrocarbon;
- (b) “class I petroleum” means petroleum having its flashing-point below twenty-three degrees centigrade;
- (bb) “class II petroleum” means petroleum having its flashing-point below sixty-one degrees but not below twenty-three degrees centigrade.]
- (c) “flashing-point” of any petroleum means the lowest temperature at which it yields a vapour which will give a momentary flash when ignited, determined in accordance with the provisions of Chapter II and the rules made thereunder;

¹For Statement of Objects and Reasons, see Gazette of India, 1933, Pt. V, p. 104; and for Report of Select Committee, see *ibid.*, 1934, Pt. V, pp. 235—236.

This Act has been extended and amended to its application to the Clifton Hill-tracts by the East Pakistan Reg. 11 of 1957.

The Act, Rules, Notifications and Orders made under it, have been applied to the Tribal Areas or to the parts of those areas to which they have not been already applied, see the Tribal Areas (Application of Acts) Regulation, 1965, Gazette of P., 1965, Ext., pp. 1016—1018.

² Subs. by Ord. No. XXXIX of 1986, for the words and comma “refining, and blending”.

³ Subs. by the Central Laws (Statute Reform) Ordinance, 1960 (Act XXI of 1960), s. 3 and 2nd Sch. (w.e.f. 14.10.1955), for the original sub-sec (2) as amended by A. O., 1949, and the Federal Laws (Revision and Declaration) Act, 1951 (Act XXVI of 1951), s. 8.

⁴ Subs. by Act VIII of 1973, as amended by Act LIII of 1974 (w.e.f. 26.3.1971), for “Pakistan”.

⁵ The 30th March, 1937, see Gazette of India, 1937, Pt. I, p. 632.

⁶ Subs. by Act VIII of 1973, as amended by Act LIII of 1974 (w.e.f. 26.3.1971), for “Central Government”.

⁷ Subs. by A. O., 1937, for “Gazette of India”.

⁸ Subs. by Ord. XXXIX of 1986, for clause (b).

(Preliminary.)

- 1[(d) "to transport" means to move petroleum from one place to another within 2[Bangladesh] by land, sea or air 3;]
- (e) "to import" petroleum means to bring it into 2[Bangladesh] by land, sea or air; 4;
- (f) "to store" petroleum means to keep it in any one place, but does not include any detention happening during the ordinary course of transport;
- (g) "motor conveyance" means any vehicle, vessel or aircraft for the conveyance of human beings, animals or goods, by land, water or air, in which petroleum is used to generate the motive power;
- (h) "prescribed" means prescribed by rules made under this Act 5[;]
- 6[(i) "oil marketing company" means a company, organisation or other person having right, under the authority of the Government or otherwise, of marketing petroleum in Bangladesh;
- (j) "agent", in relation to oil marketing company, means a person, including a firm and a company, appointed with approval of the Government by an oil marketing company to be its agent for dealing in 6[Class I] petroleum;
- (k) "dealer" means a person including a firm and a company, appointed with the approval of the Government by an oil marketing company to be a dealer for dealing in 6[Class I] petroleum; and
- (l) "stockist" means a person, including a firm and a company, appointed with the approval of the Government by an oil marketing company to be a stockist for maintaining stock, and for distribution among the agents and dealers, of both 6[Class I and Class II] petroleum.)

¹Subs. by Ordinance XXI of 1960, s. 3 and 2nd Sch. (w.e.f. 14.10.1955), for the original cl. (d), as amended by A. O., 1949.

²Subs. by Act VIII of 1973, as amended by Act LIII of 1974 (w.e.f. 26.3.71), for "Pakistan".

³The words and comma "and includes moving from one place to another in Pakistan across territory which is not part of Pakistan" were omitted. *Ibid.*

⁴The words and comma "otherwise than during the course of transport" were omitted. *Ibid.*

⁵Subs. and added by Act VIII of 1973, as amended by Act LIII of 1974 (w.e.f. 26.3.1971).

⁶Subs. by Ord. No. XXXIX of 1986, s.3.

CHAPTER I

CONTROL OVER PETROLEUM

Import,
transport
and storage
of petroleum.

3.—(1) No one shall import, transport ¹[store or distribute] any petroleum save in accordance with the rules made under section 4.

(2) Save in accordance with the conditions of any licence for the purpose which he may be required to obtain by rules made under section 4, no one shall import any ²[Class I] petroleum, and no one shall transport ¹[store or distribute] any petroleum

Rules for
the import,
transport
and storage
of petroleum

4. The ³[Government] may make rules⁴—

- (a) prescribing places where petroleum may be imported and prohibiting its import elsewhere;
- (b) regulating the import of petroleum;
- (c) prescribing the periods within which licences for the import of ²[Class I] petroleum shall be applied for, and providing for the disposal, by confiscation or otherwise, of any ²[Class I] petroleum in respect of which a licence has not been applied for within the prescribed period or has been refused and which has not been exported;
- (d) regulating the transport of petroleum;
- (e) specifying the nature and condition of all receptacles and pipe-lines in which petroleum may be transported;
- (f) regulating the places at which and prescribing the conditions subject to which petroleum may be stored;
- (g) specifying the nature, situation and condition of all receptacles in which petroleum may be stored;
- (h) prescribing the form and conditions of licences for the import of dangerous petroleum, and for the transport or storage of any petroleum, the manner in which applications for such licences shall be made, the authorities which may grant such licences and the fees which may be charged for such licences;
- (i) determining in any class of cases whether a licence for the transport of petroleum shall be obtained by the consignor, consignee or carrier;

¹Subs. by Act VIII of 1973, as amended by Act LIII of 1974, for "or store".

²Subs. by Ord. XXXIX of 1950, for "dangerous".

³Subs. by Act III 1974, for "Central Government".

⁴See the Petroleum Rules, 1937, published in the Gazette of India, Pt. I, pp. 720 to 775; and for the Chittagong Port Supplementary Petroleum and Carbide of Calcium Rules, 1958, see Gazette of P., 1958, Pt. I, pp. 407-410.

For the Mineral Gas Safety Rules, 1960, see Gazette of P., 1961, Pt. I, pp. 120-128.

(Chapter I—Control over Petroleum)

- (k) providing for the granting of combined licences for the import, transport ¹[, storage and distribution] of petroleum, or for any two of such purposes;
- (l) prescribing the proportion in which any specified poisonous substance may be added to petroleum, and prohibiting the import, transport or storage of petroleum in which the proportion of any specified poisonous substance exceeds the prescribed proportion ; ²,
- ³(d) regulating the distribution of petroleum;
- (m) prescribing the conditions for the appointment of, and the granting of licences to, agents, dealers and stockists;
- (n) prescribing the form and conditions of agreement between an agent, dealer or stockist and an oil marketing company;
- (o) providing for cancellation or restoration of licences of an agent or a dealer and of agreement between an oil marketing company and an agent, dealer or stockist; and
- (p) generally, providing for any matter which in its opinion, is expedient for proper control over the import, transport, storage and distribution of petroleum.

5.—(1) No one shall produce, ⁴[refine, blend or reclaim by recycling] petroleum save in accordance with the rules made under sub-section (2).

Production refining and blending of petroleum.

(2) The ⁵[Government] may make rules⁶

- (a) prescribing the conditions subject to which petroleum may be produced, ⁴[refined, blended or reclaimed by recycling] and
- (b) regulating the removal of petroleum from places where it is produced ⁴[refined, blended or reclaimed by recycling] and preventing the storage therein and removal therefrom, except as ⁴[Class I] petroleum of any petroleum which has not satisfied the prescribed tests.

* * * * *

6. All receptacles containing ⁴[Class I] petroleum shall have a stamped, embossed, painted or printed warning, either on the receptacle itself or, where that is impracticable, displayed near the receptacle, exhibiting in conspicuous characters the

Receptacles of class I petroleum to show a warning.

¹Subs. by Act VIII of 1973 as amended by Act LIII of 1974. (w. e. f. 263, 1973.) for "and storage".

²The word "and" was omitted, *ibid.*

³Clauses (l), (m), (n), (o) and (p) were substituted, *ibid.*, for clause (l).

⁴Subs. by Ord. XXXIX of 1986.

⁵Subs. by Act LIII of 1974, for "Central Government".

⁶See the Petroleum Rules, 1937, published in the Gazette of India, 1937 Pt. I Pp. 720-722; and for the Mineral Gas Safety Rules, 1960, See Gaz. of P, 1961, Pt. I Pp. 120-23.

⁷Sub-section (3) created by A. O. 1937.

(Chapter I—Control over Petroleum)

words "Petrol" or "Motor Spirit", or an equivalent warning of the ¹[Class II] nature of the petroleum;

Provided that this section shall not apply to—

- (a) any securely stoppered glass, stoneware or metal receptacle of less than ¹[nine litres] capacity containing ¹[Class II] petroleum which is not for sale, or
- (b) a tank incorporated in a motor conveyance, or attached to an internal combustion engine, and containing intended to be used to generate motive power for the motor conveyance or engine, or
- (c) a pipe-line for the transport of petroleum, or
- (d) any tank which is wholly underground, or
- (e) any class of receptacles which the ²[Government] may, by notification³ in the ⁴[official Gazette], exempt from the operation of this section.

No licence
needed for
small stocks
of
class II
petroleum
not in bulk

7. Notwithstanding anything contained in this Chapter, a person need not obtain a licence for the transport or storage of ¹[Class II] petroleum if the total quantity in his possession at any one place does not exceed ¹[two thousand litres] and none of it is contained in a receptacles exceeding ¹[one thousand litres] in capacity.

No licence
needed for
small quantities
of
class I
petroleum.

8.—(1) Notwithstanding anything contained in this Chapter, a person need not obtain a licence for the import, transport or storage of ¹[Class I] petroleum not intended for sale if the total quantity in his possession does not exceed ¹[twenty five litres]

(2) ¹[Class I] petroleum possessed without a licence under this section shall be kept in securely stoppered receptacles of glass, stoneware or metal which shall not in the case of receptacles of glass or stoneware exceed ¹[one litre] in capacity or in the case of receptacles of metal ¹[twenty litres] in capacity.

Exemptions
for motor
conveyances
and
stationary
engines

9.—(1) The owner of a motor conveyance, who complies with requirements of the law for the time being in force relating to the registration and licencing of such conveyance and its driver or pilot and the owner of any stationary internal combustion engine, shall not be required to obtain a licence—

- (a) for the import, transport or storage of any petroleum contained in any fuel tank incorporated in the conveyance or attached to the internal combustion engine, or

¹Subs. by Ord. XXXIX of 1936.

²Subs. by Act VIII of 1973, as amended by Act LIII of 1974 (w.e.f. 26.3.1971), for "Central Government".

³For notification exempting tanks within installations or refineries or at or near oil wells, and receptacles in the possession of His Majesty's forces, see Gazette of India, 1937, Pt. I, p. 632.

⁴Subs. by A. O., 1937, for "Gazette of India".

Chapter I—Control over Petroleum

(b) for the transport or storage of ¹[Class I] petroleum, not exceeding ²[ninety litres] in quantity in addition to any quantity possessed under clause (a),

provided the petroleum is intended to be used to generate motive power for the motor conveyance or engine.

³[Provided further that the total quantity of ⁴[Class I] petroleum which may be stored without a licence under clause (b) shall not exceed ⁵[ninety litres], notwithstanding that such owner may possess other motor conveyances or engines.]

(2) The ⁶[Class I] petroleum transported or stored without a licence under clause (b) ⁷[of sub-section (1)] shall be kept as provided in sub-section (2) of section 8, and, if it exceeds ⁸[twenty five litres] in quantity shall be stored in an isolated place which does not communicate with any room where any person resides or works or in any room where persons assemble.

10. Notwithstanding anything contained in this Chapter, ⁹[the railway] administration, as defined in section 3 of the Railways Act, 1890 need not obtain any licence for the import or transport of any petroleum in its possession in its capacity as carrier.

No licence needed by the railway administration acting as carrier.

¹⁰[11. Nothing in this Chapter shall apply to the storage, transport and import of any petroleum which has its flashing-point not below ninety-five degrees centigrade.]

Exemption.

12. The ¹¹[Government] may, by notification¹² in the ¹³[official Gazette], exempt any petroleum specified in the notification from all or any of the provisions of this Chapter.

General power of exemption.

13.—(1) The ¹⁴[Government] may authorise¹⁵ any officer by name or by virtue of office to enter any place where petroleum is being imported, ¹⁶[stored, distributed] produced, ¹⁷[refined blended or reclaimed by recycling] or is under transport, and inspect all receptacles, plant and appliances used in connection with petroleum in order to ascertain if they are in accordance with the provisions of this Chapter and the rules made thereunder.

Inspection of places.

(2) The ¹⁸[Government] may make rules regulating the procedure of officers authorised under this section.

¹ Subs. by Ord. XXXIX of 1986

² Proviso added by the Petroleum (Amdt.) Act, 1940 (Act XXV of 1940), s. 2.

³ Ins. *ibid*

⁴ Subs. by Act VIII of 1973, as amended by Act LIII of 1974 (w. e. f. 26.3.1971, for "a railway".

⁵ Subs. *ibid*, for "Central Government".

⁶ For instance of such a notification, see Gazette of India, 1937, Pt. I, p. 632.

⁷ Subs. by A. O. 1957, for "Gazette of India".

⁸ For instance of such authorisation see Gazette of India, 1937, Pt. I, page 634.

⁹ Subs. by Act VIII of 1973, as amended by Act LIII of 1974 (w. e. f. 26.3.1971, for "a railway".

CHAPTER II

THE TESTING OF PETROLEUM

Inspection
and samp-
ling of
petroleum.

14.—(1) The [Government] may, by notification in the [Official Gazette], authorise² any officer by name or by virtue of office to enter any place where petroleum is being imported, transported, ³stored, distributed], produced, ⁴[refined, blended or reclaimed by recycling] and to inspect and take samples for testing of any petroleum found therein.

(2) The [Government] may make rules⁵—

- (a) regulating the taking of samples of petroleum for testing,
- (b) determining the cases in which payment shall be made for the value of samples taken, and the mode of payment, and
- (c) generally, regulating the procedure of officers exercising powers under this section.

Standard
Test
Apparatus

15.—(1) A standard apparatus for determining the flashing-point of petroleum shall be deposited with an officer to be appointed in this behalf by the [Government], by notification in the [Official Gazette].

(2) Such apparatus shall be engraved with the words "Standard Test Apparatus", and shall be verified and corrected from time to time and replaced when necessary, in accordance with rules made under section 21.

(3) The Standard Test Apparatus shall, on payment of the prescribed fee, be open to inspection at all reasonable times by any person wishing inspect to it.

Certification
of other Test
Apparatus

16.—(1) The officer appointed under section 15 shall, on payment of the prescribed fee, if any, compare with the Standard Test Apparatus any apparatus for determining the flashing-point of petroleum which may be submitted to him for this purpose.

(2) If any apparatus is found by him to agree with the Standard Test Apparatus within prescribed limits, the officer shall engrave such apparatus with a special-number and with the date of the comparison, and shall give a certificate in respect of it in the prescribed form, certifying that on the said date the

¹Subs. by Act VIII of 1973, as amended by Act LIII of 1974, for "Central Government".

²See foot-note 7 on page 247, *ante*.

³For instance of such authorisation, see Gazette of India, 1937, Pt. 1, page 631.

⁴Subs. by Act VIII of 1973 as amended by Act LIII of 1974 (w.e.f. 26.3.1971), for "stored".

⁵Subs. by Ord. XXXIX of 1966.

⁶For the Petroleum Rules, 1937, see Gazette of India, 1937, pp. 720—775; and for the Mineral Gas Safety Rules, 1960, see Gazette of P., 1961, Pt. 1, pp. 120—128.

(Chapter II—The Testing of Petroleum)

apparatus was compared with the Standard Test Apparatus and was found to agree with it within the prescribed limits, and specifying any corrections to be made in the results of tests carried out with the apparatus.

(3) A certificate granted under this section shall be valid for such period as may be prescribed.

(4) A certificate granted under this section shall, during the period for which it is valid, be proof, until the contrary is proved, of any matter stated therein.

(5) The officer shall keep a register in the prescribed form of all certificates granted by him under this section.

17. The [Government] may authorise any officer by name or by virtue of office to test petroleum to which samples have been taken under this Act, or which may have been submitted to him for test by any person, and to grant certificates of the results of such tests.

Testing
officers.

18. All tests of petroleum made under this Act, shall be made with a test apparatus in respect of which there is a valid certificate under section 16, shall have due regard to any correction specified in that certificate, and shall be carried out in accordance with rules made under section 21.

Manner of
test.

19.—(1) The testing officer after testing samples of petroleum shall make out a certificate in the prescribed form, stating whether the petroleum is [Class I] or non-dangerous, and if the petroleum is [Class I] the flashing-point of the petroleum.

Certificate
of testing.

(2) The testing officer shall furnish the person concerned, at his request, with a certified copy of the certificate, on payment of the prescribed fee, and such certified copy may be produced in any Court in proof of the contents of the original certificate.

(3) A certificate given under this section shall be admitted as evidence in any proceeding which may be taken under this Act in respect, of the petroleum from which the samples were taken, and shall until the contrary is proved, be conclusive proof that the petroleum is, [Class I] or [Class II] as the case may be, and, if the petroleum is non-dangerous, of its flashing-point.

20.—(1) The owner of any petroleum, or his agent, who is dissatisfied with the result of the test of the petroleum may, within seven days from the date on which he received intimation of the result of the test, apply to the officer empowered under section 14 to have fresh samples of the petroleum taken and tested.

Right to
require re-
test.

¹Subs. by Act VIII of 1973, as amended by Act LIII of 1974 (w.e.f. 26.3.1971), for "Central Government".

²Subs. by Ord. XXXIX of 1986.

(Chapter II.—The Testing of Petroleum)

(2) On such application and on payment of the prescribed fee, fresh samples of the petroleum shall be taken in the presence of such owner or agent or person deputed by him, and shall be tested in the presence of such owner or agent or person deputed by him.

(3) If, on such re-test, it appears that the original test was erroneous, the testing officer shall cancel the original certificate granted under section 19, shall make out a fresh certificate, and shall furnish the owner of the petroleum, or his agent, with a certified copy thereof, free of charge.

Power to
make rules
regarding
tests.

21. The [Government] may make rules¹—

- (a) for the specification, verification, correction and replacement of the Standard Test Apparatus;
- (b) prescribing fees for the inspection of the Standard Test Apparatus;
- (c) regulating the procedure in comparing a test apparatus with the Standard Test Apparatus;
- (d) prescribing the form of certificate to be given in respect of a test apparatus so compared, and the period for which such certificates shall be valid;
- (e) prescribing the form of the register of such certificates;
- (f) prescribing fees for comparing a test apparatus with the Standard Test Apparatus;
- (g) regulating the procedure of testing officers in carrying out tests of petroleum, providing for the averaging of results where several samples of the same petroleum are tested, and prescribing the variations from standard temperatures which may be allowed;
- (h) prescribing the form of certificates of tests of petroleum and the fees which may be charged therefor;
- (i) providing where the results of the testing of samples raise a doubt as to the uniformity of the quality of the petroleum in any lot under test, for the division of the lot into sub-lots, and for the selection and testing of samples of each sub-lot and for the averaging of results in accordance with the results of tests of those samples;
- (j) prescribing fees for re-tests under section 20 and providing for their refund where the original test was erroneous; and
- (k) generally, regulating the procedure of all officers performing duties connected with the testing of

¹Subs. by Act VIII of 1973, as amended by Act LIII of 1974 (w.e.f. 26.3.1971), for "Central Government".

²See the Petroleum Rules, 1937, published in the Gazette of India, 1937, Pt. I, pp. 720—775.

(Chapter II—The Testing of Petroleum Chapter III.—Penalties and Procedure.)

petroleum, and providing for any matter incidental to such testing.

22. The [Government] may also make rules² providing specially for the testing of any form of petroleum which is viscous or solid or contains sediment or thickening ingredients, and such rules may modify or supplement any of the provisions of this Chapter or of the rules made under section 21 in order to adapt them to the special needs of such tests.

Special for testing viscous & solid for oil petroleum

testing by

CHAPTER III

PENALTIES AND PROCEDURE

23.—(1) Whoever—

(a) in contravention of any of the provisions of Chapter I or of any of the rules made thereunder, imports, transports, ³[stores, distributes] produces, ⁴[refines, blends or reclaims by recycling] blends any petroleum, or

General penalty for offences under the Act

(b) contravenes any rule made under section 4 or section 5, or

⁵[(c) being the holder of a licence issued under section 4 or a person for the time being placed by the holder of such licence in control or in charge of any place where petroleum is being imported ⁶[, stored or distributed] or is under transport, contravenes any condition of such licence or suffers any condition of such licence to be contravened, or]

(d) being for the time being in control or in charge of any place where petroleum is being imported, ⁷[stored, distributed] produced, ⁴[refined, blended or reclaimed by recycling] or is under transport, refuses or neglects to show to any officer authorised under section 13 any receptacle, plant or appliance used in such place in connection with petroleum, or in any way obstructs or fails to render reasonable assistance to such officer during an inspection, or

¹Subs. by Act VIII of 1973, as amended by Act LIII of 1974 (w.e.f. 26.3.1971), for "Central Government".

²See the Petroleum Rules, 1937, published in the Gazette of India, 1937, Pt. 1, pp. 720—775.

³Subs. by Act VIII of 1973, as amended by Act LIII of 1974 (w.e.f. 26.3.1971), for "stores".

⁴Subs. by Ord. XXXIX of 1956.

⁵Subs. by the Petroleum (Amdt.) Act, 1941 (Act III of 1941), s. 2, for the original cl. (c).

⁶Subs. by Act VIII of 1973, as amended by Act LIII of 1974 (w.e.f. 26.3.1971), for "or stored".

⁷Subs. *ibid.*, for "stored".

(Chapter III Penalties and Procedure)

- (e) being for the time being in control or in charge of any place where petroleum is being imported, transported [stored, distributed], produced, [refined, blended, or reclaimed by recycling], refuses or neglects to show to any officer authorised under section 14 any petroleum in such place, or to give him such assistance as he may require for the inspection of such petroleum, or refuses to allow him to take samples of the petroleum, or
- (f) being required, under section 27, to give information of an accident fails to give such information as so required by that section,

shall be punishable [with imprisonment for a term which may extend to three months, or with fine which may extend to five thousand taka, or with both].

(2) If any person, having been convicted of an offence punishable under sub-section (1), is again guilty of any offence punishable under that sub-section, he shall be punishable for every such subsequent offence with [imprisonment for a term which may extend to six months, or with fine which may extend to ten thousand Taka, or with both].

Confiscation
of petroleum
and recep-
tacles

24.—(1) In any case in which an offence under clause (a) or clause (b) or clause (c) of sub-section (1) of section 23 has been committed, the convicting Magistrate may direct that—

- (a) the petroleum in respect of which the offence has been committed, or
- (b) where the offender is convicted of importing, transporting [storing or distributing] petroleum exceeding the quantity he is permitted to import, transport [store or distribute] as the case may be, the whole of the petroleum in respect of which the offence was committed,

shall, together with the receptacles in which it is contained, be confiscated.

(2) This power may also be exercised by the [High Court Division] in the exercise of its appellate or revisional powers.

Jurisdiction.

25. Offences punishable under this Act shall be triable, * * * by a Magistrate of the first class, or by a Magistrate of the second class who has been specially empowered by the [Government] in this behalf.

Power of
entry and
search

26.—(1) The [Government] may, by notification in the [official Gazette], authorise⁹ any officer by name or by virtue

¹Subs. by Act VIII of 1973, as amended by Act LIII of 1974 (w.e.f. 26.3.1971), for "stored".

²Subs. by Ord. XXXIX of 1986.

³Subs. by Act LIII of 1974, for "or storing".

⁴Subs. *ibid.*, for "or store".

⁵Subs. *ibid.*, for "High Court".

⁶The words and figures "in the presidency-towns, by a Presidency Magistrate, and elsewhere" omitted by A. O., 1969.

⁷Subs. by Act VIII of 1973, as amended by Act LIII of 1974 (w.e.f. 26.3.1971), for "Central Government".

⁸Subs. by A.O., 1957 for "Gazette of India".

⁹For instance of such authorisation, see Gazette of India, 1937, Pt 1, p. 632.

(Chapter III.—Penalties and Procedure)

of office to enter and search any place where he has reason to believe that any petroleum is being imported, transported, [stored, distributed], produced, [refined, blended or reclaimed by recycling] otherwise than in accordance with the provisions of this Act and the rules made thereunder, and to seize, detain or remove any or all of the petroleum in respect of which in his opinion an offence under this Act has been committed.

V of
1898

(2) The provisions of the Code of Criminal Procedure, 1898, relating to searches shall, so far as they are applicable, apply to searches by officers authorised under this section.

(3) The [Government] may make rules regulating the procedure of authorised officers in the exercise of their powers under this section subject, however, to the provisions of sub-section (2).

27. Where any accident by explosion or fire, which is attended with loss of human life or serious injury to person or property, occurs as the result of the ignition of petroleum or petroleum vapour, or occurs in or near any place where petroleum is kept and under circumstances making it likely that it was the result of such ignition, the person for the time being in charge of the petroleum shall forthwith give information to the nearest Magistrate or to the officer in charge of the nearest police station, and to the Chief Inspector of Explosives in Bangladesh].

Reports of
accidents
with petro-
leum.V of
1898.

28.—(1) The inquiry mentioned in section 176 of the Code of Criminal Procedure, 1898, shall * * * * * be held in all cases where any person has been killed by an accident which the Magistrate has reason to believe was the result of the ignition of petroleum or petroleum vapour.

Inquiries
into serious
accidents
with petro-
leum.

(2) Any Magistrate empowered to hold an inquest may also hold an inquiry under the said section into the cause of any accident which he has reason to believe was the result of the ignition of petroleum or petroleum vapour, if such accident was attended by serious injury to person or property, notwithstanding that no person was killed thereby.

* * * * *

(4) The result of all inquiries held in pursuance of this section * * * * * shall be submitted as soon as may be to the [Government], the Chief Inspector of Explosives in [Bangladesh]. * * * * *

¹Subs. by Act VIII of 1973, as amended by Act LIII of 1974 (w.e.f. 26.3.1971), for "stored".

²Subs. by Ord. XXXIX of 1986.

³Subs. by Act LIII of 1974, for "Central Government".

⁴The words "unless section 8 of the Coroners Act, 1871, is applicable to the circumstances" omitted, *ibid.*

⁵Sub-section (3) which was amended by A. O., 1937 and Act XXV of 1940, section 3, has been omitted by A. O., 1949.

⁶The words "and of any inquiry held by a coroner in a case to which sub-section (1) refers" omitted by Act VIII of 1973, as amended by Act LIII of 1974 (w.e.f. 26.3.1971).

⁷Subs. *ibid.*, for "Pakistan".

⁸The words "and the Provincial Government" omitted, *ibid.*

CHAPTER IV

SUPPLEMENTAL

Report to be submitted to Chief Inspector of Explosive.

¹[28A.—The officer authorised under sections 13, 14 and 26 shall furnish a copy of the report on the matter inquired into, or searched, by him in accordance with the provisions of these sections to the Chief Inspector of Explosives in Bangladesh.]

Provisions relating to rules.

29.—(1) In making any rules² under this Act, the ³[Government] may—

(a) provide for any matter ancillary to such rules for which in ⁴[its] opinion provision is necessary to protect the public from danger arising from the import, transport, ⁵[storage, distribution] production, refining, blending or ⁶[reclaiming by recycling] of petroleum, and

(b) make special provision for the special circumstances of any ^{6a} * place.

(2) Every power to make rules conferred by this Act is subject to the condition of previous publication.

(3) All rules made under this Act shall be published in the ⁷[official Gazette] ⁸** * * .

Power to apply Act to other substances.

30.—(1) The ³[Government] may, by notification⁹ in the ⁷[official Gazette], apply any or all of the provisions of this Act, and of the rules made thereunder with such modifications as ¹⁰[it] may specify, to any dangerously inflammable substance, other than an explosive, and there upon the provisions so applied

¹Subs. by Ord. XXXIX of 1986.

²For the Mineral Gas safety Rules, 1960, see Gazette of Pak. 1961, pt. 1, pp. 120—128.

³Subs. by Act LIII of 1974, for "Central Government".

⁴Subs. by A. O. 1937, for "his".

⁵Subs. by Act LIII of 1974, for "storage".

⁶The words "province or" were omitted, *ibid.*

⁷Subs. by A. O., 1937, for "Gazette of India".

⁸The words "and in the local official Gazette" were omitted, *ibid.*

⁹The provisions of sections 2—4, 12—14, 23—29 and 31, have been applied to Carbide of Calcium, see Gazette of India, 1936, Pt. 1, p. 1374.

For notification extending certain sections of the Act to calcium phosphide, see Gazette of India, 1937, Pt. 1, p. 632.

The provisions of this Act and Petroleum Rules, 1937, have been applied to—

(i) natural gas used as industrial and domestic fuel, see Gazette of P. 1956, pt. 1, p. 427.

(ii) "Calodorant" 'c' gas Odorant, see Gaz. of P., 1958, Pt. 1, p. 376 and

(iii) gas Odorants "Alert 101" and "Calodorant F", see Gazette of P., 1964, Ext., p. 135 a.

¹⁰Subs. by A. O., 1937, for "he".

(Chapter IV.—Supplemental)

shall have effect as if such substance has been included in the definition of petroleum.

(2) The ¹[Government] may make rules providing specially for the testing of any substance to which any of the provisions of this Act have been applied by notification under sub-section (1), and such rules may supplement any of the provisions of Chapter II in order to adapt them to the special needs of such tests.

31. Where any enactment confers powers upon any local authority in respect of the transport or storage of petroleum, the ²[Government] may, by notification² in the ³[official Gazette],—

Power to limit powers of local authorities over petroleum.

(a) limit the operation of such enactment, or

(b) restrict the exercise of such powers, in any manner ⁴[it] deems fit.

32. [Repeals.] *Rep. by the Repealing Act, 1938 (1 of 1938) s. 2 and Sch.*

THE SCHEDULE.—[ENACTMENTS REPEALED.] *Rep. by the Repealing Act, 1938 (1 of 1938), s. 2 and Sch.*

¹Subs. by Act VIII of 1973, as amended by Act LIII of 1974, for "Central Government" (w.e.f. 26.3.1973).

²For such Notification see Gazette of P., 1936, Pt. I, pp. 313—314.

³Subs. by A. O., 1937, for "Gazette of India".

⁴Subs. *ibid.*, for "he".

APPENDIX-C

28 *Regulations of Mines and Oil-fields and Mineral Development (Government Control)* [1948 : Act XXIV

THE REGULATION OF MINES AND OIL-FIELDS
AND MINERAL DEVELOPMENT (GOVERNMENT CONTROL) ACT, 1948.

ACT No. XXIV of 1948.

[8th January, 1949]

An Act to make provision for certain matters connected with the regulation of mines and oil-fields and mineral development.

WHEREAS it is expedient to make provision for certain matters connected with the regulation of mines and oil-fields and mineral development under ²[Government Control];

AND WHEREAS it appears to the Central Government to be expedient in the public interest to make such provision to the extent hereinafter appearing; it is hereby enacted as follows:—

Short title,
extent and
commence-
ment.

1.—(1) This Act may be called the Regulation of Mines and Oil-fields and Mineral Development ²[Government Control] Act, 1948.

³(2) It extends to the whole of Pakistan.]

¹ For Statement of Objects and Reasons, see Gaz. of P., 1948, Pt. V, p. 127.

The Act has been applied—

- (i) to Baluchistan, see Gaz. of P., 1949, Pt. I, p. 408;
- (ii) in the Federated Areas of Baluchistan, see *ibid.*, Ext., 1950, p. 512;
- (iii) to the excluded areas of West Pakistan, with effect from the 21st March, 1956 see Gazette of West Pakistan, 1956, Ext., p. 239; and,
- (iv) to the Special Areas of West Pakistan, with effect from the 22nd March, 1956, see *ibid.*, p. 243.

It has been extended to—

- (a) the Leased Areas of Baluchistan, see the Leased Areas (Laws) Order, 1950 (G. G. O. 3 of 1950);
- (b) the Baluchistan States Union, see the Baluchistan States Union (Federal Laws) (Extension) Order, 1953 (G. G. O. 4 of 1953);
- (c) the Khairpur State, see the Khairpur (Federal Laws) (Extension) Order, 1953 (G. G. O. 5 of 1953); and
- (d) the State of Bahawalpur, see the Bahawalpur (Extension of Federal Laws) Order, 1953 (G. G. O. 11 of 1953).

The Act has been and shall be deemed to have been brought into force in Qwader with effect from the 8th September, 1958, by the Qwader (Application of Central Laws) Ordinance, 1960 (37 of 1960), s. 2.

² Subs. by A. O., 1964, Art. 2 and Sch., for "Federal Control".

³ Subs. by the Central Laws (Statute Reform) Ordinance, 1960 (21 of 1960), s. 3 and 2nd Sch., for the original sub-section (2) (with effect from the 14th October, 1955).

1948 ; Act XXIV] *Regulation of Mines and Oil-fields and Mineral Development (Government Control).* 29

(3) It shall come into force on such date¹ as the Central Government may, by notification in the official Gazette, appoint in this behalf.

* * * * *

22. It is hereby declared to be expedient in the public interest that the [appropriate Government] shall have power to make rules² to provide for all or any of the following matters, namely :—

Power to make rules.

- (1) the manner in which, and the authority to whom, application for the grant or renewal of an exploration or prospecting licence, a mining lease or other mining concession shall be made, and the prescribing of the fees to be paid on such application;
- (2) the conditions in accordance with which the grant or renewal of an exploration or prospecting licence, a mining lease or other mining concession may be made, and the prescribing of forms for the execution or renewal of such licence, lease, and concession;
- (3) the circumstances under which renewal of a licence, lease or concession as aforesaid may be refused, or any such licence, lease or concession whether granted or renewed may be revoked;
- (4) the determination of the rates at which, and the conditions subject to which, royalties, rents and taxes shall be paid by licensees, lessees and grantees of mining concessions;
- (5) the refinement of ores and mineral oils;
- (6) the control of production, storage and distribution of minerals and mineral oils;

¹ The 1st June, 1949, see Gaz. of P., 1949, Pt. I, p. 246.

² Section 1A, which was ins. by the Regulation of Mines and Oil-fields Mineral Development (Federal Control) (Amend.) Ordinance, 1955 (31 of 1955), s. 2, has since been lapsed.

³ The Amendment in section 2, by Ord. 31 of 1955, s. 3, has since been lapsed.

⁴ Subs. by A. O., 1964, Art. 2 and Sch., for "Central Government".

⁵ For the Pakistan Petroleum (Production) Rules, 1949, see Gaz. of P., 1949, Ext., pp. 501—552, for the Natural Gas Rules, 1960, see *ibid.*, 1960, Ext., pp. 945—956, and for the Pakistan Mining Concession Rules, 1960, see *ibid.*, pp. 1107—1166.

30 *Regulation of Mines and Oil-fields and Mineral Development (Government Control) [1948 : Act XXIV]*

(7) the fixation of the prices at which minerals and mineral oils may be bought or sold; and

(8) any matter ancillary or incidental to the matters set out in the foregoing clauses of this section, and the '[appropriate Government] may, by notification in the official Gazette, make rules accordingly.

Penalties

3. In making any rule under the preceding section the '[appropriate Government] may direct that any breach of that rule shall be punishable with imprisonment for a term which may extend to three years, or with fine, or with both.

Effect of rules, etc., inconsistent with other enactments.

4. Any rule made under this Act, and any order made under any such rule, shall have effect notwithstanding anything inconsistent therewith contained in any enactment or in any instrument having effect by virtue of an enactment other than this Act.

* * * * *

Power to exempt.

5. The '[appropriate Government] may, by notified order, declare that any mineral or mineral oil or any class or description thereof shall be exempt from all or any of the provisions of the rules made under this Act, or that such provisions shall apply thereto with such modification or subject to such conditions as may be specified in the order.

Definition of appropriate Government.

6. In this Act, "appropriate Government" means, in relation to mines of nuclear substances, oil-fields and gasfields, and development of such substances, mineral oil and gas, the Central Government and, in relation to the other mines and mineral development, the Provincial Government.]

¹ Subs. by A. O., 1964, Art. 2 and Sch. for "Central Government".

² Section 4A, which was ins. by the Regulation of Mines and Oil fields Mineral Development (Federal Control) (Amdt.) Ordinance, 1955 (31 of 1955), s. 4, has since been lapsed.

³ Section 6 added by A. O., 1964, Art. 2 and Sch.

APPENDIX-D

ACT NO: LXIX OF 1974

An Act to provide for the exploration, development, exploitation, production, processing, refining and marketing of petroleum.

WHEREAS it is expedient to provide for the exploration, development, exploitation, production, processing, refining and marketing of petroleum,

It is hereby enacted as follows.

1. Short title, extent and commencement:

- (i) This act may be called the Bangladesh Petroleum Act, 1974.
- (ii) It extends to the whole of Bangladesh and shall also apply to the economic zone and continental shelf of Bangladesh
- (iii) It shall be deemed to have come into force on the 22nd. Day of August, 1974

2. Definitions:

In this act, unless there is anything repugnant in the subject or context:-

- a) "continental shelf" and "economic zone" have the same meaning as in the Territorial Waters and Maritime Zones Act, 1974 (XXVI of 1974);
- (b) " Corporation" means the Bangladesh Oil and Gas Corporation, that is Petrobangla, established by the Bangladesh Industrial Enterprises (Nationalisation) Order, 1972 (P.O. No 27 of 1972).
- (c) "Petroleum" means -
 - (i) any naturally occurring hydrocarbon, whether in a gaseous, liquid or solid state,
 - (ii) any naturally occurring mixture of hydrocarbons, whether in a gaseous, liquid or solid state, or
 - (iii) any naturally occurring mixture of a hydrocarbon or hydrocarbons, whether in a gaseous, liquid or solid state, and one or more of the following that is to say hydrogen sulphide, nitrogen, helium and carbon dioxide,
- (d) " petroleum agreement" means a production sharing agreement or any other agreement or contract relating to any petroleum operation;

- (2) petroleum operation means any activity related to exploration, development, exploitation, production, refining or marketing of petroleum.

3. Right of Government to explore etc. of Petroleum :

- (1) The Government has, within the territory, continental shelf and economic zone of Bangladesh, exclusive right to explore, develop, exploit, produce, process, refine and market petroleum.
- (2) The Government shall plan, promote, organise and implement programmes for exploration, development, exploitation, production, processing, refining and marketing of petroleum.
- (3) In particular and without prejudice to the generality of the following provisions, the Government may take such steps as it thinks fit
- (a) to carry out geological, geophysical and other surveys for the exploration of petroleum,
 - (b) to carry out drilling and other prospecting operations to prove or estimate the reserves of petroleum;
 - (c) to undertake such other activities as may lead to the establishment of such reserves,
 - (d) to undertake the production of petroleum from such reserves, and the refining of such petroleum;
 - (e) to sell, distribute, transport and otherwise dispose of petroleum and its refined products;
 - (f) to contribute towards the cost of any studies, experiments or technical research connected with petroleum,
 - (g) to undertake, assist or encourage the collection, maintenance and publication of statistics, bulletins and monographs,
 - (h) to undertake any other activity which is supplemental, incidental or consequential to any of the activities aforesaid, or which may be prescribed by rules made under this act.

4. **Petroleum agreement :**

- (1) The Government may enter into a petroleum agreement with any person for the purpose of any petroleum operation
- (2) No person shall undertake or carry on any petroleum operation except under a petroleum agreement entered into under sub-section (1) .

Provided that the Government may, within one month from the date of commencement of this Act, permit, on such conditions as it deems fit, any person to carry on any petroleum operation otherwise than under a petroleum agreement for a period not exceeding six months

5. **Power of Inspection :**

- (1) For any purpose mentioned in this Act or the rules made thereunder, any person Authorised by the Government in this behalf may -
 - (a) inspect and take extracts from and make copies of any records, returns, plans, maps, and accounts which is kept or made by any person engaged in any petroleum operation,
 - (b) inspect the installation, well, plants, appliances and works operated or maintained by any person engaged in any petroleum operation and the state of repair and condition thereof,
 - (c) survey and conduct measurement in any area covered by any petroleum operation,
 - (d) conduct measurement of any stock of petroleum;
 - (e) order the production of any cores, samples, records, returns, plans, maps, and accounting relating to any petroleum operation,
 - (f) examine any person engaged in any petroleum operation
- (2) Any person authorised by the Government under sub-section(1) shall be deemed to be a public servant within the meaning of section 21 of the Penal Code (XIV of 1966)

6. **Duties of persons engaged in petroleum operation :**

- (1) It shall be the duty of any person engaged in any petroleum operations -
 - (a) to ensure that such petroleum operation is carried on in a proper and workmanlike manner and in accordance with good oil-field practice,
 - (b) to carry on petroleum operation in any area in a manner that does not interfere with navigation, fishing, and conservation of resources of the sea and sea-bed,

(c) to consider factors connected with the ecology and environment

(2) In particular, and without prejudice to the generality of the foregoing provision a person engaged in any petroleum operation shall, in carrying on such operation in any area,

- (a) control the flow, and prevent the waste or escape, in that area of petroleum or water,
- (b) prevent the escape in that area of any mixture of water or drilling fluid with petroleum or any other matter,
- (c) prevent damage to petroleum bearing strata in any area, whether adjacent to that area or not;
- (d) keep separate each petroleum pool discovered in the area;
- (e) prevent water or any other matter entering a petroleum pool through wells in that area, except when required by and in accordance with good oil-field practice.

7. **Land required for petroleum operation to be deemed for public purpose :**

Any land required for carrying on any petroleum operation shall be deemed to be required for a public purpose

8. **Corporation to have rights and powers of the Government :**

- (1) All rights and powers of the Government under this Act or the rules made thereunder shall, subject to such conditions as may be specified by the Government by order notified in the official Gazette, be exercisable also by the Corporation
- (2) For the purpose of exploration, development, exploitation, production, processing, refining or marketing of petroleum or for the effective exercise of any rights and powers the Corporation may, with the previous approval of the Government, establish companies, either wholly owned by it or jointly with any other person, incorporated under the Companies Act, 1913 (VII of 1913)

9. **Penalty:**

- (1) Whoever contravenes any provision of this act or the rules made thereunder shall be punishable with imprisonment for a term which may extend to one year, or with fine, or with both

- (2) Where any offence punishable under sub-section (1) is committed by a firm, company or other body corporate, every partner, director, manager, secretary or other officer or **agent thereof shall, if actively concerned in the conduct of the business of such firm, company or body corporate, be deemed to have committed the offence unless he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of the offence.**

10. **Indemnity:**

No suit, prosecution or other legal proceeding shall lie against any person for anything which is in good faith done or intended to be done under this act or the rules made thereunder

11. **Power to make rules:**

The Government may, by notification in the official Gazette, make rules for carrying out the purposes of this act.

13. **Repeals:**

The Regulation of Mines, Oil-Fields and Mineral Development (Government Control) Act, 1948 (XXIV of 1948), and the Petroleum Ordinance, 1974 (Ord XVI of 1974), are hereby repealed

APPENDIX-E



GOVERNMENT OF THE
PEOPLE'S REPUBLIC OF BANGLADESH
MINISTRY OF ENERGY AND MINERAL RESOURCES

PETROLEUM POLICY

JULY, 1993
DHAKA

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1. INTRODUCTION

The Government of the People's Republic of Bangladesh has given the highest emphasis on rapid industrialization and modernization of agriculture, in addition to the development of basic social and physical infrastructures. Implementation of the above programs require increased supply of commercial energy in various forms. The present annual per capita consumption of commercial energy i.e. oil, natural gas, coal and electricity, however is very low, about 58 kg of oil equivalent, due primarily to resource constraints and inadequate indigenous energy resources. Almost the entire requirement of oil and coal are met from import whereas the demand for natural gas is met from domestic sources. To augment the petroleum resources base of the country and to meet the ever increasing demand, both domestic and foreign participations, particularly from the private investors, are to be attracted to this vital sector. Keeping these ends in view this National Petroleum Policy is formulated.

1.1. EXPLORATION BACKGROUND

Petroleum exploration began in Bangladesh early in this century. Exploration activities took place in three phases.

- (a) During the period 1910-1933, six exploration wells were drilled by foreign companies. The total depth of the wells was about 1,702 metres, individual well depths varying from 763m to 1,047m. No oil or gas field was discovered.
- (b) During the period 1951-1971, 22 exploration wells including one offshore well were drilled. The total depth of all the wells was 67,387 metres, individual well depths varying from 830m to 4,500m. The number of wells drilled by national and foreign organizations were 4 and 18 respectively. National organization drilled 14,249 metres, individual well depth varying from 2,300m to 4,500m; and foreign companies drilled 53,138m, individual well depth varying from 830m to 4,139m. The national organization discovered one gas field and the foreign organizations discovered seven gas fields.
- (c) Bangladesh Petroleum Act 1974 was promulgated in 1974 following which Petrobangla was formed in the same year to promote and regulate exploration, production and distribution of petroleum. Attention for petroleum exploration was focused on the offshore area during the period 1974 to 1978. Six international companies entered into production sharing contracts on nearly all of the offshore shelf and adjacent strips of low lying areas.

During the period 1972-1992, 24 wells including 7 offshore wells were drilled. The total depth of all the wells was 90,233 metres, individual well depth varying from 1500m to 4977m. The number of wells drilled by national organization was 14, total depth being 53,963 metres with individual depth of well varying from 2,100m to 4,977m. The number of wells drilled by foreign companies was 10, total depth being 36,270 metres with individual depth of well varying from 1,560m to 4,598m. National organization discovered 7 gas fields and one oil field and foreign companies discovered 2 gas fields of which one is in the offshore area.

As far as gas fields are concerned the exploration-discovery ratio in Bangladesh till now is 3:1 i.e. 17 gas fields were discovered out of 52 exploration wells, which is one of the highest in the world. It is also important to note that almost all the exploration activities were limited to the eastern folded belt and that very limited activities were undertaken on the shelf area in north-west Bangladesh.

* For the purpose of this policy, Petroleum means any naturally occurring hydrocarbon, whether in liquid, gaseous or solid state as defined in, 'The Bangladesh Petroleum Act, 1974'.

to expedite petroleum exploration a project with the World Bank assistance entitled 'Petroleum Exploration Licentiation Project (PELP)' was undertaken in 1984 and a new Model Production Sharing Contract was formulated in 1988. In 1989, the area of the country was divided into 23 blocks, of which 19 blocks including 6 offshore blocks were offered to the International Oil Companies for competitive bidding. With the passage of time, Petrobangla now operates the 1988 Model PSC contracts only as a guideline for any proposal.

The liberal approach of the government towards petroleum exploration has generated interest among some International Oil Companies to work jointly through contract since July 1992. This policy is intended to facilitate and encourage such interest.

1.2. DEVELOPMENT OF INDIGENOUS PETROLEUM RESOURCE

Petrobangla was restructured in 1989 and was made a Holding Corporation with seven subsidiary companies along functional lines. Two production companies, namely Bangladesh Gas Fields Company Ltd and Sylhet Gas Fields Ltd under Petrobangla now produce about 635 MMCFD of gas, 1000 BBLD of condensate and about 200 BBLD of crude. The gas is distributed by three distribution companies in their respective franchise areas, saving about Tk. 20 billion a year in foreign exchange and providing about Tk. 6 billion per year to the national exchequer. Gas is being used as a substitute for oil for generation of power, as a feedstock for manufacture of fertilizer and for other industrial, commercial and domestic purposes. Its demand is growing quickly and it is playing a vital role in the economic development of the country. It is expected that the production of gas will rise to 950 MMCFD by the year 2000 AD and the known recoverable proven plus probable reserves of 10.5 TCF will be exhausted by the year 2015 AD at the best. This, therefore, calls for urgent exploration to augment reserves to sustain the country's economic growth.

1.3. IMPORT, REFINING AND MARKETING OF PETROLEUM PRODUCTS

The Bangladesh Petroleum Corporation (BPC) was set up in 1976 for importing, refining and marketing of Petroleum, Oil and Lubricant (POL) product. The corporation operates through seven subsidiary companies.

The present demand for petroleum products of the country is about 2.0 million tons of which 50% is for diesel, 25% for Kerosene, 8% for Motor spirit, 10% for Fuel Oil and the balance is for other minor products; whereas, 1.4 million tons of refined petroleum products is produced by the only refinery of the country of which 20% is diesel, 30% Kerosene, 15% LPG and Gasoline (Motor Spirit & Naptha) and 35% Fuel Oil. This shows that the country has excess gasoline and fuel oil while there is a shortage of one million tons of diesel and kerosene. The consumption rate of petroleum product is growing slowly but steadily at the rate of 2.5 to 3.0%. Import of refined petroleum products therefore remains quite essential. To meet the present and future demands for petroleum products of the country, addition to the present refining capacity is imperative. Lubricating oil requirement of the country is about 35,000 tons per year and present rate of demand is same as for other petroleum products. Presently the entire quantity of lubricating oil is supplied. The imported lubricating oils are blended at two blending plants and are marketed by BPC's subsidiaries and nine private traders.

At present about 10,000 tons of Liquefied Petroleum Gas (LPG) is produced and bottled per year in the country. LPG is marketed by three oil marketing companies in 12.5 kg cylinders for domestic consumption and by Bangladesh Oxygen Ltd (BOL) in 22 kg and 45 kg cylinders for industrial customers.

2. PETROLEUM POLICY

2.1. OBJECTIVE

The basic objectives underlying the policy are to:

- i) find, make systematic surveys, exploration and exploitation of petroleum resources and to ensure their rational use for sustainable development of the country,
- ii) adopt uniform policy instrument for both public and private sector (local and foreign) enterprises,
- iii) expedite exploration and development of indigenous petroleum resources,
- iv) mobilize domestic and external financial and technical resources from private and public sector especially former for the development of petroleum exploration, refining, import, export, storage, distribution and marketing,
- v) consider development of gas fields through private sector, as a part of Government's privatization policy,
- vi) replace oil imports by gas as far as possible and to augment energy supply by other undeveloped conventional energy sources such as coal, coal bed methane, peat as well as LPG and all other possible sources of conventional and non-conventional energy,
- vii) strengthen the research, technical and administrative capabilities of the government agencies responsible for making policies and their effective implementation,
- viii) increase involvement of private sector in the petroleum industry and trade,
- ix) create a competitive environment for gas giving the best deal to the consumer in price and quality, and
- x) promote measures for environmental impact assessment in this sector

2.2. IMPLEMENTATION

For achieving these policy objectives, the measures specific to various segments of the oil and gas sector are specified below:

2.2.1. LEGAL AND PROCEDURAL

- i) steps will be taken to amend the existing acts and rules to implement the policy wherever necessary,
- ii) all applications for exploration licenses shall be decided within six months and disputed or contested decisions shall be decided within three months,
- iii) a comprehensive code of law necessary for exploration promotion will be developed and made available to foreign investors for the use of exploration companies and the confidentiality rules will be amended to bring it in line with the international practice wherever necessary, and
- iv) the model production sharing contracts will be reviewed at intervals

2.2.2. FISCAL.

- i) repatriation of profit as per production sharing contract(PSC) provision will be allowed,
 - ii) private and public sectors will be treated uniformly,
 - iii) no administering fee or signature bonus will be necessary on signing of PSC. Contract service fee to be paid annually will be bid same with a minimum of US \$50,000.00 (Fifty thousand US dollars),
 - iv) special consideration will be given to application for PSC in offshore areas,
 - v) for offshore production, rate of bonuses and the Government's share would be lower than onshore production,
 - vi) no duty will be levied on machinery, equipment and consumables imported for petroleum operation during exploration, development or production stage,
 - vii) the equipment imported for enhanced oil and gas recovery will also be subject to the same concessionary rate of duty, and locally manufactured machinery and equipment used by the exploration companies will be entitled to all such benefits as are admissible on their export,
 - viii) pre-shipment inspection of machinery and other imported items will be mandatory,
 - ix) companies will remain harmless of all corporate tax and such other taxes as are determined under the terms of PSC.
- and
- x) incentive oriented agreements will be made for exploration in and recovery from deeper horizons.

2.2.3. COMMERCIAL.

- i) local private companies will be encouraged to seek joint ventures with foreign companies and/or with BAPFV in exploration,
- ii) the current practice of accepting a commercial discovery on the basis of the first exploration well followed by one appraisal well to determine the extent of the reservoir will be changed and declaration of commerciality on conclusive ground will be accepted even on the basis of one well,
- iii) the gas producing companies will be assured a market outlet within a reasonable time of commercial discovery, and if indication of an outlet is not given by the government within 12 months of the declaration of commercial discovery, the producer would be free to find market outlet within the country, and
- iv) the companies would be required to undertake optimal development of oil and gas fields for maximum recovery.

2.2.4. PRICING

- i) The pricing for associated gas would be on a cost plus basis, while for non-associated gas it will be 75% of international price of high sulfur heavy fuel oil with negotiated discounts and to encourage exploration in offshore areas, associated or non-associated gas from such fields will be priced at 25% higher than those from onshore areas,
 - ii) the price of locally produced LPG will be linked to international kerosene price on BCU basis with appropriate discount to encourage its local production,
- and
- iii) the value of oil from each production area will be determined on the basis of market value comparable to Asia Pacific Petroleum Price Index (APPI)

2.3. OIL REFINING

- i) The oil sector will be free to set up new refineries,
 - ii) private refineries will be encouraged to carry out conversion plans for upgrading residual fuel to higher quality products and to blend them with the existing refinery,
 - iii) new marketing companies linked with investment in development of infrastructure (storage, pipelines, etc.) and other facilities will be allowed,
 - iv) joint venture companies for (i), (ii) and (iii) outlined above will be encouraged,
 - v) the pricing formula for refinery products will be based on import parity prices with a negotiated discount,
 - vi) refineries will be allowed to import required crude oil after lifting locally produced crude oil allocated from a source(s), and foreign exchange for import of crude oil will be made available,
 - vii) refineries will be free to sell their products to any marketing company or directly from the plant to any consumer(s) within the country,
- and
- viii) foreign companies or existing institutions or individuals who set up or in association with investors will enjoy the benefits of Foreign Investment (Promotion and Protection) Act, 1980.

2.4. LUBRICATING OIL

- i) Lubricating oil producers will be free from price control,
 - ii) no permission will be required for establishing lubricating oil blending plants, grease and wax manufacturing plants subject to registration for quality check,
 - iii) investors will be free to procure raw materials from local or foreign sources,
 - iv) import of lubricating oil from non-protected reclamation plants or their authorized agents operating in permitted quantities,
 - v) quality standards will be defined according to the international standards and enforced through checks, etc. plant will be required to establish a laboratory, penalty for non-compliance will be imposed,
- and
- vi) it will be preferable to have a formal arrangement with internationally reputed oil company(s) or fully owned company plant for product blend.

2.5. MARKETING AND DISTRIBUTION

- i) In consultation with the Government, the prices of products will be fixed and equalized for main installation and depots at various places in the country and freight will be added beyond these points,
- ii) subject to uniformity in coverage, development of retail outlets will be done by the marketing companies or individual investors based on economic and explosives and safety rules,

- vi) the commission of the marketing companies and dealers will be excluded from the notified prices, and the dealer's commission will be left out to be determined by the marketing company or by the individual retailer,
- vii) the private sector will be given incentive to invest in infrastructure like pipeline(s) including common carriers, storages, and distribution/handling facilities,
- viii) marketing companies may import POB products after lifting the locally produced products,
- and
- ix) to check adulteration and to enforce quality existing laws will be enforced.

2.6. RESEARCH AND DEVELOPMENT

To enforce this policy, the monitoring, research and development capabilities of Petrobangla, Bangladesh Petroleum Institute, Bangladesh Petroleum Corporation, Geological Survey of Bangladesh, Universities and other Institutions will be strengthened by allocating a fixed percentage of the government share of the PSC and by utilizing the technical assistance provided by the petroleum producing companies under production sharing contracts.

2.7. CNG IN TRANSPORT

The use of CNG in all types of road and riverine transports including locomotives replacing motor spirit and diesel will be commercialized. No duty, sales tax or surcharges will be levied on equipment imported for compression and refueling of natural gas and for conversion of vehicles. Local as well as foreign private capital will be encouraged to invest in all phases of CNG business.

2.8. CONSULTATION

A standing panel will be constituted by the Ministry of Energy and Mineral Resources to advise the government on policy and operational issues relating to all phases of petroleum operation.

2.9. SAFETY AND ENVIRONMENTAL PROTECTION

Laws, rules and policies formulated by the Government in this regard will be followed.

2.10. WELFARE





The private companies in consultation with the Ministry of Energy & Mineral Resources/Petrobangla will contribute towards the:

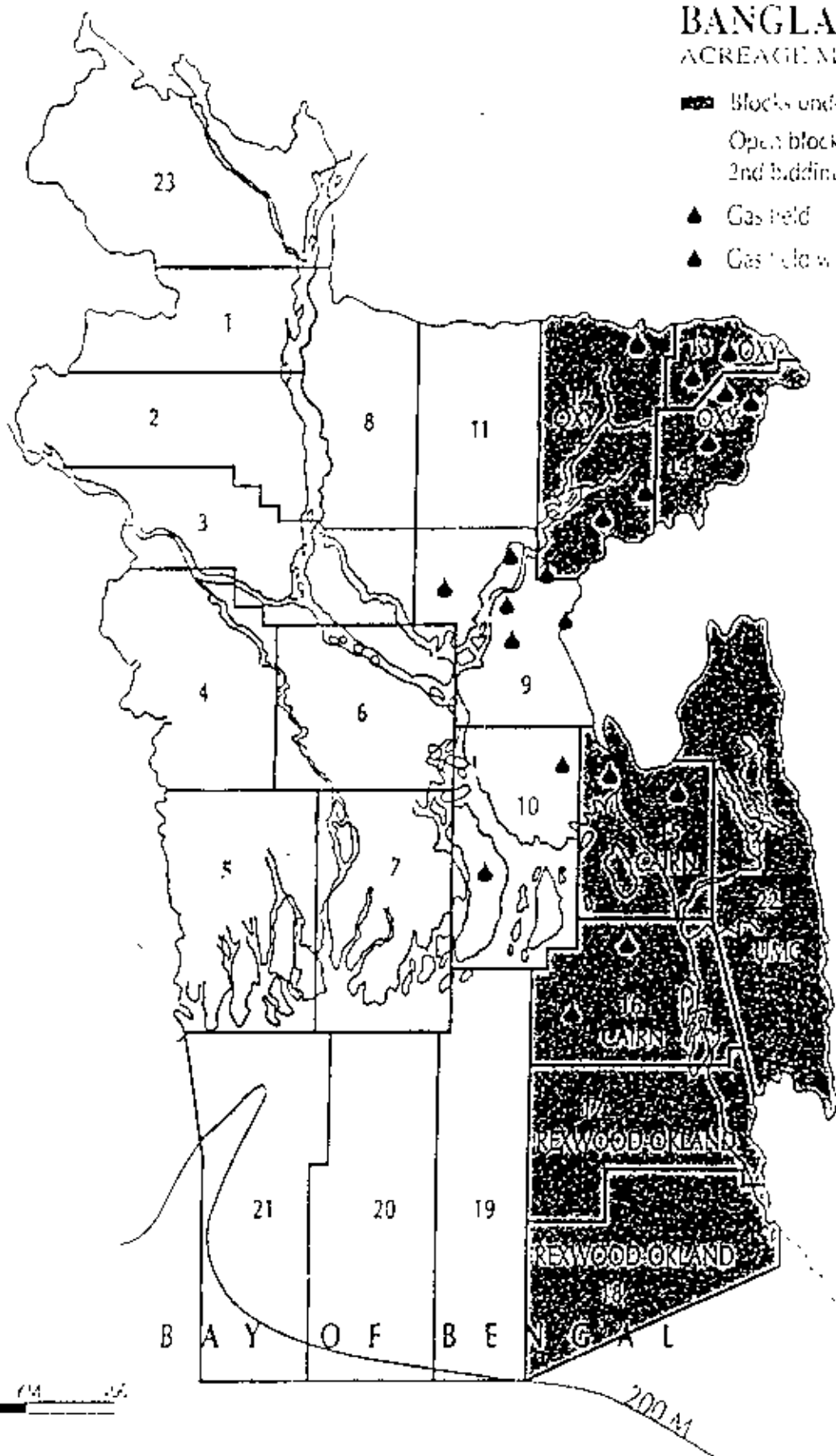
- i) development of basic welfare supply, health and education facilities in the areas of their operation and to carry out such other activities to be undertaken,
- ii) undertake programs to improve the state of environment in their areas of operation.

APPENDIX-F








BANGLADESH

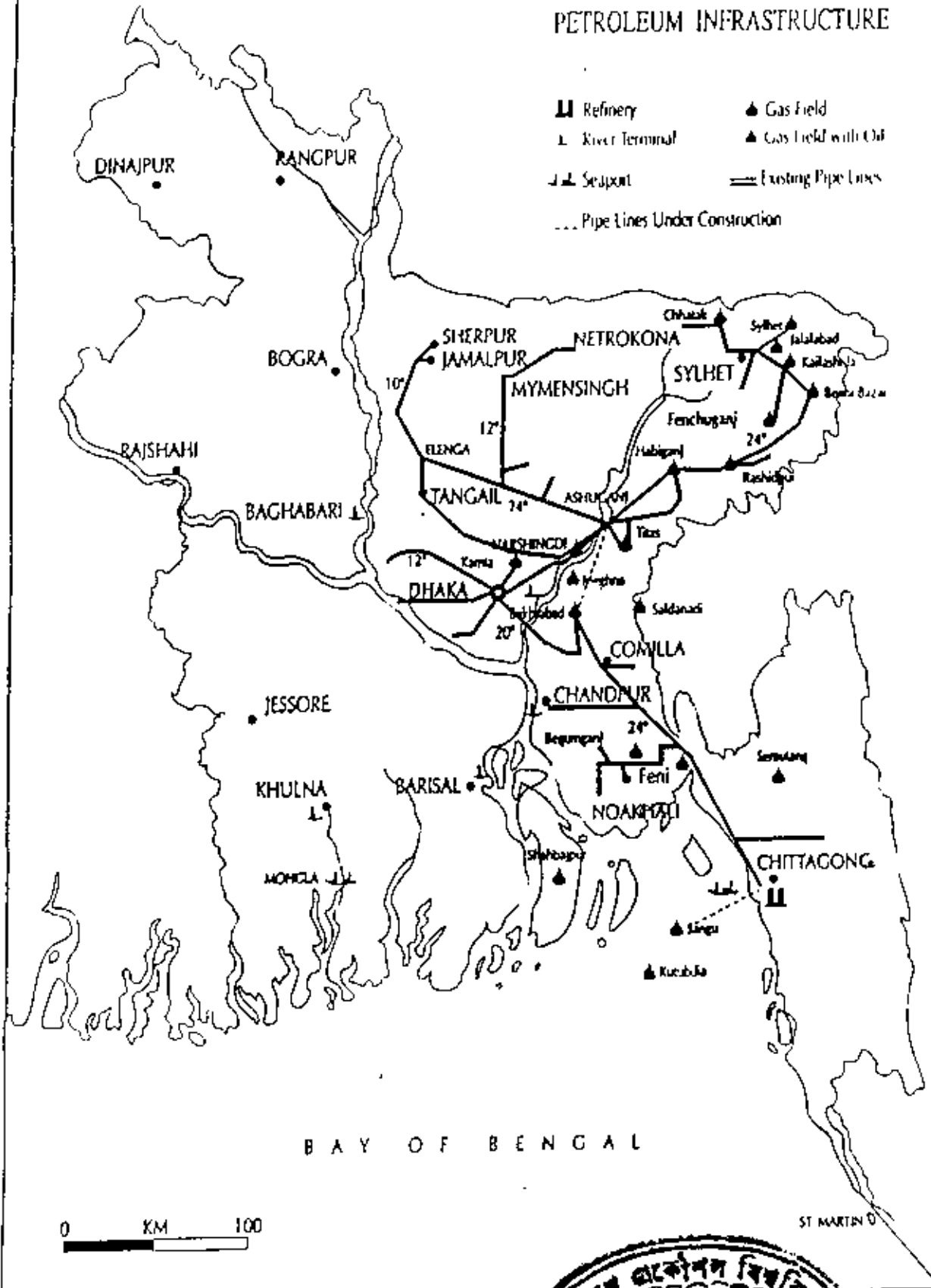
ACREAGE MAP 1999

-  Blocks under 1 Pk.
-  Open blocks for 2nd bidding round
-  Gas field
-  Gas field with...



BANGLADESH PETROLEUM INFRASTRUCTURE

-  Refinery
-  River Terminal
-  Seaport
-  Gas Field
-  Gas Field with Oil
-  Existing Pipe Lines
-  Pipe Lines Under Construction



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