

FUEL OIL SUBSIDY REFORMS AND OIL MARKET DEREGULATION IN BANGLADESH

*Sadiq Ahmed
Zaidi Sattar
Khurshid Alam*



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Abbreviations

ALC	Arabian Light Crude
APM	Administrative Pricing Mechanism
BAPEX	Bangladesh Petroleum Exploration Company Limited
BCC	Bangladesh Competition Commission
BCMCL	Barapukuria Coal Mining Company
BDT	Bangladeshi Taka
BERC	Bangladesh Energy Regulatory Commission
BERC	Bangladesh Energy Regulatory Commission
BTRC	Bangladesh Telecom Regulatory Commission (BTRC)
BGFCL	Bangladesh Gas Fields Company Limited
BGSL	Bakhrabad Gas Systems Limited
BMD	Bureau of Mineral Development
BOC	Burma Oil Company
BOI	Board of Investment
BPC	Bangladesh Petroleum Corporation
BPI	Bangladesh Petroleum Institute
BSOC	Burma Shell Oil Storage and Distribution Company
BTCL	Bangladesh Telecommunications Company Limited
BTRC	Bangladesh Telecommunications Regulatory Commission
CAP	Petroleum Administration Commission
CNG	Compressed Natural Gas
DOE	Department of Environment
DOJ	Department of Justice
ECC	Environmental Compliance Certificate
EMRD	Energy and Mineral Resources Division
ENAP	Empresa Nacional Administradora del Petroleo
ERB	Energy Regulatory Board
ERL	Eastern Refinery Limited
FSA	Fuel Supply Agreement
GDP	Gross Domestic Product
GHG	Green House Gases

GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GSB	Geological Survey of Bangladesh
GSI	Global Subsidies Initiative
GTCL	Gas Transmission Company Limited
HCU	Hydrocarbon Unit
HOBC	High Octane Blending Components
HSD	High speed diesel
HSFO	High Sulphur Fuel Oil
IDR	Indonesian Rupiah
IEA	International Energy Agency
IISD	International Institute for Sustainable Development
IMF	International Monetary Fund
IOC	International Oil Companies
JBO	Jute Bleaching Oil
Jet A1	Jet Aviation
JGTDSL	Jalalabad Gas Transmission and Distribution Systems Limited
KGDCL	Karnaphuli Gas Distribution Company Limited
JOCL	Jamuna Oil Company Limited
LAC	Latin America
LBO	Lube Base Oil
LNG	Liquid Natural Gas
LOBP	Lube Oil Blending Plant
LPG	Liquefied Petroleum Gas
LSD	Low Speed Diesel
MHMCL	Maddhyapara Hard Rock Mining Company
MJL	Mobil Jamuna Lubricants
MOCL	Meghna Oil Company Limited
MOGAS	Motor gas
MPEMR	Ministry of Power, Energy & Mineral Resources
MS	Motor Spirit
MT	Metric Ton
MTT	Mineral Turpentine
NDC	Nationally Determined Contributions

NGC	Natural Gas Condensate
NPL	Non-Performing Loans
NSSS	National Social Security Strategy
ODL	Oil Deregulation Law
OECD	Organization for Economic Co-operation and Development
OGRA	Oil and Gas Regulatory Authority
OMC	Oil Marketing Companies
OPL	Omera Petroleum Limited.
OPSF	Oil Price Stabilization Fund
PDS	Public Distribution System
PGCL	Pashchimanchal Gas Company Limited
POCL	Padma Oil Company Limited
PPP	Public Private Partnership
PRI	Policy Research Institute
PRL	Petromax Refinery Limited
R&D	Research and Development
RIL	Reliance Industries Limited
RPGCL	Rupantarita Prakritic Gas Company Limited
SAOCL	Standard Asiatic Oil Company Limited
SBPS	Single Boiling Point Solvent
SGCL	Sundarban Gas Company Limited
SGFL	Sylhet Gas Fields Limited
SKO	Superior kerosene oil
SOE	State Owned Enterprises
SOSCL	Summit Oil and Shipping Company Limited
SRL	Super Refinery Limited
SSA	Sub-Saharan Africa
TESDA	Technical Education and Skills Development Authority
TGDCL	Titas Gas Transmission and Distribution Company Limited
TLRC	Technology and Livelihood Resource Center
VAT	Value Added Tax
WESGAS	Western Region Gas Company Limited
WEO	World Energy Outlook

Executive Summary

Development Context

Bangladesh has secured major progress with development since independence, reflected in rising per capita incomes, falling poverty rates and improving human development indicators. In particular, GDP growth rate has accelerated from less than 4% per year during the 1970s to 6% plus in the Sixth Plan period of 2010-15. It reached 7% in Fiscal Year (FY) 2015-16. The Government now aspires to achieve 8% growth rate by the end of the Seventh Plan (FY2019-20) and sustain it at that level with a view to achieving upper middle income status by FY2030-31. Many factors will contribute to securing this aspiration. A major constraint is the energy sector, which will have to be addressed to achieve the government's target. Among the many challenges faced by the energy sector, two key issues are: first, the heavy financial burden of fuel oil subsidies that adversely affects the government's ability to finance critical spending for education, health and social protection, while also contributing to a rapid accumulation of debts by the national oil company (Bangladesh Petroleum Corporation); and second, the constraint on the expansion of the power sector to meet the growing demand owing to the inadequacy of primary energy emerging from the lack of a diversified primary energy supply chain.

Future demand for oil is expected to grow at a more rapid pace than in the past owing to three important structural changes affecting the Bangladesh oil market. First, the aspiration to grow at an unprecedented pace of 8% per year will be mainly fueled by the expansion of the manufacturing sector, which is much more energy intensive than agriculture. Second, growing urbanization will add to the energy intensity of the economy. And third, as gas reserves continue to dwindle the reliance on imported oil for primary fuel supply will grow. The development of other alternative primary fuel sources (coal, hydro-power, LNG, renewable energy) face major uncertainties and will likely take a long time to be satisfactorily resolved. Consequently, the efficient management of the domestic oil market and oil prices will be necessary to avoid an adverse effect of oil imports and international oil prices on the balance of payments and the budget. In particular, rising international oil prices could push up the subsidy bill and hamper the ability of the government to finance the programs in infrastructure and human development that are needed to achieve and sustain 8% GDP growth.

Domestic Oil Market and Pricing Policy

Bangladesh is an oil importing country with government control over oil production, imports and domestic oil distribution. Oil prices are heavily regulated and controlled by the government. The Bangladesh Petroleum Act 1974 essentially vested all legal authority to the government in the area of petroleum. In recent years there has been some deregulation that has allowed private sector involvement in the oil sector on a very limited scale. The Bangladesh Petroleum Corporation (BPC) is the key public agency in Bangladesh for imports, production and supply of petroleum

products throughout the country, with the involvement of publicly owned Eastern Refinery Limited (ERL) and public distribution companies in the supply chain.

Historically, domestic oil prices are set by the government in consultation with the BPC. As international oil price shocks happened, it became increasingly difficult for the government to pass on the cost increases to the consumers. This resulted in a growing gap between the average cost of oil products and the retail level price to the consumers. Commensurately, the subsidy bill of the government soared.

The main political consideration in price setting is the sensitivity of the concerned oil product in terms of the perceived impact on consumer budget. Diesel and kerosene, which are mostly used in transportation, irrigation and rural household lighting, are considered as highly sensitive products. The pricing policy therefore provides a subsidy for these products. Octane and petrol are used for motor cars that mostly belong to the rich. As such, these are not considered sensitive and are taxed. Furnace oil is mainly used for power generation by the private producers and in manufacturing sector. These are also considered sensitive and therefore subsidized. Historically, on average petrol and octane prices have exceeded the average cost of production while prices of diesel, kerosene and furnace oil were below the average cost. The scenario changed recently in light of the collapse of international oil prices since late 2014. The average selling prices of all petroleum products now exceed the average cost, but the tax is particularly significant for petrol and octane. This, however, is an outlier and not the result of a strategic domestic pricing policy. Consequently, without a change in the domestic pricing policy stance, subsidies will re-emerge if international oil prices go up.

The pricing mechanism has remained basically ad-hoc, mostly driven by political considerations about possible backlash from the citizens to rising prices. Fiscal costs have sometimes entered the equation in allowing limited price increases. But other considerations like effect on the financial performance of BPC, effect on incentives, choice of technology and investment decisions, impact on the environment and climate change have never entered as factors for pricing decisions. A half-hearted attempt to reform pricing policy was undertaken over 2003-2004, mostly in response to donor pressure. The Bangladesh Energy Regulatory Commission (BERC) was established in 2003 to regulate the energy industry, facilitate private sector participation in the energy sector and set energy prices. The government also agreed to set up an oil pricing mechanism that allowed pass through of international prices and other cost factors to be administered by BERC. The BERC lacks autonomy and is basically guided by the government in its policy decisions. The automatic pass-through pricing policy was never implemented as the fear of negative political reaction caused the government to abandon the policy. A renewed effort to introduce an automatic oil pricing mechanism with a view to fully passing on the international oil price changes to the consumers was attempted in 2012 in the context of a three year Extended Credit Facility Arrangement with the IMF. This automatic price was adopted as a structural benchmark, but was never implemented.

Macroeconomic and Environmental Impact of Oil Pricing, Subsidies and Oil Market Controls

The oil pricing and subsidy policy and controlled oil market have had several negative macroeconomic implications for Bangladesh. Energy subsidies grew rapidly between FY2006-07 and FY2012-13, reaching 1.1% of GDP in FY2012-13, which was 60% higher than the health budget (0.7% of GDP) in that year. More generally, oil and electricity subsidies have sharply reduced the government's already very limited fiscal space to finance essential programs for infrastructure and human development. Oil subsidies have also contributed to increased domestic demand for imported oil thus worsening the trade balance. A significant distortive effect of oil subsidies is that on investment in physical plant, which tends to be more energy-intensive in the presence of energy subsidies than in their absence. This is particularly harmful for infrastructure with very long lifetimes. Additionally, the main public oil enterprise, the BPC, has been suffering from severe financial constraint that has reduced its ability to invest in new facilities and upgrade its services. The outstanding cumulative deficits of BPC at the end of FY2014-15 stood at TK 464 billion (\$5.9 billion) that is equivalent to 3.1% of the national GDP. As a state-owned enterprise, these are contingent liabilities of the Treasury and the counterpart is reflected in international loans/credits and loans from public banking sector. Most of the debt servicing burden falls back on the Treasury. Resource constraints in BPC and the entry restrictions on private sector have prevented new investments in the oil sector including oil refinery. Furthermore, the absence of competition has lowered the efficiency and accountability of the public oil enterprises. Similarly, the retail outlets for sale of gasoline managed by the public entities are outdated with low quality facilities, poor customer service and low safety standards. Oil pricing has also negatively affected the performance of the state owned banks. Part of the losses of BPC after subsidies found its way to public bank portfolio through borrowings that are often not serviced in a timely manner.

In addition to these serious adverse macroeconomic effects, fossil fuel subsidies have a significant negative impact on the environment and climate change. Subsidies create incentives to consume fossil fuels, and disincentives to use resources efficiently and to invest in renewable energy. A recent study of 20 countries including Bangladesh finds that a phasing out of fossil fuel subsidy by 2020 leads to an average national carbon emissions reduction of 8.7% for Bangladesh. Additionally, if a part of fiscal savings is used to improve energy efficiency and invest in renewable energy, the CO₂ reduction estimates increase to 13.6%.

Political Economy of Oil Subsidies

The government's control over oil prices is driven by its determination that oil is a sensitive commodity and that its pricing and associated consumption cannot be left to market forces. The current oil pricing mechanism seeks to achieve three socio-economic objectives: Provide affordable oil – regarded as essential for lighting and cooking – for the poor; support the income

of the farmer by subsidizing fuel for mechanized irrigation while keeping food prices low; and prevent cost-push pressure on inflation from pass-through effects of oil price hikes. A review of available empirical evidence based on the 2010 Household Income and Expenditure Survey shows that poor households' population-weighted share of consumption of fossil fuels is extremely low: 0.1% for kerosene and less than 0.1% for natural gas and LPG, petrol, electricity, and motor oil and CNG. At the other extreme, the rich and the upper-middle classes consume nearly 79% of natural gas and LPG, 88% of petrol, 89% of diesel, 94% of motor oil and CNG, and 35% of kerosene. When the poor and lower middle income groups are combined, the share of kerosene consumption goes up to 65%. But the use of diesel, petrol, natural gas and LPG, motor oil and CNG consumption remain concentrated among high- and upper-middle-income groups. These suggest that there is very little empirical basis to claim that oil subsidies benefit the poor in Bangladesh. This finding is consistent with cross-country international evidence that the benefits of oil subsidies largely go to the poor even when both direct and indirect effects are considered.

In the case of diesel subsidy for agriculture, the benefits of the diesel subsidy do not reach the poorest of the poor farmers at all, whereas low middle- income farmers benefit only marginally. Once again, there is no credible evidence that the diesel subsidy benefits the poor farmers. Regarding inflation, while fuel price increases do tend to create inflationary pressures, the periodic adjustments of fixed oil prices can have similar effects. Importantly, large fuel subsidies can also fuel inflationary pressures through the financing side by causing greater Treasury borrowing from the banking sector to finance fiscal deficits. The important point is that sustained inflation management requires sound monetary and fiscal policies. The inflationary effects of large upswings in international fuel prices can be moderated by proper fiscal and monetary management. For example, the average global inflation rate has been lower than the Bangladesh inflation rate even though Bangladesh does not allow pass through of international oil prices on the upswing. Furthermore, over the past 40 years, the average inflation rate in OECD countries has been significantly lower than in Bangladesh even with no price controls over energy and flexible exchange rates in these countries.

Clearly, the socio-economic rationale for having open-ended subsidies on fuel oil is very weak. Nevertheless, there are some genuine costs of withdrawing subsidies that have to be addressed in undertaking fuel subsidy and pricing policy reforms. Those who benefit from subsidy, the middle class and the rich, will likely resist. This potential political fallout from the removal of subsidies will therefore need to be managed. Also, some of the poor, especially in the urban areas, may likely benefit from kerosene. Measures will need to be taken to protect their real income. Additionally, higher diesel prices might increase public transport costs that will need to be managed. The transitional issues are important and will need to be addressed as a part of the reform program.

Benefits of Reforming Oil Prices, Subsidies and Oil Market in Bangladesh

There are considerable benefits for Bangladesh in reforming oil prices and subsidies and deregulating the oil market. First, it will mobilize foreign and domestic private investment in the oil market, supporting growth and job creation. Second, the government resources currently spent for oil subsidies could then be redirected to other priority social programs. Third, the government will be able to focus on the formulation of oil sector policies and ensure that they are implemented—as it is usually much easier to enforce policies on private companies than on state enterprises, which have their own constituencies and lobbies. Fourth, consumers will benefit from better service, higher quality products, competitively set prices, and more rigorously enforced environmental and safety standards. Finally, subsidies if any can be provided on a limited scale and on a transparent basis through the budget; this will allow the public to scrutinize how state resources are spent.

Suggested Approach to Reforming Oil Prices, Subsidies and Oil Market in Bangladesh

Several developing countries have adopted far-reaching reforms to deregulate oil prices and oil market. The recent decline in international oil prices has provided a politically favorable environment to accelerate these reforms. Two noteworthy examples from Asia are Philippines and India. Both have now deregulated the oil market and moved to market-based prices for petrol and diesel.

A review of international reform experiences suggests that the strategy for reforming oil prices and subsidies and oil market deregulation should involve the following key elements: (i) Proper timing of reforms; (ii) a comprehensive reform plan; (iii) appropriately phased energy price adjustments that can be sequenced differently across energy products; (iv) improving the efficiency of SOEs to reduce producer subsidies; (v) targeted mitigating measures to protect the poor; and (vi) depoliticizing energy pricing to avoid the recurrence of subsidies (vii) a far-reaching communications strategy.

Reform Timing: Some of the politically sensitive reforms, like oil price subsidy and pricing reform, are best done from a position of strength. Bangladesh economy is growing, the macroeconomy is stable and inflation has come down. In this overall positive macroeconomic environment, low international oil prices present a historic opportunity to reduce economically costly and environmentally damaging fuel subsidies. When oil prices are low, subsidy removal has limited adverse social consequences. In fact, the domestic prices of oil products in Bangladesh today are above the international price and subsidy reforms will not increase oil prices immediately. The outlook for international oil prices is also positive, which will help maintain price stability in the near future. But the window to oil subsidy reform may be limited, given uncertainties about the long-term outlook for international oil prices. Indeed, oil prices have already moved up from the lowest point achieved in 2015.

Comprehensive reform plan: Reforms are more likely to be successful and durable if they are embedded within a broader reform agenda. Most of the successful oil subsidy reforms were well planned with a clear reform strategy and the establishment of long-term objectives, assessing the impact of reforms, and consulting with stakeholders. In particular, reforms should incorporate both a sustainable approach to energy pricing and a plan to improve the efficiency of energy consumption and supply. Designing a comprehensive subsidy reform strategy requires information on the likely impact of reforms on various stakeholders and the identification of measures to mitigate adverse impacts.

This suggests that, for Bangladesh, instead of looking at oil subsidy reform in isolation, a full package consisting of oil market deregulation that allows private sector participation in all aspects of the oil market, oil pricing deregulation and reform of oil public companies aimed at improving their performance and competitiveness may be the way to go. Proper pricing policy must also address the issue of oil taxation (i.e. value added tax, sales tax, excise tax) as an instrument for addressing the issue of resource mobilization. Many countries have successfully used oil pricing as a solid instrument for mobilizing resources to finance transport infrastructure and other development programs. Bangladesh has a serious resource constraint and oil provides a lucrative source of revenue generation to finance required development spending in support of the government's 8% GDP growth target. The taxation regime can also be used to stabilize international oil price movements as in India.

The reforms should be conceived in totality but implementation may be phased over a number of years based on implementation capacity and political economy considerations. In this regard, the Government can learn from the experience of Philippines and India that have now fully deregulated the oil market and oil prices. India, for example, established a number of task forces to develop the oil market reforms that were extensively debated and discussed.

Phasing and sequencing: While there is no oil subsidy now, international prices might increase in the future. Exchange rate changes can also trigger price increases. So, it is important for the government to adopt a phased approach to passing on any possible near-term, price increases. A phased approach to reforms permits both households and enterprises time to adjust, and permits the country time to build credibility by showing that subsidy savings are being put to good use. It also helps reduce the impact of subsidy reform on inflation and creates room for governments to establish supporting social safety nets.

In Bangladesh, petrol is taxed but diesel, fuel oil and kerosene carry a subsidy. Diesel and furnace oil account for 65% and 17% of oil consumption respectively. As such, they contribute most to the subsidy bill. The incidence analysis reported above showed that most of the subsidy goes to the middle and the rich income groups. Therefore, the reform of diesel and furnace oil would be the top most priority. As the safety net is strengthened, subsequent rounds of reform can include larger increases in prices for fuel products that are more important in the budgets of poor

households (e.g. kerosene) and part of the budgetary savings can be used to finance targeted transfers to poor households.

Reforming the BPC and subsidiaries: Improving the efficiency of the oil SOEs can reduce the fiscal burden of the oil sector. The BPC is financially bankrupt and receives financial support from the Treasury and the public banking sector to stay afloat. A part of the subsidy reflects price controls, but there are also efficiency concerns. Lack of competition and weak performance monitoring leaves no incentives for efficiency drive. Improvements in efficiency can strengthen the financial position of BPC and its affiliates. The efficiency improvements will be particularly important in an environment of deregulated oil market so that BPC and affiliates can compete effectively with private producers and distributors. Governance of BPC can be strengthened by subjecting it to international audit in order to establish proper business accounts, improve its transparency, and provide the government appropriate baseline to establish proper monitoring and performance evaluation system. In particular, this can help identify system inefficiencies (e.g., overstaffing) and vulnerabilities (e.g., major loss points and bottlenecks in energy flows). With the establishment of proper pricing, BPC should be required to earn a profit, finance its own investment and service its full debt servicing obligations. Delinking BPC operations from the budget and converting it to a profitable enterprise will be a major positive reform.

Instituting safety nets to protect the poor: Well-targeted measures to mitigate the impact of oil price increases on the poor are critical for building public support for subsidy reforms. International experience with targeting fuel subsidies shows several administrative problems including leakages, adulteration and smuggling. Therefore, the best policy option would be to adopt the cash transfer approach. Fortunately, Bangladesh is already well advanced in undertaking necessary preparatory work towards a cash-based social security system. In 2015 Bangladesh adopted the National Social Security Strategy (NSSS) that calls for a substantial overhaul of the social security system including transition to cash transfers. The preparatory work undertaken in that context can also apply to the needs for phasing away fossil fuel subsidy.

The elimination of diesel subsidy will increase the cost of irrigation when international prices go up. This adverse effect on cost of production and farmer incentives can be offset through improvements in farm productivity, investments in rural infrastructure including flood control and removal of export ban on food that is depressing the domestic price received by farmers. Similarly, the removal of diesel subsidy can lead to cost increases in transport when international oil prices go up. To address this concern, the government may need to develop direct ways to subsidize public and private mass transit systems. These include direct subsidy to public mass transit and tax breaks including import duty reductions, accelerated depreciation options and profit tax reductions for private buses. The government can commission a study to look into ways to lower transport cost in an un-subsidized oil price regime.

Setting proper prices for oil products: Successful and durable reforms require a proper mechanism for setting energy prices. Many countries have implemented reforms only to see subsidies reappear when international oil prices increase. Establishing a proper oil pricing system is important to ensure the sustainability of reforms. The German Federal Enterprise for International Cooperation (GIZ) suggests a set of four principles to guide the development of a sustainable oil pricing policy: pricing principles; price regulation principles; transparency principles; and enforcement principles.

- a) *Pricing principles:* These comprise of three elements: cost coverage; applying fuel taxes; and internalizing the external effects of the transport sector. The idea behind cost coverage is that prices should at least cover all costs of production (import, refining, transport and depreciation). The next consideration in price setting is the use of taxes to develop the transport sector (cost recovery of road infrastructure including maintenance) or more broadly to generate revenues for the government. A third consideration is to internalize the external costs from the use of fossil fuel (i.e. the tax on carbon emission). Most countries are moving towards this broad-based pricing policy.
- b) *Price regulations principles:* This principle advocates that price adjustments must reflect the changes in cost of production, exchange rate changes and general inflation. The rationale for this principle is to avoid subsidy by allowing full pass through of all factors that affect the cost of production.
- c) *Transparency principles:* The idea here is that stakeholders must have full information about how prices are set. Information about the main components of pricing (costs and taxes), how prices are set, who sets the prices, the frequency of price changes and the reason for changes must be communicated to the general public through a website and mass media so that there is common understanding for the oil price behavior.
- d) *Enforcement principles:* The proper implementation of defined pricing principles requires that they are properly monitored, supervised and enforced. Enforcement must also pay attention to issues of smuggling, black-markets, adulteration and quality assurance for oil products as per specification.

The current Bangladesh oil pricing system does not meet any of these principles, suggesting that a thorough overhaul of the pricing system is needed. Two policy questions emerge: Should government continue to regulate oil prices by instituting an automatic pricing formula or should it deregulate the prices and leave pricing to the market? This is a political economy choice. For example, India and Philippines have completely deregulated oil prices, except for kerosene in the case of India. The advantage of a market-based pricing is the complete de-politicization of oil pricing. However, this requires adequate competition in the oil market and proper administrative and regulatory capacities to monitor the performance of the oil companies and prevent cartelization.

Since Bangladesh does not yet have a competitive oil market, full deregulation of oil prices may be pre-mature at this time. So, in the first phase of the reforms the adoption of an automatic pricing formula that reflects the above principles may be the way to go along with deregulation of the oil market to allow private sector participation in all areas of the oil industry. This pricing policy should be administered by the BERC without any government intervention. This requires that the BERC should be strengthened with greater autonomy and quality staffing to do its assigned job with proper competence. BERC will also be responsible to provide all necessary information to the public at large to meet fully the transparency criteria for oil pricing. The government's main role will be to decide the taxation policy for oil as appropriate.

Over the longer term, subsidy reforms for petroleum products should aim to fully liberalize pricing. More liberalized regimes—where prices are determined by private sector suppliers and move freely with international prices—tend to be more robust to the reintroduction of subsidies than automatic pricing mechanisms. Under a liberalized regime, the role of the government is to ensure that fuel markets are competitive and there is free entry and exit from the sector. A well-functioning social safety net should be in place before liberalizing prices to ensure that low-income groups can be protected from future price increases and thus avoid public pressure to reintroduce subsidies. Successful implementation of an automatic pricing mechanism can facilitate the transition to a liberalized pricing regime by getting the public used to frequent changes in domestic oil prices. It can also build up the confidence of private suppliers to invest in oil products and services that the government will not return to subsidized pricing.

A far-reaching communications campaign by the Bangladesh government can help generate broad political and public support and should be undertaken throughout the reform process. The information campaign should explain the magnitude of energy subsidies and their implications for other parts of the budget. The benefits of removing subsidies, including on a post-tax basis, should be underscored, in particular the scope for using part of the budgetary savings or additional revenues to finance high-priority spending on education, health, infrastructure, and social protection.

It is equally important that the government should also disclose all pertinent information about how prices are formulated and the factors behind planned price increases. The adopted pricing system must meet the transparency criteria for price setting noted above. All relevant information should be available in usable form in the government's website.

Additional Considerations for Oil Market Deregulation in Bangladesh

Deregulation is defined to mean removal of all entry barriers to private participation in all aspects of the oil market. It does not imply the absence of government regulations relating to monopoly control, safety standards, protection of consumer interests and taxation. Indeed prudential regulations are very much necessary to ensure a healthy, competitive market that also protects public interests relating to safety and quality. In addition to the strategic factors noted above under

oil pricing reform, the following are some specific recommendations for possible implementation of oil market deregulation in Bangladesh.

- i. Deregulate all segments of the oil market to allow private investment and competition. Provide a level playing field by reducing the monopoly hold of BPC in both upstream and downstream segments of petroleum trade and processing that will incentivize other globally well-known petroleum brands to invest in petroleum infrastructure, storage, pipelines, transportation, and at retail levels
- ii. Make BERC the effective regulator of the energy sector including oil that would regulate any monopolistic behavior but at the same time allow prices to be market determined (something in line with the practice in the mobile telephone sector).
- iii. Zoning laws and environmental and other safety standard for setting up petroleum infrastructure needs to be in place and enforced.
- iv. A transparent open access regime for terminals, storage, and pipelines be implemented to facilitate entry, and to enhance competition – there is already some private sector participation in these areas.
- v. Special steps should be taken to introduce competition in the transportation of petroleum products, with long-term plans developed for handling redundant road transport fleet keeping the social ramifications into account
- vi. Help reduce cost of fuel in the country by ensuring that the price components related to processing, distribution and retail systems are as efficient as possible; and reducing the amount of fuel that consumers and businesses require for an average unit of economic activity or consumption, through energy efficiency, conservation or diversification.
- vii. Establish product quality standards that should be posted in retail outlets and monitored by the government.
- viii. Over the longer term, let market competition ensure that prices are competitive and that prices at pump-head at retail level actually reflect quality and standard of the petroleum product sold – there should be option for the discriminating customer.

Fuel Oil Subsidy Reforms and Oil Market Deregulation in Bangladesh

A. Background

Bangladesh has secured major progress with development since independence, reflected in rising per capita incomes, falling poverty rates and improving human development indicators (Planning Commission Government of Bangladesh, 2015). In particular, GDP growth rate has accelerated from less than 4% per year during the 1970s to 6% plus in the Sixth Plan period of 2010-15. It reached 7% in Fiscal Year (FY) 2015-16. The Government now aspires to achieve 8% growth rate by the end of the Seventh Plan (FY2020) and sustain it at that level with a view to achieving upper middle income status by FY2031. Many factors will contribute to securing this aspiration. A major constraint is the energy sector, which will have to be addressed to achieve the government's target (Ahmed, 2015).

Among the many challenges faced by the energy sector, two key issues are: first, the heavy financial burden of fuel oil subsidies that has adversely affected the government's ability to finance critical spending for education, health and social protection; and second, the constraint on the expansion of the power sector to meet the growing demand owing to the inadequacy of primary energy emerging from the lack of a diversified primary energy supply chain. The urgency of diversifying the primary energy supply has strengthened following the rapid depletion of known gas resources (Ahmed 2015). In the absence of alternative primary energy to dwindling gas supply, Bangladesh is increasingly resorting to reliance on petroleum imports as the main source of primary energy. In view of this development, the efficient functioning of the domestic oil market has become a major policy challenge.

This paper presents an analysis of these two critical development challenges with a view to helping the government make informed policy choices. The analysis is based on a synthesis of research findings compiled in two background policy papers: one dealing with the macroeconomic effects of oil pricing and subsidy (PRI, 2016a) and the other concerning oil market deregulation (PRI, 2016b). The background papers were based on a review of available domestic and international literature; analysis of relevant market, financial and economic data; and discussions with government, private investors and representatives of donor communities.

The paper is organized as follows. Section B provides a review of the oil market in Bangladesh and the current oil pricing policy. Section C shows the effects of oil pricing and subsidies on the macroeconomy and the efficiency of the oil market. The political economy of oil pricing and oil market organization is analyzed in Section D. The lessons of international experience with oil pricing and subsidy reforms and oil market deregulation are contained in section E. This is followed by a suggested approach to oil pricing and subsidy reforms and oil market deregulation in Bangladesh in Section F.

B. Bangladesh Oil Market

Bangladesh is an oil importing country with government control over oil production, imports and domestic oil distribution. Oil prices are heavily regulated and controlled by the government, although in theory this role is assigned to an independent regulatory authority called the Bangladesh Energy Regulatory Commission (BERC). The Bangladesh Petroleum Corporation (BPC) is the key public agency in Bangladesh for imports, production and supply of petroleum products throughout the country, with the involvement of Eastern Refinery Limited (ERL) and the distribution companies in the supply chain.

Supply of Oil

Bangladesh imports all its crude oil but refined oil is partly imported and partly refined domestically. There is a growing production of lubricants. Owing to domestic gas production, condensates are converted into by-products like naphtha and natural gas condensate (NGC).

Oil imports and exports: Tables 1 and 2 provide a picture of petroleum product imports from FY2003-04 to FY2014-15. Oil imports mostly comprise of crude, diesel, octane, jet A-1, lubricating base oil and furnace oil. Some important changes in the composition of oil imports have happened in recent years. Since FY2012-13, there has been no import of lubricating base oil, and in FY 2014-15 there has been significant decline in the import of furnace oil from 1.02 million tons in FY2013-14 to 0.69 million tons in FY2014-15. These changes have happened because of a modest deregulation effort by which independent power producers have been allowed to import their own furnace oil and there is an increasing presence of the private sector in the blending process. The deregulation has also allowed private sector to produce refined petroleum products from gas condensates, thereby lowering the demand for imported furnace oil. Since FY2010-11, a small quantity of naphtha produced from gas condensates is being exported (Table 3). On the whole, Bangladesh is a large net importer of oil.

Table 1: Import of Crude Oil

Fiscal Year (FY)	Quantity (in MT)	Value (Crore Tk)	Value (in US\$ million)
2003-04	1,252,424	1,848	314
2004-05	1,063,208	2,262	368
2005-06	1,253,285	3,751	559
2006-07	1,211,037	3,985	577
2007-08	1,040,084	5,094	743
2008-09	860,877	3,431	499
2009-10	1,136,567	4,702	680
2010-11	1,409,302	7,037	989
2011-12	1,083,467	7,054	892
2012-13	1,292,102	8,537	1,068
2013-14	1,176,693	7,957	1,024
2014-15	1,303,195	5,739	739

Source: Energy and Mineral Resources Division

Table 2: Import of Refined Petroleum Products

Fiscal Year (FY)	Refined products (High speed diesel (HSD) , Superior kerosene oil (SKO) , Jet Aviation (Jet A1) & Motor gas (MOGAS)			Lube Base Oil (LBO)			High Sulphur Fuel Oil (HSFO)		
	Qty (MT)	Value (Crore Tk)	Value (US\$ ml)	Qty (MT)	Value (Crore Tk)	Value (US\$ ml)	Qty (MT)	Value (Crore Tk)	Value (US\$ ml)
2003-04	2,262,348	4,016	681	6,516	18.38	3.12	0.00	0.00	0.00
2004-05	2,691,750	7,214	1,175	10,189	38.14	6.21	39,859	61.53	10.02
2005-06	2,380,533	9,383	1,399	5,137	35.53	5.30	0.00	0.00	0.00
2006-07	2,536,535	10,446	1,513	4,287	25.13	3.64	0.00	0.00	0.00
2007-08	2,273,263	14,343	2,091	5,006	29.94	4.36	0.00	0.00	0.00
2008-09	2,507,819	10,945	1,591	4,828	23.63	3.43	29,920	60.38	8.78
2009-10	2,634,212	12,028	1,739	7,262	52.03	7.52	0.00	0.00	0.00
2010-11	3,259,344	20,281	2,850	4,745	43.75	6.15	230,431	1,123	157.82
2011-12	3,409,934	27,111	3,427	4,981	53.11	6.71	680,982	3,819	482.82
2012-13	2,827,160	219,493	27,461	4,853	38.56	4.82	803,603	4,367	546.39
2013-14	3,158,343	23,486	3,022	-	-	-	1,016,101	5,145	661.95
2014-15	3,403,890	18,570	2,391	-	-	-	691,705	2,714	349.47

Source: Energy and Mineral Resources Division

Table 3: Total Petroleum Product Export (Metric Tons)

Name of Product	FY2010-11	FY2011-12	FY2012-13	FY2013-14	FY2014-15
Naphtha	133071	113686	133901	93086	75320
Natural gas condensate (NGC)	39273	10649	-	-	-

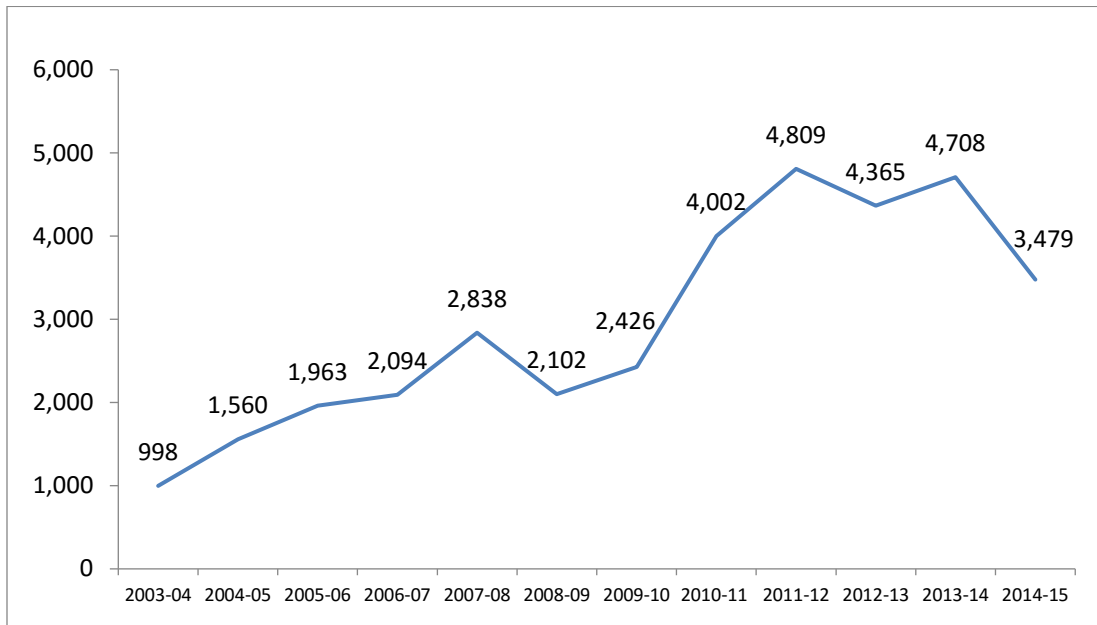
Source: Energy and Mineral Resources Division

Impact of oil imports on the balance of payments: Total oil imports (crude plus products) have grown by an average rate of 3.0% per year (Tables 1 and 2). In value terms oil imports amounted to \$ 3.5 billion (9.3 % of total imports) in FY2014-15, down from its peak of \$ 4.8 billion (14.4 % of total imports) in FY2011-12 (Figure 1) owing to the sharp decline in international oil prices. Despite the gain in the terms of trade from declining oil prices that has provided a huge boost to the Bangladesh economy, oil remains the single largest import and Bangladesh remains highly vulnerable to upswings in international oil prices.

Future demand for oil is expected to grow at a more rapid pace than in the past owing to three important structural changes affecting the Bangladesh oil market. First, Bangladesh's aspiration to grow at an unprecedented pace of 8% per year will be mainly fueled by manufacturing, which is much more energy intensive than agriculture. Second, growing urbanization will add to the energy intensity of the economy. And third, as gas reserves continue to dwindle the reliance on

imported oil for primary fuel supply will grow. The development of other alternative primary fuel sources (coal, hydro-power, LNG, renewable energy) face major uncertainties and will likely take a long time to be satisfactorily resolved (Ahmed 2015). Consequently, the efficient management of the domestic oil market will be necessary to avoid an adverse effect of oil imports on the balance of payments and the budget.

Figure 1: Trend in Oil Imports (million US\$)



Source: Bangladesh Bank

Domestic production: Bangladesh refines oil through the Eastern Refinery Limited (ERL). The ERL was commissioned in 1966 and started production in 1968. Despite some upgrading and capacity additions, ERL is an outdated refinery in terms of technology by present international standards and as such is not very efficient. The production of refined products by ERL is shown in Table 4. As can be seen, the ERL is a small refinery by international standards and its capacity has basically remained unchanged since early 2000. As a result, Bangladesh has to resort to higher imports of oil products to meet its growing demand for oil. ERL also produces several oil products using gas condensates, especially naphtha. The projected future growth in oil demand will further add to the gap between domestic demand and supply for refined oil. Efficient supply of domestically refined oil at internationally competitive prices is an important policy challenge for Bangladesh.

Table 4: Eastern Refinery Oil Processing (metric tons)

Fiscal Year	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
PROCESSED QUANTITY	-	-	-	-	-	1271100	1342300	1193600	1360900	1204800	1252200
A. CRUDE OIL:	-	-	-	-	-						
a. Arabian Light Crude (ALC)	-	-	-	-	-	725023	780823	528530	708012	506659	663779
b.MURBAN	-	-	-	-	-	496513	525142	621750	593256	645926	545106
c.CONDENSATE	-	-	-	-	-	49564	36335	43320	59632	52215	43314
A. PRODUCTS	-	-	-	-	-	-	-	-	-	-	-
LPG(Liquefied Petroleum Gas)	14898	16082	12493	9987	6278	11829	13284	12791	13890	11214	11070
NAPHTHA	79948	121631	120235	134561	79666	145294	133415	113271	139137	131574	162026
SBPS (Single Boiling Point Solvent)	955	1310	1243	1175	758	774	696	841	714	401	256
MS(Motor Spirit)	59902	52852	37299	42868	28802	44320	41666	58865	66116	54791	16921
HOBC (High Octane Blending Components)	39327	40865	38202	34655	20715	12112	13900	4353	3130	4301	549
MTT (Mineral Turpentine)	7120	7422	6226	5624	4792	6282	8124	7352	10186	7085	6687
JET A-1(Jet Aviation-1)	0	5523	5678	6065	2549	2511	2069	3851	0	1336	753
SKO (Superior Kerosene Oil)	204863	311379	315178	262758	189995	241500	282768	226191	286069	231175	245341
HSD (High Speed Diesel)	345874	314314	254282	265119	-	369749	376081	373070	383886	359623	386449
JBO (Jute Bleaching Oil)	17336	18187	18572	13539	16791	19730	21723	25228	24571	23263	17491
Light Diesel oil (LDO)	2485	-	-	-	-	1871	2276	2206	2349	2156	2524
Furnace Oil (FO)	9929	-	34092	14101	-	340851	366909	275353	322661	301680	299357
BITUMEN	-	-	-	-	-	51850	55041	65010	70478	56923	66757

Source: Energy and Mineral Resources Division

Demand for Oil

Consumption of oil grew at a modest pace of 2% per year between FY2010-11 and FY 2014-15 (Table 5). A part of the reason for this modest growth was the significant substitution of compressed natural gas (CNG) for petrol. By pricing CNG at a very low level, a huge incentive was provided to motor vehicle owners to convert fuel use to CNG. The composition of oil use in FY2014-15 shows that consumption is highly skewed, with nearly 65% consumed in the form of high-speed diesel (HSD) followed by about 17% of furnace oil (FO) and only 6% for petrol. Petrol and diesel are the major fuels for transportation. Diesel is also widely used by farmers for irrigation. Rural households without electricity mostly use kerosene for lighting. There have been some changes in the composition of consumption of different petroleum products over the past few years. Diesel consumption accounted for 68 % of total petroleum product sales in FY2010-11; it came down to 61% in FY2013-14, but increased to 65% in FY2014-15 (Table 5). The share of furnace oil has experienced substantial increase, growing from 11% per cent in FY2010-11 to 22% in FY2013-14, because of increased demand from electricity as gas supplies fell. The

consumption of kerosene has been going down substantially partly due to rural electrification. Its share in total oil consumption fell from 8% in FY2010-11 to only 5% in FY2014-15.

Table 5: Annual Petroleum Product Sale (metric tons)

Petroleum Product	FY2010-11	FY2011-12	FY2012-13	FY2013-14	FY2014-15
A. Fuel Oil					
Diesel	3239279 (68.12%)	3240349 (64.04%)	2964604 (59.83%)	3242554 (60.55%)	3396061 (65.34%)
Kerosene	397209 (8.35%)	358436 (7.08%)	314876 (6.35%)	289871 (5.41%)	263029 (5.06%)
Jet A-1	335732 (7.06%)	311890 (6.16%)	318423 (6.43%)	323327 (6.04%)	338829 (6.52%)
Octane	97264 (2.05%)	107150 (2.12%)	110850 (2.24%)	117452 (2.19%)	126114 (2.43%)
Petrol	141491 (2.98%)	158707 (3.14%)	169710 (3.43%)	178674 (3.34%)	166823 (3.21%)
Furnace Oil	544617 (11.45%)	883735 (17.46%)	1076423 (21.72%)	1202505 (22.46%)	906771 (17.45%)
A. Sub-Total	4755592 (100%)	5060267 (100%)	4954886 (100%)	5354383 (100%)	5197627 (100%)
B. Other Petroleum Products					
Light Diesel Oil (LDO)	460	419	1092	1064	2666
Jute batching Oil (JBO)	23245	25761	25841	23538	18729
Lube Oil	17954	17521	15908	17823	17869
Special boiling Point Solvent (SBPS)	695	719	800	368	234
Mineral Turpentine (MTT)	7372	7900	9875	7821	7038
Liquefied Petroleum Gas (LPG)	21294	20729	19671	17529	17424
Bitumen	41412	80330	58396	62440	59836
B. Sub-Total	112432	153379	131583	130583	123796
Total (A+B)	4868024	5213646	5086469	5484966	5321423

Source: BPC Report on Petroleum Product Supply, December 2015

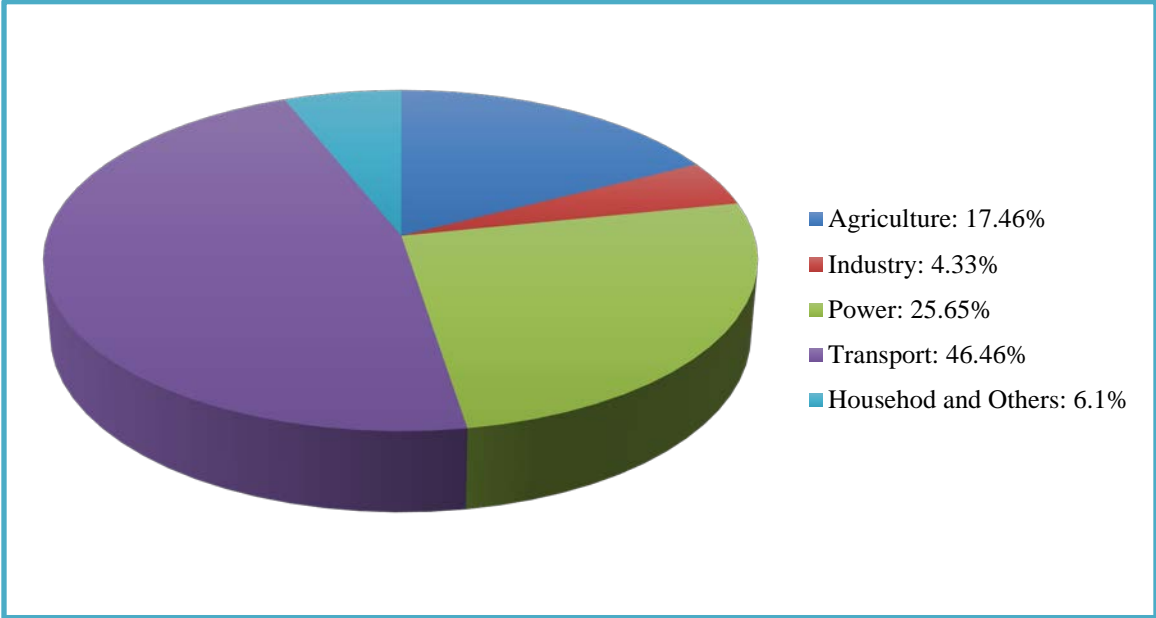
Table 6: Sector-wise Use of different petroleum products in FY2014-15 (Metric Tons)

Sector	Diesel	Kerosene	Petrol	Octane	Furnace Oil	Others	Total
Agriculture	925058	-	=	-	-	4124	929209
Industry	170092	6291	218	517	19579	33823	230520
Power	481265	-	-	-	883127	351	1364743
Transport	1774271	195	163972	123763	4065	406220	2472486
Household and Others	45348	256453	2633	1834	683	17424	324465
Total	3396061	263029	166823	126114	907454	461942	5321423

Source: BPC Report on Petroleum Product Supply, December 2015

The sectoral consumption of oil products in FY2014-15 is shown in Table 6 and Figure 2. The transport sector is the largest user of oil products, accounting for 47% of total oil consumption. This is followed by electricity and agriculture. In terms of product mix, the transport sector relies heavily on diesel. Some 72% of its oil use comes from diesel. Except motor cars, buses and trucks all rely on diesel. Agriculture is even more dependent on diesel. Almost 100% of its oil use is accounted for by diesel. Regarding households, some 80% of its oil consumption is in terms of kerosene. Much of this use is in rural areas for lighting. As noted, the demand for kerosene is falling owing to the spread of electricity in the rural areas.

Figure 2: Sector-Wise Use of Petroleum Products FY2014-15 (%)



Source: BPC Report on Petroleum Product Supply, 2015

C. Institutions Responsible for Policy, Regulation, Supply and Management of the Oil Market in Bangladesh

Legal Framework

Bangladesh has an elaborate institutional and regulatory framework governing the energy sector. As part of that structure, the Government has put in place a system that allows it to have a major stake in the oil and gas sector, not only as policy maker and regulator, but also as owner and manager of many of the operating entities that the government thinks are of strategic importance. While the private sector is slowly being brought into different aspects of the upstream and the downstream segments of the petroleum market, government entities continue to dominate the oil and gas business as a whole.

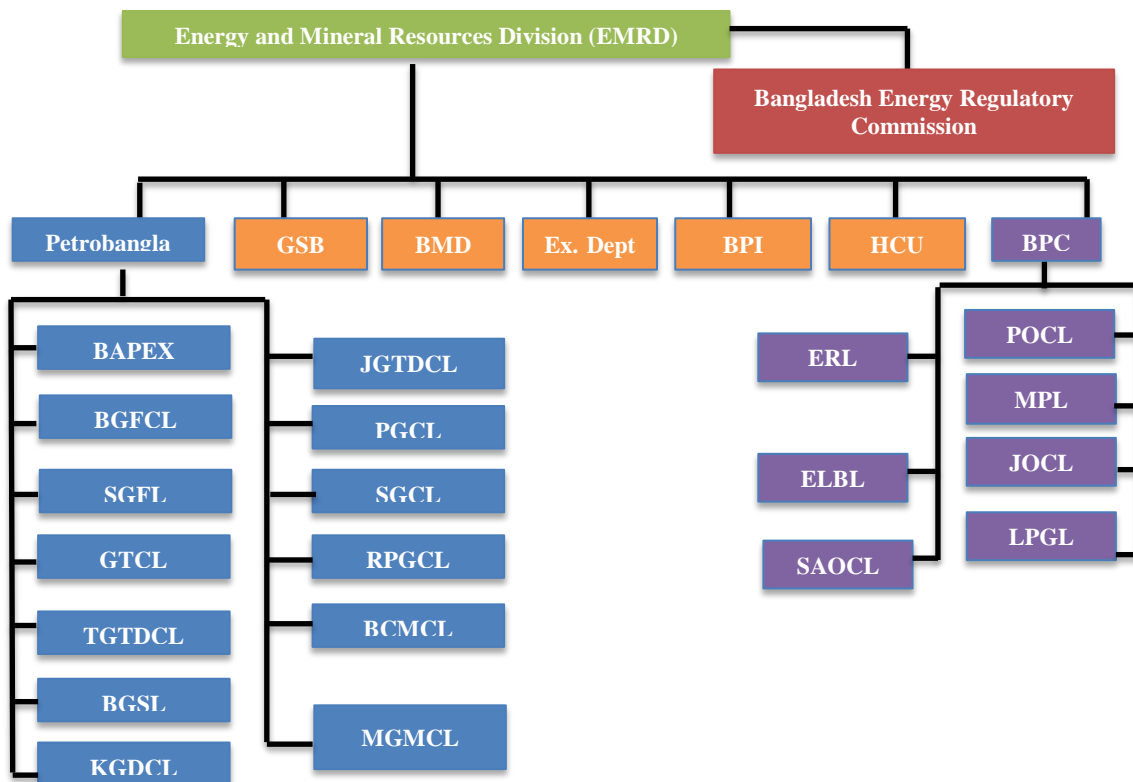
The Bangladesh Petroleum Act 1974 essentially vested all legal authority to the government in the

area of petroleum by stating: “The Government shall have, within the territory, continental shelf and economic zone of Bangladesh exclusive right to explore, develop, exploit, produce, process, refine and market petroleum” (3.(1), Bangladesh Petroleum Act, 1974). The Act does allow the role for other parties: “The Government may enter into a petroleum agreement with any person for the purpose of any petroleum operation” (4. (1), Bangladesh Petroleum Act, 1974). But this is an assigned role at the discretion of the government. The government has used this discretion rather sparingly, allowing private sector involvement in oil and gas exploration, in lubricant production, oil transportation and recently in oil importation, but the bulk of oil transactions remain under government control including oil marketing and pricing.

Institutional Structure

The Energy and Mineral Resources Division (EMRD) of the Ministry of Energy and Power deals with the import, distribution, exploration, extraction, pricing and other policy related details of the primary fuels. The organizational structure of EMRD is shown in Figure 3.

Figure 3: Organizational Chart of Energy and Mineral Resources Division (EMRD)



Source: Energy and Mineral Resources Division

The main entities responsible for the oil and gas sector are the Bangladesh Oil, Gas and Mineral Corporation (Petrobangla) and the Bangladesh Petroleum Corporation (BPC). The Petrobangla, through its different subsidiaries is responsible for oil, gas and coal extraction and exploration,

including through the national subsidiary the Bangladesh Petroleum Exploration and Production Company Limited (BAPEX) and contracting through the International Oil Companies (IOCs).

The BPC is responsible for importing, refining and marketing of different petroleum products. For this, BPC has three distribution companies, namely Padma Oil Company Limited (POCL), Meghna Oil Company Limited (MOCL) and Jamuna Oil Company Limited (JOCL). There are also other subsidiary companies involved in refining and other processing of other petroleum products. The BPC is the main public institution for oil production, importation and marketing of oil products in Bangladesh. As a result of this dominant role, it has monopoly power in the domestic oil market and its performance primarily defines the efficiency and effectiveness of the domestic oil market.

The Oil Supply Chain

Bangladesh Petroleum Corporation (BPC): The BPC was set up as a separate statutory corporation in 1976 with a view to both helping streamline the import of crude and refined products, and ensuring product supply/availability across the country at all times. It operates as a holding company of its subsidiary companies. It is governed by a set of laws and regulations including The Bangladesh Petroleum Act, 1974, Bangladesh Petroleum Corporation Ordinance, 1976, and the Bangladesh Petroleum Corporation Rules, 1976.

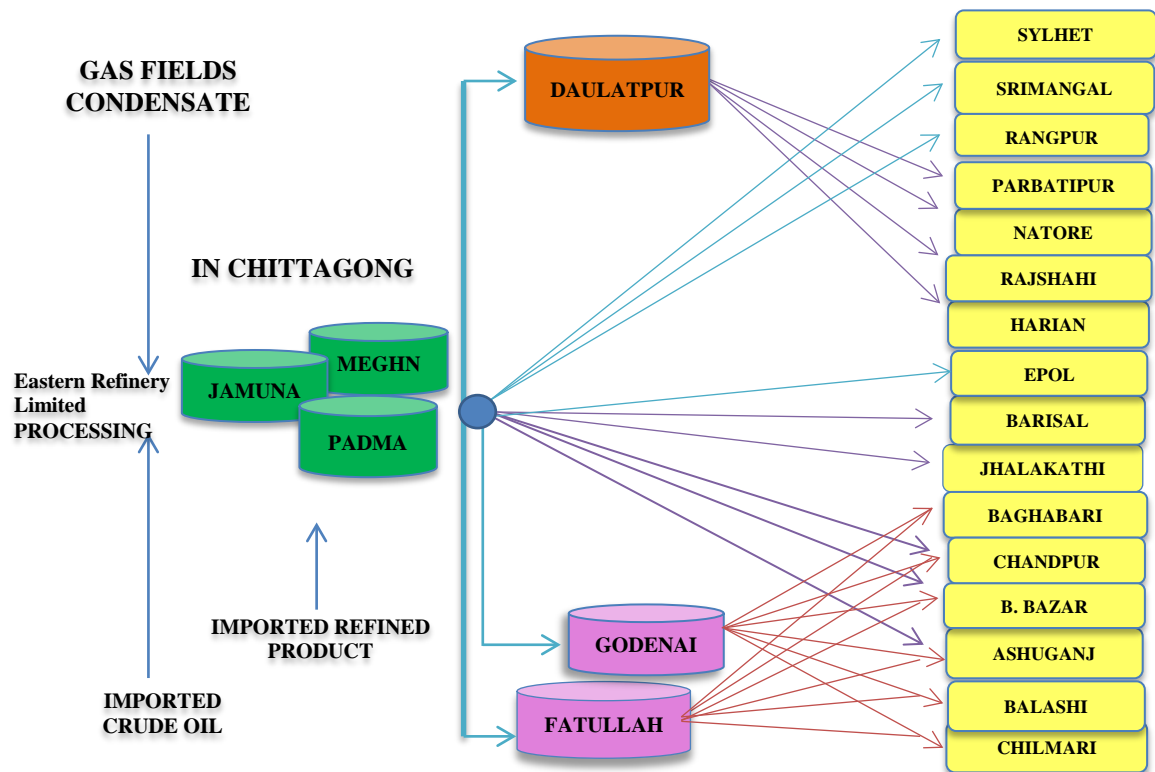
Functions of BPC: Before BPC was established, different oil marketing companies were responsible for import and marketing of petroleum products, and the Refinery (ERL) for procurement of crude oil and processing it. This process resulted in erratic and unorganized procurement of petroleum products creating uncertainties in the market. This had continued until the start of 1977, after which for redeeming this situation, BPC took over all procurement but left marketing to the marketing companies under its close supervision. BPC now imports both crude oil and refined products. BPC under the law, therefore, has been undertaking the following functions (BPC website: www.bpc.gov.bd):

- Import of crude petroleum and other refined petroleum products.
- Processing of crude petroleum and production of different grades of petroleum products.
- Setting up of petroleum refinery and other associated facilities.
- Production of base-stock, necessary additives and other chemicals and import of lubricating oil.
- Production of lubricating oil through blending, and establishment of plants for recycling of used lubricants.
- Establishment of infrastructure and adoption of necessary steps for processing of refinery residue products,
- Planning and implementation of petroleum product storage facilities.
- Collection/building of inter-continental oil tankers.

- Building necessary facilities and their extensions for marketing of petroleum products,
- Act as managing agent for signing of agreements with firms or companies for petroleum importation, storage, distribution and marketing in the country.
- Monitoring, coordination of the subsidiary companies of BPC and any other functions and responsibilities as directed by the government.

While over time the government has started allowing private sector into different segments of the petroleum sector, the import of crude oil and variants of refined petroleum is still overwhelmingly with BPC. The product flow diagram, that includes imports, and marketing and refining through its different subsidiaries, is presented below in Figure 4. Besides imports, BPC also provides storage facilities, and as on July 01, 2015 its storage capacity was 1.11 million metric tons. BPC is also planning to raise the refining capacity of ERL. In order to create facilities for discharging refined and crude oil from the deep sea, BPC has taken up a project titled ‘Single Point Mooring’.

Figure 4: Product Flow Diagram of Bangladesh Petroleum Corporation

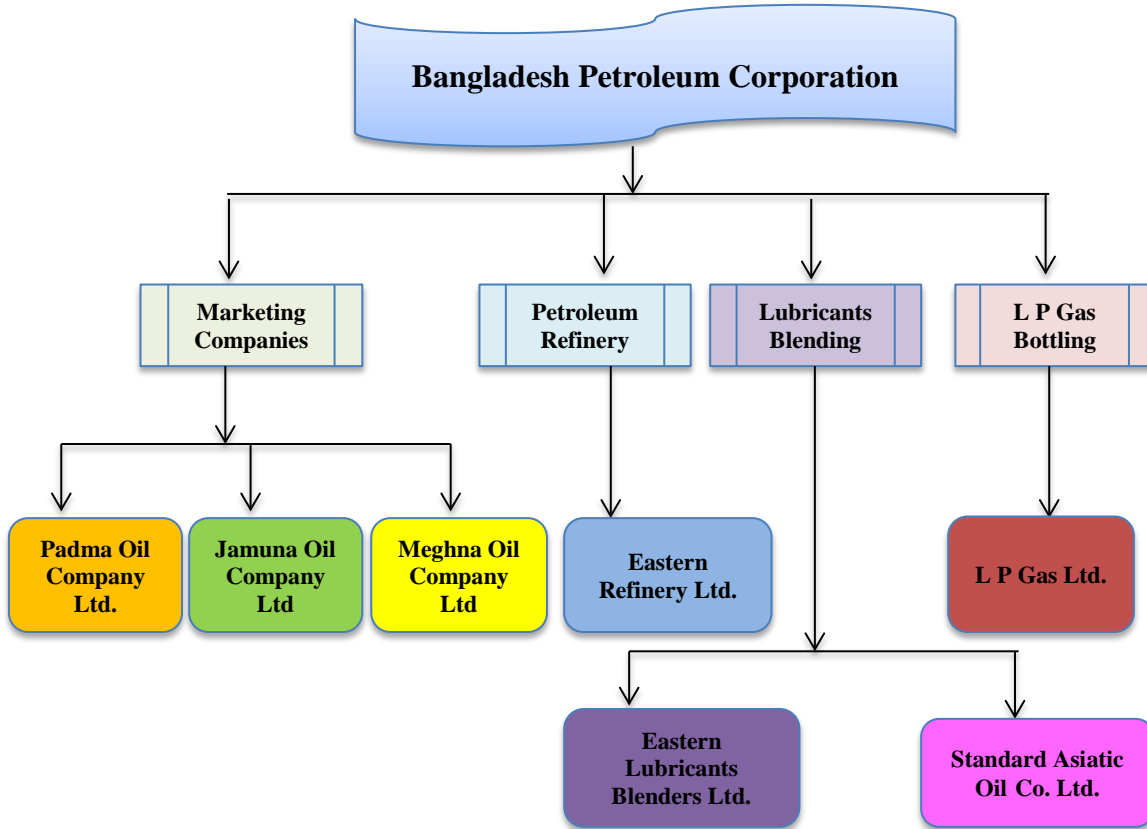


Source: BPC website

BPC and its subsidiaries: As already discussed, BPC controls the marketing and refining of petroleum products through its subsidiaries. This is schematically presented in Figure 5 below. The crude oil imported by BPC is processed in the ERL to produce kerosene, diesel and other products, on the basis of a fixed processing fee charged by ERL to BPC. The BPC then uses its three marketing companies - Padma Oil, Jamuna Oil, and Meghna Oil to sell the petroleum

products (both imported and locally processed and produced petroleum products) to the consumers at prices fixed by the government. BPC pays a fixed commission fee to these distribution companies. BPC also has two lubricant blending companies and a company for LPG bottling.

Figure 5: Subsidiaries of BPC



Source: BPC Website

Marketing companies of BPC: The three oil-marketing companies (OMC) sell their products to retailers who hold franchise licenses issued by each of the companies. Of the three, Meghna Petroleum Limited (MPL) controls 38% of the market share, followed by Jamuna Oil Company (JOCL) having 34%, and rest is with Padma Oil Company (POCL). The POCL exclusively retails jet fuel. The Government/BPC controls all aspects of marketing across the country through these OMCs, to ensure supply of petroleum products to all sectors in all parts of the country. This is the most regulated part of the petroleum sector.

Storage and transportation infrastructure of the petroleum products: Crude oil, refined oil and other petroleum products including LPG are received at the Chittagong Port. The port facilities are connected to the tankage/storage facilities of the refineries, the 3 oil marketing companies (OMCs), and private tank operators located in Chittagong, which is the principal-storage point. Some 90% of the petroleum products are transported from Chittagong across the country using the river routes. The three OMCs use a leased fleet of 134 coastal tankers, 14 shallow-draft tankers, and 72

bay-crossing shallow draft tankers for this work. Rest of the domestic crude oil and petroleum products from Chittagong are moved by rail, with only small amounts by road. From Chittagong the products that are usually transported by road are LP-gas and lubricants. The road tanker fleet is used both for short-haul secondary distribution within cities, and medium-haul shipments within regions based on location of storage facilities. Private individuals and small firms largely own the tank lorries. The pricing of the different transport systems is pre-fixed by the BPC/Oil Companies.

Retail outlets: Most petroleum products are marketed through retail level filling stations, agent/distributor, packed point dealer, and LPG dealer. Each of the downstream marketing outlets is franchised to sell their respective products and brands by the different OMCs. The government regulates the prices. Table 7 provides a summary of the Division-wise marketing network of each of the OMCs across the country. In recent years, some retail outlets have been extensively renovated and upgraded, and many have begun to sell compressed natural gas (CNG), which has become a serious competitor to gasoline. However, there are major issues regarding the quality of service standards and safety standards for consumers at the retail outlets. Long queues at gasoline stations extending all the way to main road that contributes to the already serious road congestion in Bangladesh, and especially the capital city of Dhaka, are a regular feature of the oil retail marketing scenario.

Petroleum refining: *Eastern Refinery Limited (ERL)*, also a subsidiary of BPC had originally been incorporated under Companies' Act 1913 (amended in 1994) as a Public Limited Company in 1963 with 35% of the then EPIDC's (East Pakistan Industrial Development Corporation) shares, 30% shares held by Burma Oil Company (BOC) and the rest 35% by private entrepreneurs. ERL was commissioned in 1966 and started production in 1968. Since November 1985, BPC became 100% shareholder of the company. During FY2014-15, ERL supplied around 1.25 million metric tons of different types of refined petroleum products, which was about 23% of the country's petroleum products' demand during the period. The rest 4.1 million metric tons of refined petroleum products were imported.

Table 7: Number of Division Wise Retail Petroleum Product Sale Networks, July 2015

Type	Division	Padma	Jamuna	Meghna	SAOCL	Total
A. Filling Stations	Dhaka	165	185	243	0	593
	Chittagong	110	109	124	0	343
	Sylhet	51	49	36	0	136
	Khulna	83	103	91	0	277
	Rajshahi	95	80	77	0	252
	Rangpur	96	88	65	0	249
	Barisal	16	16	12	0	44
	Sub-Total	616	630	648	0	1894
B. Agent/Distributors	Dhaka	177	286	302	0	765
	Chittagong	307	431	292	0	1030
	Sylhet	78	201	48	0	327
	Khulna	166	151	195	0	512
	Rajshahi	155	147	133	0	435
	Rangpur	116	155	105	0	376
	Barisal	61	46	53	0	160
	Sub-Total	1060	1418	1128	0	3605
C. Packed Point Dealer	Dhaka	25	40	13	0	78
	Chittagong	90	114	76	0	280
	Sylhet	70	25	31	0	126
	Khulna	23	35	24	0	82
	Rajshahi	25	12	08	0	45
	Rangpur	18	12	14	0	44
	Barisal	27	35	30	0	92
	Sub-Total	278	273	196	0	747
D. LPG Dealer	Dhaka	9	42	9	23	83
	Chittagong	306	384	680	326	1696
	Sylhet	45	46	63	03	157
	Khulna	125	99	178	03	405
	Rajshahi	155	137	251	11	554
	Rangpur	33	25	19	12	89
	Barisal	33	51	53	27	164
	Sub-Total	706	784	1253	405	3184

Source: BPC – Petroleum Supply Report for FY2015-16

Under a processing agreement with BPC, ERL processes crude oil imported by BPC and delivers the finished petroleum products to the other subsidiaries of BPC for marketing and distribution. ERL processes Arabian Light Crude (ALC) and Murban Crude imported respectively from Saudi Arabia and Abu Dhabi and produces 17 petroleum products. ERL also processes 100,000 metric ton /year of natural gas condensate as crude mix. One of the products (Naphtha) produced by ERL is exported (see Table 3 above). Naphtha is essentially untreated light and heavy gasoline that remains as excess. It is mainly used as feed for petrochemicals and also as solvent. ERL's operational and other activities are as follows:

- Receives Crude Oil imported by BPC in ERL's own storage tanks.
- Produces petroleum products by processing Crude Oil and transfer these to other subsidiaries of BPC (Padma Oil Company Limited (POCL), Jamuna Oil Company Limited (JOCL), Meghna Petroleum Limited (MPL) and LP Gas Limited) through pipelines.
- Receives imported motor gasoline and diesel in ERL's storage tanks and after necessary blending, transfers these as MS & HSD to marketing companies.
- Operates Asphaltic Bitumen Plant and delivers the produced Bitumen to marketing companies.
- Procures equipment, spares, chemical etc. in order to maintain continuous and smooth operation of the refinery.
- Prepares and executes development projects essential for improvement of refinery operations.

Government's plan to expand refining capacity: At present Bangladesh is able to meet only 25% of its oil consumption from domestic sources. In order to ensure energy security of the country, the Government has authorized the construction of Unit-2 Project of ERL having additional 3 million metric tons of crude oil processing capacity. This is now going through the approval process. This expansion is also expected to upgrade technology and ensure better quality of the domestic petroleum products. In particular, the expectation is that it will help ensure production of eco-friendly motor gasoline and diesel oil.

Oil Pricing Policy

Historically, domestic oil prices are set by the government in consultation with the BPC. As international oil price shocks happened, it became increasingly difficult for the government to pass on the cost increases to the consumers. This resulted in a growing gap between the average cost of production of oil products and the retail level price to the consumers. Commensurately, the subsidy bill of the government soared.

The main political consideration in price setting is the sensitivity of the concerned oil product in terms of the perceived impact on consumer budget. Diesel and kerosene, which are mostly used in transportation, irrigation and rural household lighting, are considered as highly sensitive products. The pricing policy therefore provides a subsidy for these products on average. Octane and petrol are used for motor cars used mainly by the rich. As such, these are not considered sensitive and are taxed. Furnace oil is mainly used for power generation by the private producers and in manufacturing sector. These are also considered sensitive and therefore subsidized. The recent trends in oil pricing are shown in Table 8. As can be seen, historically, on average petrol and octane prices have exceeded the average cost of production while prices of diesel, kerosene and furnace oil were below the average cost. The scenario changed recently in light of the collapse of international oil prices since late 2014. The average selling prices of all petroleum products now exceed the average cost, but the tax is particularly significant for petrol and octane. The

government has been under pressure from the public to reduce domestic prices in light of falling international prices. So far the government has resisted this pressure to a large extent by allowing only small reductions in domestic prices. On balance, domestic prices for all oil products including kerosene are above the international prices. Since furnace oil is directly imported by private power producers, the domestic price is the same as the import parity price. This, however, is an outlier and not the result of a strategic domestic pricing policy. Consequently, without a change in the domestic pricing policy stance, subsidies will re-emerge if international oil prices go up.

Table 8: Recent Trends in Domestic Oil Pricing (taka/liter)

	Petrol	Octane	Diesel	Kerosene	Furnace Oil	Average cost
Jan 2006	56	58	33	33	...	38
Jul 2008	87	90	55	55	30	56
Jan 2009	74	77	44	44	...	56
May 2011	76	79	46	46	42	57
Sep 2011	80	84	51	51	50	76
Dec 2011	86	89	56	56	55	76
Jan 2012	91	94	61	61	60	76
Jan 2013	96	99	68	68	60	75
April 2016	86	89	65	65	42	50

Source: Energy and Mineral Resources Division

The pricing mechanism has remained basically ad-hoc, mostly driven by political considerations about possible backlash from the citizens to rising prices. Fiscal costs have sometimes entered the equation in allowing limited price increases. But other considerations like effect on the financial performance of BPC, effect on incentives, choice of technology and investment decisions, impact on the environment and climate change have never been considered for pricing decisions. A half-hearted attempt to reform pricing policy was undertaken over 2003-2004, mostly in response to donor pressure. The Bangladesh Energy regulatory Commission (BERC) was established in 2003 to regulate the energy industry, facilitate private sector participation in the energy sector and set prices. The government also agreed to set up an oil pricing mechanism that allowed pass through of international prices and other cost factors to be administered by BERC. However, BERC lacks autonomy and is guided by the government in its policy decisions. The automatic pass-through oil pricing policy was never implemented as the fear of negative public reaction caused the government to abandon the policy. A renewed effort to introduce an automatic oil pricing mechanism with a view to fully passing on the international oil price changes to the consumers was attempted in 2012 in the context of a three year Extended Credit Facility Arrangement with the International Monetary Fund (IMF) (IMF, 2012). This automatic price was adopted as a structural benchmark, but was never implemented. Interestingly, the IMF dropped this as structural benchmark and concluded the full three year program without the adoption of the automatic oil price mechanism (IMF, 2015).

D. Impacts of Oil Marketing, Pricing and Subsidies

In a regime of ad hoc oil pricing that involves subsidy to consumers there are several adverse implications for economic growth, the environment, and overall allocative and production efficiency in the functioning of markets. Some of the most important adverse implications are briefly reviewed below.

Macroeconomic Effects

The oil pricing and subsidy policy has several negative macroeconomic implications:

- a) Fuel oil subsidies have led to a worsening of the fiscal balance due to larger government expenditures on oil subsidies and transfers to BPC. A range of adverse secondary macroeconomic effects have resulted from the existence of a constrained budget situation. One such problem is the reduced ability of the government to meet immediate fiscal needs to support higher growth and human development.
- b) Energy subsidies are also likely to have adversely affected the balance of payments, because changes in prices of imports subject to the subsidy affect trade flows via price and real exchange rate elasticities. Most directly, oil subsidies lead to increased domestic demand for imported oil thus worsening the trade balance. Oil subsidies may also divert consumption away from or toward other products, depending on their degree of substitutability or complementarity. Additionally, for oil importing countries like Bangladesh, where subsidies are used to prevent retail prices from rising as rapidly as import prices of energy, oil price hikes on the world market cause an immediate drain in the government accounts and in international foreign exchange reserves, as happened in 2008 during the global food and oil price crisis (Ahmed, 2009; Ahmed and Jansen, 2010).
- c) Oil subsidies may also adversely affect the long-run growth potential of Bangladesh. They affect relative prices and investment decisions by the firm and may have significant adverse effects on the allocation of resources across sectors and economic agents due to these price signals not reflecting overall social costs of oil use.
- d) A significant distortive effect is that on investment in physical plant, which may tend to be more energy-intensive in the presence of energy subsidies than in their absence. This lack of energy efficiency considerations in the choice of technology is particularly harmful for infrastructure with very long lifetimes, which tend to entrench high energy consumption for a long period into the future.
- e) Oil pricing policy combined with entry restrictions lowered the investment flow in the oil sector. The main oil enterprise, the BPC, has been suffering from severe financial constraint that has reduced its ability to invest in new facilities and upgrade its services. Bangladesh has only one oil refining facility, the Eastern Refinery Limited (ERL) that

was established in 1967. Although the ERL went through some expansions and upgrading, it basically uses outdated technology that lowers its efficiency. Resource constraints in BPC and the entry restrictions on private sector have prevented new investments in refinery. Similarly, the retail outlets for sale of gasoline are outdated with low quality facilities, poor customer service and low safety standards.

- f) Oil pricing has also negatively affected the performance of the state owned banks. These banks have exhibited serious weakening in performance reflected in rising non-performing loans (NPLs). For example in FY2015, the NPLs of public banks stood at Tk 282 billion (US\$ 3.6 billion), which is 2% of GDP. A major contributor to this problem is the state owned enterprises including BPC. Part of the losses of BPC after subsidies (Table 9) found its way to public bank portfolio through borrowings that are often not serviced in a timely manner.

Bangladesh Petroleum Corporation (BPC) Financial Performance and Subsidies

Government control over oil prices has resulted in a weak pass through of international oil prices on the upswing, leading to substantial fiscal cost of oil subsidies. The global food and oil price crisis of 2008 created a particularly difficult situation for South Asia including Bangladesh (Ahmed and Jansen 2010). Table 9 presents a summary of recent trends in crude oil prices, domestic prices, and subsidy going to BPC to cover its losses, current and accumulated.

Table 9: Oil Subsidies in Bangladesh

	FY2011	FY2012	FY2013	FY2014	FY15(R)
Total energy subsidies*(billion Tk)	80.00	149.07	180.44	85.78	96.00
Percent of GDP	0.10	1.40	1.50	0.10	0.10
Cash loan and subsidy received by BPC (billion Tk.)	40.00	85.50	135.60	24.78	6.00
BPC profit/loss (billion Tk.)	-97.90	-117.90	-53.70	-24.80	52.70
Crude oil price (US\$/bbl.)	93.13	112.95	109.20	109.60	75.20
(US\$/Ltr)	0.59	0.71	0.69	0.69	0.47
BPC supply costs (US\$/Ltr)	0.80	0.96	0.94	0.94	0.64
(Tk/Ltr)	57.10	76.30	74.95	72.90	49.60
Domestic selling price (US\$/Ltr)	0.66	0.79	0.85	0.87	0.88
(Tk/Ltr)	47.20	62.56	67.91	67.80	68.27

Source: BPC; R=Revised budget estimate; () includes fuel oil and electricity subsidy*

Since FY2011, the government has spent a total of Tk 293 billion (\$3.8 billion) to keep the prices of petroleum products low in the local market. On a yearly basis, the oil subsidy amount reached a peak of Tk 135.6 billion (\$1.70 billion), which was about 1.1% of GDP in FY2012-13. With the decline in global oil prices the oil subsidy bill has come down. Since FY2014-15, BPC has been

earning a profit. This is the result of the downslide in global oil prices rather than a policy outcome. The pricing regime for oil remains unchanged with ad-hoc adjustments by the government based on political and affordability considerations with no regards for the efficiency of the domestic oil market or carbon emission reduction.

Price controls have had serious adverse effects on BPC finances. Over the years domestic petroleum prices were not revised in line with changes in the international market, resulting in BPC losses. Subsidies partially compensated for those losses. Yet, BPC has been building up huge liabilities reaching Tk 516.7 billion (\$6.6 billion) at the end of June 2014 (Table 10). Recent profit from lower global oil prices has provided some relief. Even so, the outstanding cumulative deficits of BPC at the end of FY2014-15 stood at TK 464 billion (\$5.9 billion) that is equivalent to 3.1% of the national GDP. As a state-owned enterprise, these are contingent liabilities of the Treasury and the counterpart is reflected in international loans/credits and loans from public banking sector. Most of the debt servicing burden falls back on the Treasury. The cost of the oil subsidy policy is indeed large and messy. Importantly, the current surpluses of BPC could well be temporary if oil prices rise again and the ad- hoc pricing regime prevails. If so, BPC could return to losses once again, with all the adverse fiscal implications.

**Table 10: Annual and Cumulative Losses of Bangladesh Petroleum Corporation
(Tk billion)**

	FY2010-11	FY2011-12	FY2012-13	FY2013-14	FY2014-15
Annual profit/loss after subsidy	-97.99	-117.90	-53.69	-24.78	52.68
<i>(percent of GDP)</i>	<i>(1.07)</i>	<i>(1.12)</i>	<i>(0.45)</i>	<i>(0.18)</i>	<i>(0.35)</i>
Cumulative loss	320.35	438.25	491.94	516.72	464.04
<i>(percent of GDP)</i>	<i>(3.5)</i>	<i>(4.15)</i>	<i>(4.10)</i>	<i>(3.85)</i>	<i>(3.06)</i>

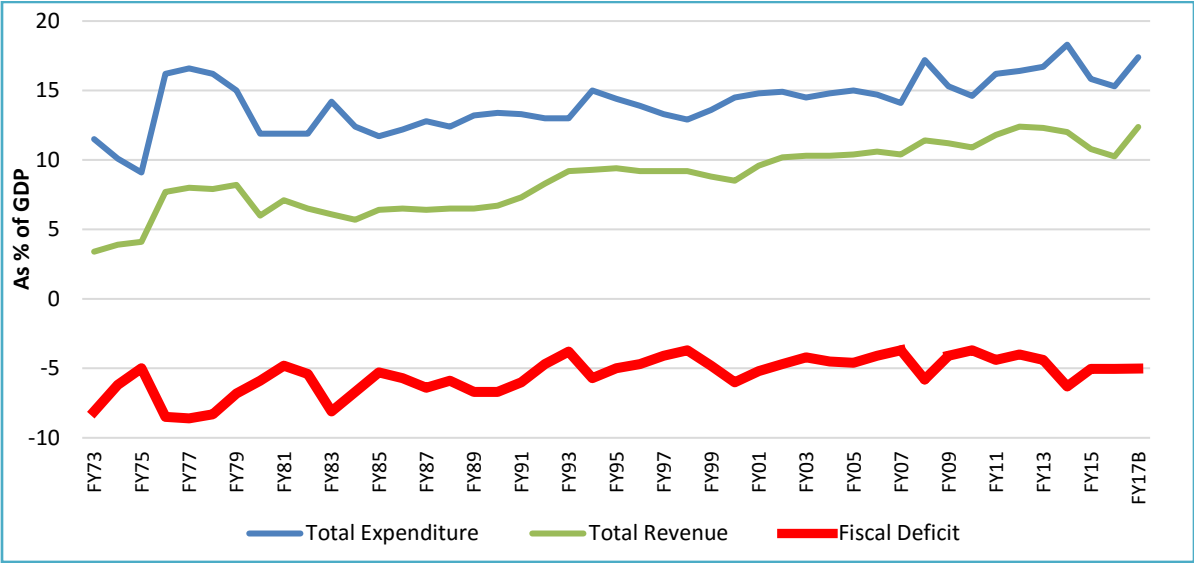
Source: BPC

Oil Subsidy and Fiscal Management

Generally speaking, prudent fiscal stance has been the hallmark of macroeconomic management in Bangladesh. Sound fiscal management in terms of keeping the fiscal deficit and public debt at sustainable levels, despite limited public sector resource mobilization, has served as the anchor to Bangladesh's continued macroeconomic stability. While the first two decades of the country's fiscal history has been marked by several shocks, as well as trial and error in fiscal management strategies, the 1990s and 2000s have been relatively structured and comparatively stable. There were several positive approaches to the evolution of the fiscal deficit and its financing, particularly improvements in deficit management and financing strategies. Revenue mobilization has improved modestly in the past few years and there has been a marked shift in composition of the tax revenue basket with greater reliance on direct taxes as well as a strategic shift in focus more towards taxes on the domestic front and away from trade-based sources.

However, this fiscal discipline has come at a cost. Expenditure has mostly been constrained at around 15% of GDP for about 4 decades, notwithstanding growing demand for a range of public services including infrastructure, human development and social protection. Only in the past few years Bangladesh was able to break out of the 15% GDP constraint on public spending, based on a modest recovery in the tax revenue effort. On the whole, fiscal adjustment to revenue and other shocks was made through expenditure cutbacks. The record shows that every time revenue collection dipped there was a commensurate decline in expenditure as well, in order to maintain the deficit at a sustainable level (Figure 6). Very recently, the modest rise in public expenditure has been matched by a near similar rise in revenue resources, keeping fiscal deficits at a sustained level of around 5% of GDP.

Figure 6: Historical Expenditure and Revenue Trends (% of GDP)



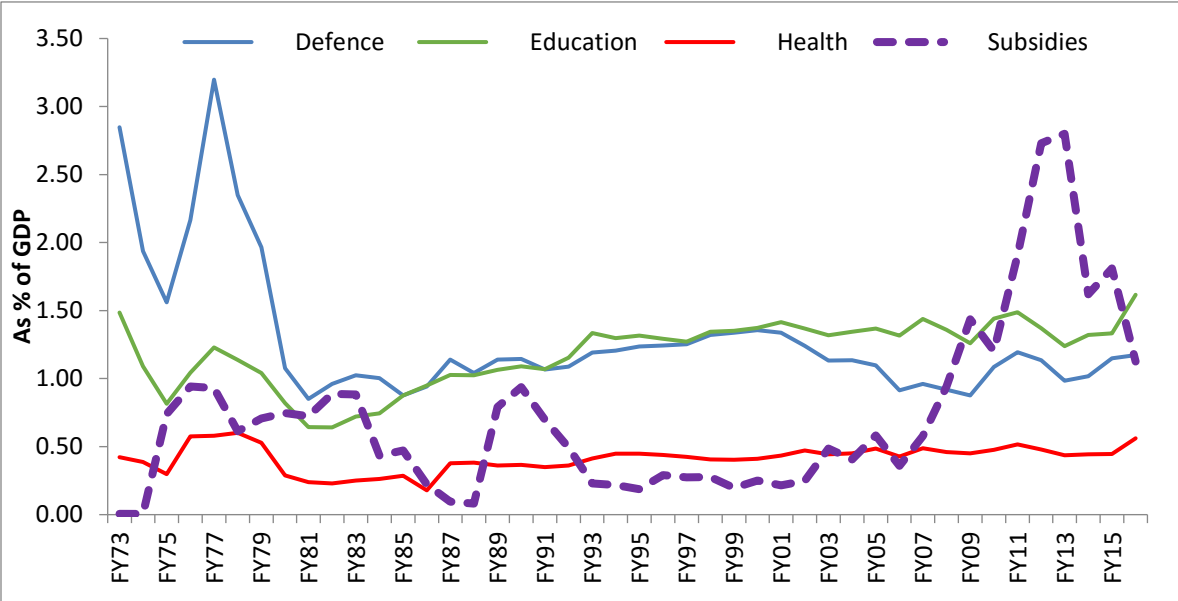
Source: Ministry of Finance

There are also serious concerns about the quality of public expenditure. In addition to weak implementation of public investment programs, a major policy issue has been the adverse implications of the growing oil subsidies (until at least FY2012-13) for expenditure on other priority programs. Large fuel subsidies have made the country’s fiscal position highly vulnerable to changes in global energy prices. More generally, one of the principal conduits of market intervention practiced by the Bangladesh government has been through the budgetary allocation of direct and indirect subsidies to key infrastructure and social sectors of the economy, such as electricity and fuel oil, agriculture, and food distribution. The *modus operandi* of these interventions includes the provision of cash loans to state-owned enterprises to cover losses (fuel oil and electricity), underpricing of agricultural inputs (fertilizer) and state-funded distribution of food grains to the poor at lower-than-market prices.

The total subsidy bill (comprising of fuel oil, electricity, fertilizer and food) of the government has been on the rise since FY2006-07 (Figures 7 and 8). Much of the increase in the subsidy bill is

explained by an increase in oil subsidies. The total subsidy bill peaked in FY2012-13 reaching 2.8% of GDP and accounting for 32.0% of the revenue expenditure, which exceeded the outlays on health and education combined. Of this 2.8% of GDP subsidies, oil subsidy was 1.1% of GDP, electricity subsidy was 0.4% of GDP and the remaining 1.3% of GDP was food and fertilizer subsidies. This is a huge increase in total subsidy in the span of six years from 0.9% of GDP and only 8.1% of the total revenue expenditure in FY2006-07. When subsidy bills increase to the levels like that of FY2012-13, it takes a huge bite off government funds which could be better utilized elsewhere. The dominating role of oil subsidies in total subsidies is further evident from the sharp decline in the total subsidy bill after FY2013-14 owing to the fall in oil subsidies caused by the decline in international oil prices (Figure 7).

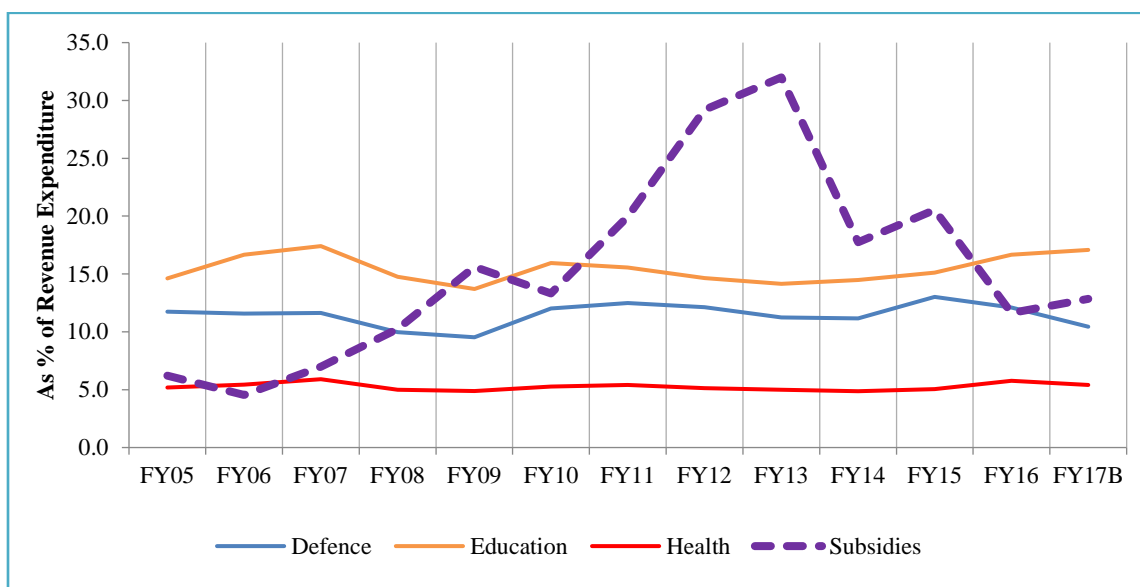
Figure 7: Major Components of Revenue Expenditure (as % of GDP)



Source: Ministry of Finance

A breakdown of the revenue expenditure of Bangladesh’s budget into major components clearly shows the shifts in government’s relative priorities over time (Figures 7-8), and the emergence of subsidies as a major outlay of government. This increasing fiscal burden of subsidies has limited the government’s ability to finance critical expenditures in health, education and social protection. Despite growing needs, the government spends a mere 1.8% of GDP on education, 0.7% on GDP on health and 1.5% of GDP on social protection. In addition to weak revenue performance, the fiscal cost of subsidies has been a major constraint to higher allocation for core development spending. Within the total subsidy bill, oil subsidy has been a dominant player until FY2012-13. For example, in FY2012-13 the subsidy on oil was some 60% higher than total spending on health.

Figure 8: Major Components of Expenditure (as % of Revenue Expenditure)



Source: Ministry of Finance

Environmental Impact of Oil Subsidies

In addition to adverse macroeconomic effects, fossil fuel subsidies have a significant impact on the environment and climate change. Subsidies create incentives to consume fossil fuels, and disincentives to use resources efficiently and to invest in renewable energy (Whitley, 2013). While fossil fuel subsidies create profits for industry and keep consumer costs low, they are unequivocally bad for the planet. While governments have pledged to avoid dangerous climate change, the approach to fossil fuel support is taking many economies in the other direction. Instead of raising the price of carbon emissions, many are subsidizing firms to over-produce carbons and consumers to over-use carbon-intensive fuels.

Subsidies to fossil fuels create a barrier to trade and investment in clean-energy technologies. They have significant implications for private investors and clean-energy project developers, who must compete with artificially low energy prices based on fossil fuels. A number of countries provide subsidies to fossil fuels alongside parallel incentives for clean energy. As a result, a closer examination of the ‘policy bundle’ or ‘package’ associated with energy taxation is necessary. It is quite possible that some subsidies could be negating the impact of climate finance and other clean-energy incentives.

Fossil fuel subsidy reform can support climate change policy and goals (Merrill, et al, 2015). It can be included as part of a package of measures to implement ‘Nationally Determined Contributions’ (NDCs), because reform can both reduce emissions and liberate resources to invest in sustainable energy systems. The NDCs contain climate action pledges under the Paris Agreement adopted in 2015. The International Energy Association (IEA) (2015) points to fossil

fuel subsidy reform as one of five key measures to help bridge the gap between current commitments and the emissions reductions needed from the energy sector to stay within the 2 °C degrees warming target. The IEA encourages the reform of consumer subsidies by 2030 (IEA, 2015). A recent study of 20 countries including Bangladesh finds that a phasing out of fossil fuel subsidy by 2020 leads to an average national carbon emissions reduction of 11%. Additionally, if a part of fiscal savings (30%) is used to improve energy efficiency and invest in renewable energy, the reduction in CO₂ emission could average about 18%. In the case of Bangladesh, the CO₂ reduction estimates are 8.7% from removal of subsidies and 13.6% when 30% of savings from fossil fuel subsidies are subsequently invested into parallel energy efficiency and renewable energy (Merrill et.al. 2015).

Most greenhouse gases (GHG) emission reduction policies cost government resources to implement (e.g., renewable and energy efficiency policies). Very few climate policies actually save government funds at the same time as effectively removing CO₂ from the atmosphere. Fossil fuel subsidies can be thought of as a “negative” form of carbon pricing, and their removal is a necessary step toward policies that seek to correct carbon pricing, such as carbon taxes or emissions trading systems. Indeed, the IEA (2015) calculates that currently 13% of all energy-related CO₂ emissions are linked to an average subsidy of US\$ 115 per tonne of CO₂ emitted. On the other hand only 11% of global energy related CO₂ emissions are subject to carbon pricing, with an average cost of only US\$ 7 per tonne of CO₂.

Fuel subsidy reform can be an effective policy tool for reducing carbon emissions. Subsidy reforms may also act as a base or foundation fiscal policy for the take-off and success of low-carbon fiscal tools. Policies linked to public transport systems, energy efficiency, renewables and carbon pricing are likely to be more effective and therefore have more success after subsidy reform has taken place.

Fossil fuel subsidies affect renewable electricity generation in that they reduce the costs of fossil fuel-powered electricity generation, impair the cost competitiveness of renewable energy, reinforce the incumbent advantage of fossil fuels within the electricity system and favour investment in fossil fuel-based technologies over renewable alternatives. Carbon reductions can be gained by placing a cost on polluting power generators, leading to fuel switching within the electricity sector in the long-term. An increase in the costs of emitting CO₂ increases the cost of operating fossil-fueled power generators and encourages a switch toward cleaner generators and fuels. Removal of subsidies to fossil fuels offers a first step to ensuring that fuel prices reflect the true financial costs of fuels.

Looking forward, as Bangladesh seeks to increase its growth rate to 8% per year, its demand for energy, especially electricity, will increase substantially. So, the composition of fuel use in power generation could have significant impacts on CO₂ emissions and the environment. The fuel subsidies could affect the composition of fuel use in power generation, creating disincentives for

adoption of clean or renewable power generation options. Recent trends in fuel-use for power generation in Bangladesh point in this direction. At the turn of the century, 90% of power generation in Bangladesh was gas-based. Now, the share has fallen to 63% while the role of furnace oil based power plants is on the rise (33%). Continued subsidization of furnace oil will push further this tendency. Though solar power, a renewable energy source, has earned enormous popularity in recent times with over 4 million households in rural areas adopting this means by April 2016, the overall penetration of solar power generation is miniscule at 15 MW compared to the total 13,000 MW of power generation capacity in the country. Now is an opportunity for Bangladesh to both conserve fiscal resources and lower CO₂ emissions by giving proper pricing signals and incentives to the adoption of clean energy solutions through eliminating oil subsidies and adopting a sound oil pricing policy.

Efficiency and Effectiveness of the Bangladesh Oil Market

In addition price control and subsidy, the heavily controlled and state-dominated oil market has had several adverse consequences for the efficiency of the oil market.

Firstly, the legal barriers to private sector entry and the resultant monopoly of public enterprises in the Bangladesh oil market has lowered investments in the sector, reduced the efficiency of the sector and lowered the quality and quantity of services for the citizens. One example is the oil refinery quality of the only oil refinery in Bangladesh, the publicly owned Eastern Refinery Limited (ERL). The ERL was commissioned in 1966-1968. Although it has gone through several upgrading and capacity expansion, the technology is outdated and the capacity is much below the needs of the country. Discussions with potential private investors suggest that a deregulation that allows private investment in oil refinery can result in a substantial investment in new technology and capacity that can have a huge positive benefit for Bangladesh in terms of more efficient refinery, lower cost of production and increase in employment and output.

Secondly, in the absence of competition, BPC and its affiliates have no incentive to improve performance. BPC accounts have not been subjected to internationally acceptable audit standards. As a result, it is not clear how much of the financial losses happen from price controls and how much is caused by poor management practices including over-staffing and low staff productivity.

Thirdly, poor financial situation severely limits investment options for BPC and affiliates to expand storage capacities and upgrade/expand service stations.

A fourth example is the poor capacity and poor quality service at gas stations. The infrastructure and facilities in most gas stations is inadequate and outdated. There are serious safety concerns related to these gas stations. Service quality is very poor, including long lines and inadequate service infrastructure. The investment requirements for upgrading the gas stations are large. But there is no incentive or resources for making these investments.

E. Political Economy of Oil Pricing, Subsidies and Oil Markets

Oil Pricing and Subsidies

The government's control over oil prices is driven by its determination that oil is a sensitive commodity and that its pricing and associated consumption cannot be left to market forces. The current oil pricing mechanism seeks to achieve the following socio-economic objectives:

- Provide affordable oil – essential for lighting and cooking – for the poor.
- Support the income of the farmer by subsidizing fuel for mechanized irrigation while keeping food prices low.
- Prevent cost-push pressure on inflation from pass-through effects of oil price hikes.

These are important policy objectives and deserve careful review.

Distribution of oil subsidy benefits: Given the global significance of oil subsidies, the incidence of these subsidies in terms of beneficiaries has been studied for a large number of countries. The overwhelming result is that untargeted oil subsidies benefit the rich much more than the poor. The International Energy Association (IEA)'s World Energy Outlook (WEO) 2011 reports that of the \$409 billion spent on oil subsidies globally in 2010 only 8% of the subsidy benefited the poorest 20% of the population (Joint report by IEA et al. 2010).

A comprehensive study by Arze del Granado et al. (2012) and World Bank (2014) reviews the evidence from a set of 20 developing countries (Table 11). They look at the total impact as well as direct impact of oil subsidies broken down by major products. They find that some 43% of total benefits accrue to the top 20% of the population. The bottom 20% gets only 7% of the total benefits. At the product level, most of the benefit of fuel subsidies accrues to the rich, with over 80% of the total gasoline subsidies accruing to the top two quintiles. The bottom 20% of the population gets a meager 3% share of the benefit. For liquefied petroleum gas (LPG), some 75% of subsidy benefits accrue to the top two quintiles. Only the benefits of kerosene subsidy are more evenly distributed; the bottom 20% gets 19% of the benefit as compared with 21% by the top quintile. The evidence was further corroborated in a revisit study by Coady, et. al. (2015) using a larger sample of countries including Bangladesh.

Table 11: Distribution of Oil Subsidy Benefits by Consumption Quintile (%)

	Consumption quintiles					All households
	1	2	3	4	5	
Total impact	7.2	11.4	16.2	22.5	42.8	100
Total direct impact	7.1	10.7	14.0	19.9	47.6	100
Gasoline	3.0	5.7	9.7	19.4	61.3	100
Kerosene	19.0	19.7	20.6	20.1	20.6	100
LPG	3.8	7.6	12.6	20.8	53.8	100
Indirect impact	7.3	11.7	16.3	22.6	42.0	100

Source: Arze del Granado et.al (2012) and World Bank (2014)

The findings for the incidence of the kerosene subsidy should be nuanced by the fact that at specific country level the results can be much less positive. For example, Rao (2012) analyses the incidence of kerosene subsidy in Maharashtra, India. He finds that the kerosene subsidy is progressive for the urban poor but regressive for the rural poor. This is because kerosene quotas are allocated based on cooking needs, whereas the rural poor used biomass for cooking and kerosene for lighting. As a result, the rural poor get very limited access to subsidized kerosene. The study also found high leakage, with households securing only 26% of the total subsidy.

In Bangladesh, the rationale for oil subsidies rests mainly on the argument that they help keep fuel consumption affordable, especially for low-income groups, and thereby play an important role in promoting equity and social development. Tables 12 and 13 describe trends in consumption of various petroleum products since 2002. While overall fuel consumption averaged 5% growth annually, with rising incomes and population, the data reveals that consumption of kerosene, the fuel consumed mostly by the poor and most heavily subsidized, is on the decline, which is consistent with reports of decline in poverty and growing access to electricity. Per capita consumption of kerosene is now merely a third of what it was in 2002, with total demand falling by 60%. In the case of diesel, which is the other heavily subsidized fuel (supporting transportation and irrigation), its demand has grown over the years owing to the wide application of diesel-based irrigation pumps and rapid economic growth leading to expansion of road, rail, and river transportation, all of which rely heavily on diesel engines. Evidence from India shows that wider use of solar panels in all these applications will contain growing demand for diesel and the need for oil subsidies in future.

Table 12: Consumption of Petroleum Products (Million litres)

	Octane	Petrol	Kerosene	Diesel	Furnace Oil	Others	Total
2002	120.45	187.79	633.76	1838.3	223.53	311.05	3315
2005	142.45	143.97	544.48	2264.8	309.99	362.01	3768
2010	85.54	127.25	376.65	2568.2	194.17	405.92	3757
2013	110.85	169.71	314.88	2964.6	1076.42	450.01	5086
2015	126.11	166.82	263.03	3396.1	906.77	462.63	5321

Source: Bangladesh Bureau of Statistics (BBS)

Table 13: Consumption of Petroleum Products (Litres per Person)

	Population (Millions)	Octane	Petrol	Kerosene	Diesel	Furnace Oil	Others	Total
2002	137	0.88	1.37	4.6	13.42	1.63	2.27	24.2
2005	143	1.0	1.01	3.8	15.82	2.17	2.53	26.3
2010	151	0.57	0.84	2.5	16.99	1.28	2.69	24.9
2013	157	0.71	1.08	2.0	18.93	6.87	2.87	32.5
2015	161	0.78	1.04	1.6	21.09	5.63	2.87	33.1

Source: International Monetary Fund (IMF), World Economic Outlook Database, BBS

In the absence of a full incidence analysis, some useful insights can be gained by looking at the consumption shares of the various petroleum products by income groups. According to the IISD report (IISD, 2012), the population-weighted shares of different income groups, derived from the 2010 Household Income and Expenditure Survey show that poor households account for only 0.1% of the purchased value of traditional fuel and biomass (Table 14). Moreover, their population-weighted share of consumption of fossil fuels is extremely low: 0.1% for kerosene and less than 0.1% for natural gas and LPG, petrol, electricity, and motor oil and CNG. At the other extreme, the rich and the upper-middle classes consume nearly 79% of natural gas and LPG, 88% of petrol, 89% of diesel, 94% of motor oil and CNG, 56% of coal, and 35% of kerosene. When the poor and lower middle income groups are combined, the share of kerosene consumption goes up substantially to 65%. But the use of diesel, petrol, natural gas and LPG, motor oil and CNG consumption remain concentrated among high- and upper-middle-income groups. There is very little evidence that oil subsidies benefit the poor in Bangladesh.

Table 14: Population-Weighted Share of Household Consumption of Different Fuels by Income Groups (Per Cent)

Per capita income group (BDT)	Traditional fuel and biomass	Kerosene	Natural gas and LPG	Coal	Petrol	Diesel	Motor oil and CNG	Electricity
Poor (0-1,499)	0.1	0.1	0.04	0	0.04	0	0.01	0.03
Lower middle (1,500-7,999)	61.4	64.8	21.4	44.4	11.6	11	6.1	36.2
Upper middle (8,000- 19,999)	33.5	30.7	52.5	48.4	42.8	50.4	34.3	45.7
Rich (20,000 +)	5	4.4	26.1	7.2	45.6	38.6	59.6	18.1
Total	100	100	100	100	100	100	100	100

Source: International Institute for Sustainable Development (2012)

Protection of farm income and keeping food prices low: Food security and farmer incentives have played a major role in public policy making. Bangladesh has achieved considerable success in achieving food security, especially in increasing rice production. A range of policy support has

contributed to this achievement including public expenditure in research and extension, spending on irrigation and other infrastructure, and supply of seed, fertilizer and diesel. To keep food prices low for the consumers, the government has used trade policy, buffer stocks and input subsidies as major policy instruments. These policies essentially have tended to shield the Bangladeshi consumers from the upswing of global food prices.

One controversial issue is the role of diesel subsidy for irrigation. A full incidence analysis has not been done. But the results of Table 11 would suggest that the benefits of the diesel subsidy do not reach the poorest farmers at all, whereas low middle income farmers benefit only marginally. There are also reports of smuggling of diesel to the bordering districts of India owing to the large price differential. There is also a major policy debate on the justification for keeping foodgrain prices low and their adverse effects on farmer incentives. The experience of the global food price crisis of 2007-08 shows that on net farmers benefitted considerably from higher food prices once the total effects are taken into account. The increase in farm income from increase in rice prices has been a major factor for poverty reduction in 2010 (World Bank 2013).

Prevent cost-push inflationary pressure from higher fuel prices: This is the most often used political justification for not allowing pass through of international oil prices, especially for the transport sector. There is considerable confused thinking underlying this argument. While fuel price increases do tend to create inflationary pressures, the periodic adjustments of fixed oil prices can have similar effects. Importantly, large fuel subsidies can also fuel inflationary pressures through the financing side by causing greater Treasury borrowing from the banking sector to finance fiscal deficits. The important point is that sustained inflation management requires sound monetary and fiscal policies. The inflationary effects of large upswings in international fuel prices can be moderated by proper fiscal and monetary management. Bangladesh policy makers should also reflect on the fact that the average global inflation rate has been lower than the Bangladesh inflation rate even though Bangladesh does not allow pass through of international oil prices on the upswing. Furthermore, over the past 40 years, the average inflation rate in OECD countries has been significantly lower than in Bangladesh even with no price controls over energy and flexible exchange rates in these countries.

Summarizing the evidence: Clearly, the socio-economic rationale for having open-ended subsidies on fuel oil is very weak. Nevertheless, there are some genuine costs of withdrawing subsidies that have to be addressed as a part of oil price and subsidy reform. Those who benefit from fuel subsidies, the middle class and the rich, will likely resist. The potential political fallout from the removal of subsidies will therefore need to be managed. Also, some of the poor, especially in the urban areas, may likely benefit from kerosene subsidy. Measures will need to be taken to protect their real income when subsidies are removed. Additionally, higher diesel prices might increase public transport costs that need to be managed. The transitional issues are important and are addressed later in the paper based on the evidence from international experience.

Political Economy of Oil Market Deregulation

Over the past years, the government has been undertaking some reforms in the petroleum sector. Important measures adopted include increasing competition in petroleum imports, periodic adjustment of prices taking into account prices in the international markets, but nuanced by domestic political economy challenges. While there has not been any significant privatization in the sector, there has been some move in offloading minority shares of oil marketing companies (discussed above in the case of each of the three marketing companies) through the local stock markets. Meanwhile the Bangladesh Energy Regulatory Commission (BERC) has been set up as a regulatory body but it has limited role in pricing and other regulatory issues owing to lack of autonomy and interventions by the government.

On the whole, these reforms have broadly been in line with other reforms that have been carried out across Bangladesh economy, and in line with the strategic direction as stated through the 6th and the 7th Five Year Plans. In general, the focus of the reforms has been to: (i) give a more prominent role to the private sector in commercial activities so that government resources focus on poverty alleviation; (ii) introduce competition wherever feasible for the benefit of the economy as well as consumers; and (iii) more generally, integrate the economy into the global context. A brief review of the reforms undertaken so far is provided below.

Limited deregulation of imports: BPC has historically been the sole importer of all petroleum products, and continues to remain the largest importer. However, some amount of import of furnace oil has now been opened to private sector for fuel supply to power plants. Bangladesh currently has 39 oil-fired power plants, of which 28, with an overall generation capacity of 2,133 MW, run on furnace oil. With increased demand for furnace oil from these private power providers, BPC had been facing logistical hurdles of storage and financing for the increased fuel oil. BPC then accepted a proposal by the Bangladesh Power Development Board to allow independent power producers to import furnace oil directly to supply dozens of new turnkey electricity generating units, ending a monopoly on imports held by the BPC. The private sector responded positively to this deregulation policy by not only overcoming the fuel import financing issue but also making additional storage capacity available for this increased quantities of fuel oil. This has resulted in a decline of import of Furnace Oil by BPC. For example, BPC had originally targeted to import 1 million metric tons of HSFO in 2015. However, it then had to reduce import to just one 30,000 metric tons, as private imports emerged. This change has also resulted in furnace oil price becoming effectively as market determined, which explains the result in Table 8 that furnace oil prices are the lowest priced oil product presently due to low international prices.

BPC moves to imports through open tendering: After 15 years, BPC since 2015 started importing crude and oil product through the tender system (S&P Global Platts, 2015). BPC had imported petroleum products through tenders since its inception in 1977 until 2000. After 2000, it moved to government-to-government deals. Concerns about leakages and financial losses from this G-to-

G procurement led to the change in policy to move back to the tender system. This move is based on a policy decision of the Energy Ministry to bring competition by increasingly involving private sector in this upstream activity of procurement of oil so as to bring more transparency in oil procurement and also get benefits from lower global prices of oil.

Private sector participation in other segments of petroleum sector: Besides imports there has also been deregulations allowing private sector participation in production and processing of different petroleum products and also to a limited extent in refining, particularly the condensate from gas fields and naphtha.

Private refining of gas condensate and selling of the refined products: Most of the supply of petrol and octane is increasingly coming from gas condensates, which is also refined through private sector fractionating plants. But there are quality issues associated with refining of the condensate to petrol and octane and there is also a price differential. The private sector refiners buy the condensate from the Petrobangla gas fields at Taka 40 per liter and sell to the petrol pumps for Taka 60 per liter. While octane from condensate carries a price of Taka 60 per liter that for refined octane from BPC is priced at Taka 82.15 per liter. There is, therefore, good incentive to mix the allegedly lower quality octane from condensate with relatively better quality product from BPC. This is a challenge from deregulation that needs to be overcome through setting up of proper safety and quality standards and adequate monitoring to ensure that private suppliers are not compromising the system.

Investments in private sector refinery: Because of condensate production the government has allowed its refining by the private sector. Several refining facilities have been set up by the private sector. Two of the bigger private refining companies are Super Refinery Limited located in Chittagong, and Petromax Refinery located in Mongla, whose profiles are presented in Box 1 as examples.

Box 1: Private Refineries Based on Naphtha

Super Refinery Limited (SRL) started operation in 1997 in Chittagong. It utilizes the gas condensate from the various gas fields of the country to produce octane, industrial solvents such as MTT, SBPS and other petroleum by-products. MMT is an important ingredient used by the paint industry and the company claims to be facilitating and fulfilling the entire demand of MTT by the paint companies. Super Petrochemical also purchases Naphtha from ERL and refines it to octane and other products. Over the last 18 years, SRL has increased its capacity from 25,000 MT to 1,00,000 MT.

Petromax Refinery Ltd (PRL) is another privately owned petroleum oil refinery, based on Natural gas condensate as feedstock. The refinery plant is located at Mongla Industrial Area. Petromax Refinery plans to produce a range of liquid products and synthetic fuels, including LPG, Special Boiling Point Solvent (SBPS), premium grade (RON minimum 95) Gasoline, mineral turpentine (MTT), superior Kerosene Oil (SKO), and diesel.

Private investments in blending: Deregulation of lubricant products has also attracted global companies like Mobil and Total to participate in lubricant blending and also producing other products. A principal benefit has been the transfer of technology and setting standards for quality to which the market can respond. Overview of one of those private sector participants, Mobil Jamuna Lubricants, is presented in Box 2 as an example of deepening private sector interest in the oil market.

Box 2: Good Practice Example of Private Response to Deregulation: Mobil Jamuna Lubricants

Mobil Jamuna Lubricants (MJL) is a joint venture company between state owned Jamuna Oil Company and EC Securities Limited (subsidiary of the East Coast Group). It started with blending of world-class lubricants in Bangladesh in 1998 when Mobil Corporation (after the merger known as Exxon Mobil Corporation) decided to set up Mobil Jamuna Lubricants Limited. It commissioned a state-of-the-art Lube Oil Blending Plant (LOBP) - the first of its kind in the country - in May 2003. Since then, the production of this plant and marketing activities of MJL Bangladesh Limited have expanded greatly.

As required by ExxonMobil's Product Integrity Management System (3PIMS), this zero emission Plant strictly follows the quality programs, starting from receiving the base oils from ExxonMobil and additives sourced from other global suppliers as per ExxonMobil recommendation and formulation. The Plant is certified by Exxon-Mobil Quality Practice and Guideline, Product Integrity Management System (3PIMS), and Germinischer Lloyd (GLC) for ISO 9001-2008. A team of highly qualified, trained and skilled personnel operates the Plant with a warranty of hundred percent product quality assurances.

With a nationwide supply chain to cater the lubricant needs of the country, the Company strictly follows a "customer first" policy, backed up expert sales and engineering support services. Mobil's involvement in MJL has helped in setting standards on quality control and technology transfer in the country, with significant value addition in lube blending and the availability of world-class lubricants in Bangladesh.

Petroleum storage deregulation: BPC's difficulty in making available storage facilities from surging power producer demand was also met by the private sector once the government allowed such investments. Omera Fuels Limited, a sister concern of MJL Bangladesh Limited, is now constructing a tank terminal at Guptakhal, East Patenga, Chittagong through PPP, having furnace Oil storage capacity of 70,000 MT. Private storage facilities for loading, unloading and storage of petroleum products, specially Furnace oil has been developed as part of a capacity building up process to meet the growing demand of furnace oil for independent power projects fired by fuel oil.

Summit Oil and Shipping Company Limited (SOSCL), an enterprise of Summit Group, since its inception has been successfully carrying on its business in the field of import and inland transportation of liquid fuel oil with its own fleet of oil tankers. Presently, SOSCL owns 6 coastal oil tankers with an accumulated carrying capacity of 9,600 metric tons (MT). SOSCL owns and operates a 7,600 MT capacity tank terminal at Madanganj, to facilitate the storage capacities

required by the 102 MW Power Plant of Summit Narayanganj Power Limited. SOSCL also leases a storage facility in Chittagong of 50,000 MT, also for providing storage facilities for HFO based Power Plants. SOSCL was initially set up to transport Heavy Fuel Oil (HFO) at the power plant site of Khulna Power Company Limited. SOSCL has since successfully been transporting HFO to Khulna Power plant for the last 15 years. In the last 5 years, SOSCL has diversified in its business activities in terms of fuel supply to power plants as well as fuel storage and transportation services. SOSCL has been able to multiply and increase its revenue earning by 35 times since 2010. SOSCL has executed long term Fuel Supply Agreement (FSA) as a nominated fuel supplier with various private sector power plants in Bangladesh. Under the provisions of the FSA, SOSCL imports HFO from abroad, stores at its tank terminal at Chittagong and transports the HFO by its coastal tankers to the plant sites required for generation of electricity. To facilitate such imports, SOSCL has opened a subsidiary company in Singapore with the primary objective of procuring and supplying HFO in bulk quantity under contracts with different fuel giants of the world. SOSCL has imported and supplied 250,000 MT of HFO to these power plants as of date.

Deregulation of the LPG segment: There has also been significant deregulation in the LPG segment of the petroleum sector. As a result there are increasing numbers of LPG bottlers and importers participating in this segment, including Omera, Total, and Bashundhara. One of these companies, Omera Petroleum Ltd. (OPL), a subsidiary of MJL Bangladesh Ltd, is the largest operator in the LPG sector of Bangladesh with a combined capacity of 100,000MT per annum. In partnership with European energy giant BB Energy, the company has installed state of the art LPG import and storage terminal with capacity of 3600MT at Mongla, Bagerhat.

Apart from the main installation in Mongla, OPL has established three other satellite filling and bottling stations located at Ghorashal (Central), Bogra (Northern Belt) and Chittagong (Southern Belt) respectively to ensure convenience and availability of LPG to its distributors and customers. Besides using its fleet of LPG bowsers to move the LPG from Mongla to its satellite plants, OPL has successfully commissioned a LPG Barge. All this indicates that once private sector is allowed it also brings in competition with better service quality and standards, provided that there is a good regulatory environment fostering competition.

Challenges to private participation in the deregulated segments: The limited experience with oil market deregulation in Bangladesh is indicative of its true potential. The full benefits of deregulation of petroleum products imports, whereby OMCs, large consumers and traders could engage in a competitive activity, is constrained by the dominant position of BPC and its subsidiaries in terms of infrastructure ownership at the ports, and administrative barriers for new entrants. However, even the limited experience shows the need for some prudential regulations to ensure the proper results of a deregulated oil market.

- Adulteration, mislabeling, and short-selling could take place with serious consequences for government revenues and public health.

- There are no premiums for cleaner fuels (though some variation between petrol and octane price) but price of kerosene and diesel are way below, therefore creating incentives for adulteration.
- Backyard decanting, unsafe storage, illegal conversion of gasoline vehicles to run on CNG or LPG (due to the price advantage with "home-grown "conversion kits) are serious safety hazards.
- The safety of bowsers transporting petroleum products is a concern.

A well-functioning retail petroleum market should be able to ensure quality and standards, and that would require externalities like those stated above to be removed. The best option is deregulating the prices, along with credible threat of enforcement of quality and standards, which can provide incentives to different petroleum marketing brands to compete on quality, standards of fuel quality as well as service to customers. All these will require deeper level regulatory and institutional reforms, which many countries, both developing and developed have now successfully implemented. It is important to learn from such experiences, some of which are discussed below.

F. Review of International Experience with Oil Pricing, Subsidy and Market Reforms

Oil Pricing and Subsidy Reforms

The basic barrier to removing fuel subsidies is popular opposition (Benes et. al, 2015). Since fuel subsidies generate a visible benefit to people who consume fuel, the removal of subsidies has an immediate negative effect on the purchasing power of beneficiaries. It may present a difficult short term political problem for the government leading to public unrest—protests and riots. Examples of countries that faced public unrest because of subsidy reform efforts include Indonesia in May 1998 during the Asian financial crisis and Nigeria in January 2012. In both cases, the government restored fuel subsidies to stop the unrest. These experiences suggest that the timing of reforms is an important determinant of success.

The drop in oil price should help alleviate some of the political obstacles to reforming subsidies. Under low oil prices, the cost to vested interests of subsidy removal is less severe than under high oil prices. Thus, Benes et. al. (2015) finds strong evidence that a number of governments, especially those in Asia, have acted to seize this opportunity. Beginning in 2015, Indonesia abolished its gasoline subsidy and reduced its diesel subsidy to just 1,000 rupiah (8 US cents) per liter. In October 2014, India, Asia's second-largest economy, announced a deregulation of the diesel price and a regulated price increase for natural gas. The diesel subsidy, which cost over \$10 billion in the last fiscal year, had been one of the defining symbols of India's excessive interference in the economy, discouraging investments in the fuel sector. Malaysia stopped subsidizing both gasoline and diesel in December 2014, saving at least \$6.3 billion in the government's annual

budget. The decline in oil prices was particularly well timed for Morocco, a country that removed the last of its diesel fuel subsidies on January 1, 2015.

A huge volume of literature is available documenting oil subsidy reform experiences. A major contributor to this knowledge base is the Global Subsidies Initiative (GSI) of the International Institute for Sustainable Development (IISD). A brief review of oil subsidy reforms in selected countries are provided below as examples of cross-country experiences that will enlighten policy making in Bangladesh. Some of the political economy aspects of the policy reform experiences are also highlighted as background to inform the approach to oil subsidy reform in Bangladesh.

Fuel Pricing Reforms in India

India deregulated oil prices in phases. In 1997 the Government announced its intention to abolish the Administrative Pricing Mechanism (APM) over a 5 year period. However, implementation suffered from political back-tracking. India finally re-engaged in pricing reforms by ending the petrol subsidy in June 2010 and began raising diesel prices to reduce the gap with international prices. Because of exchange rate fluctuations, this price increase was not always sufficient to keep up with world prices, but the precipitous fall in global petroleum product prices in the last few months of 2014 enabled the government to deregulate diesel prices in October, ending the diesel subsidy (Box 3). The Government also moved to market-based pricing of LPG in the first half of 2015, replacing the price subsidy for 14.2-kg cylinders for household use with cash transfers to the bank accounts of registered LPG consumers (Kojima, 2016). At the same time, the government raised excise duties on gasoline and diesel in succession in October, November, and December 2014. The excise duty on gasoline with 92 RON (octane rating) was increased from Rs 9.48 (US\$ 0.16) per liter in September 2014 to Rs 17.46 (US\$ 0.28)/liter in December 2014, and that on diesel from Rs 3.56 (US\$ 0.06) per liter to Rs 10.26 (US\$ 0.16) per liter during the same period (Kojima, 2016). The kerosene subsidy has been retained, however.

Box 3: India sets market-based diesel prices and goes for green taxes

India made the price of diesel market-determined at the retail and refinery levels for all consumers from October 18, 2014. There are now no limits on upward movement of diesel prices. Along with price deregulation the Government also decided to increase excise duty on petrol and diesel periodically to match the declining global prices. In a series of actions since October 2014, excise duties have been imposed on diesel and petrol. Previously, the coal cess was doubled from Rs. 50/ton to Rs. 100/ton, also adding to the set of green actions taken by the government.

India already deregulated oil market investments in the 1990s. The world's largest refinery with a capacity of 1.24 million barrels per day located in Jamnagar, Gujarat is privately owned by the Reliance Industries Limited. The oil pricing reforms over 2010-14 have now created a highly favorable environment for private sector to fully participate in all areas of the oil market.

A striking feature of India's oil pricing reform is that India has now de-facto moved from a carbon subsidization regime to one of significant carbon taxation regime. The combination of market based prices and taxation implies that effectively India has moved from a negative price to a positive price on carbon emissions. The World Bank estimates that the actions since October 2014 has increased the implicit carbon tax by nearly \$60 per ton of CO₂ in the case of petrol and nearly \$42 per ton in the case of diesel. In absolute terms, the implicit carbon tax (\$140 for petrol and \$64 for diesel) is substantially above what is now considered a reasonable initial tax on CO₂ emissions of \$25 per ton (Government of India, 2015). These actions have strengthened India's commitment to support the global agenda for reducing carbon emission.

The deregulation of oil prices in India is a huge policy reform that is expected to have long-lasting benefits. It will spur private investments in the oil industry including for retail outlets for gasoline distribution. Greater competition is expected to improve the quantity and quality of gasoline distribution outlets, benefitting consumers. Saving of fiscal resources will allow better use of these resources for priority public spending in human development and infrastructure. The taxation of fuel oil will discourage consumption and benefit the environment.

Pricing Reforms in Indonesia

Subsidized fuel has been the norm in Indonesia since the first global oil-price shock in the 1970s. Since then, the nation's budget has borne most of the cost differential between market and fixed energy prices. Prior to 2015, the Indonesian government provided generous energy subsidies (for fuel and electricity), resulting in a deteriorating budget deficit, trade deficit, current account deficit, and pressure on the rupiah (IISD, 2014a, 2015). Moreover, government spending on energy consumption left limited room for spending on productive sectors such as infrastructure and social development (Notonegoro, 2016). Effective January 01, 2015, the Indonesia government introduced a new pricing system for gasoline and diesel. Along with declining global prices the subsidy reform freed up IDR211 trillion (US\$ 15.6 billion) from the 2015 budget's original allocation of IDR276.0 trillion (US\$ 22.1 billion) (Chelminski, 2016). This saving was used to promote growth and reduce poverty through a range of programs in infrastructure, rural development, poverty reduction and human development (IISD, 2016).

Malaysia Price Reforms

In November 2014, Malaysia's Prime Minister Najib Razak made the unpopular decision to abolish subsidies to gasoline and diesel, effective the first day of December. Malaysia had been paying a very high price on its fuel subsidies. In September 2013, Malaysia's fuel prices were well below the standard in Southeast Asia (IISD, 2014b). For example, the gasoline price in the Philippines was almost double that of Malaysia, and in Singapore, where gasoline taxes are an important source of government revenue, the price was almost triple that of Malaysia. In 2013, Malaysia allocated \$7.9 billion to fuel subsidies, and in 2012, Malaysia's fiscal deficit of 4.5% of GDP was the second highest among Asia's thirteen emerging markets, coming only after India. In a country with a population of only thirty million, the annual direct fuel subsidy cost amounts to almost \$300 per capita. These costs to the Malaysian public exchequer do not count the indirect costs related to resource misallocation and poorer air quality. Although the government's decision to abolish the fuel subsidies was not the first reform effort in Malaysia, the prior reforms did not dismantle the fuel subsidy mechanism itself (Benes, et. al., 2015).

The Government of Malaysia has openly and repeatedly acknowledged abuses at every level of the supply chain in the form of diversion of low-price fuels for illegal uses. In particular, out-smuggling of fuels has been exacerbated by additional price subsidies provided to fishing vessels, which are ideally suited for smuggling. While smart cards have been used in an attempt to control sales of subsidized fuels to public transport operators and fisheries, the government has admitted their ineffectiveness (Kojima, 2016; Benes, et. al., 2015).

Although fuel prices are no longer subsidized, there are still large price differences with Thailand and other neighboring countries, mainly due to the absence of fuel taxation and other levies in Malaysia (other than the 6% goods and services tax on 97 RON gasoline). As such, financial incentives for out-smuggling persist.

China Pricing Reforms

China is currently the world's biggest energy user (and major polluter), with fossil fuels accounting for 88% of energy consumption. China's lead on fossil fuel reform is critical to multilateral efforts to reform energy subsidies. China, along with the USA, has volunteered to participate in the G20 peer review process, as the G20 has committed to eliminate "inefficient" subsidies for coal, oil and gas in the medium term. The government's submission to the peer review set out a framework for "rationalizing" subsidies, without a specific timeline. Despite its lack of firm commitments, the review process is seen as a major step forward in cooperation and transparency between two nations seen as a flowering of cooperation when it comes to climate change. China called on other G20 nations to join the two nations in the peer review process.

China started deregulating its oil industry over a series of reforms since 2009. A new pricing mechanism was introduced in 2009 aimed at bringing prices closer to cost and reduce subsidies.

Results from a study by Lin & Ouyang (2014) indicate that the oil price reform in 2009 significantly reduced China's fossil-fuel subsidies and modified the subsidy structure. Nevertheless, government interventions in price setting were substantial, resulting in significant subsidies and refining losses. A new pricing system was introduced in 2013 with a view to allowing better pass through of international oil prices and reduce refinery losses. The reforms reduced the price adjustment period from 22 days to 10 days and eliminated the 4% floating band. Now prices are adjusted whenever the international crude price changes by more than 50 CNY/ton.

China also has significantly deregulated oil imports and refining by letting small-scale oil refineries to enter the refining and import markets. The small private enterprises, called the "tea-pot refiners" now account for 10% of the national refining capacity.

With the sharp decline in internal oil prices in 2015-16, China is facing a major policy dilemma. In China, where oil reserves are scarce and production costs are relatively high, letting domestic oil prices fall in line with the international market could threaten domestic production (Jie, 2016). The government of China wants to support domestic producers to limit dependency on cheap imported oil, and bolster national energy security. Additionally, China is concerned that low global prices would lead to rapid increase in fuel oil consumption and to higher carbon dioxide emissions. To check the rapid fall in domestic prices, China has been using the oil tax as an instrument. Additionally, China has now introduced a floor price on fuels equivalent to US\$ 40 a barrel.

These interventions have created a lot of debate in China. Chinese consumers accuse state oil producers, such as Sinopec and China National Petroleum Corporation, of benefiting from government support that keeps consumer prices artificially high. The state oil producers respond that ever-higher tax bills are driving up prices. The debate has now moved to the need to take away government control over pricing and institute market-based prices.

Oil Pricing Reforms in Philippines

Philippines historically pursued a fixed price regime for petroleum products. The Energy Regulatory Board (ERB) fixed these prices. A budgetary allocation was provided to the Oil Price Stabilization Fund (OPSF) that automatically absorbed any cost increase in international oil prices not reflected in the selling price set by ERB. In 1998 the government decided to deregulate the oil industry through the Downstream Oil Industry Deregulation Act of 1998 (Government of Philippines, 2005; IMF 2013). The deregulation was done in two phases. In phase 1, oil importation was liberalized and an automatic pricing mechanism was established. In phase 2, full deregulation was implemented whereby all controls over oil pricing were removed, the foreign exchange cover was taken away and the OPSF was abolished. Philippines now has a fully deregulated oil market with market-based prices. Prudential regulations are in place to prevent abuse including predatory pricing and cartelization (IMF, 2013).

Consistent with the regime of deregulation, the Oil Deregulation Law (ODL) did not prescribe a specific formula. The market is expected to set the prices. Notwithstanding deregulation however, players in the industry must adhere to the fundamental principle of fair prices as provided under the ODL. It is reported that Philippines has benefitted from deregulation, as prices of oil products would be higher if the industry was not deregulated (Table 15).

Table 15: Oil Prices in Philippines Pre and Post Deregulation (peso/liter)

Product	Regulated (Metro Manila Prices)	Deregulated (Metro Manila Prices)	Difference
Unleaded Gasoline	35.90	31.18	4.72
Diesel	29.30	27.31	1.99

Source: Government of Philippines (2005)

International Experience with Oil Market Deregulation in Developing Countries

Reforms in some Latin American Countries (LAC)

Structural reform of retail markets typically started from different situations in LAC and SSA countries. In LAC, national enterprises constructed and operated terminals and product lines with little regard to economic criteria (Mayorga-Alba, 1995). These margins allowed in these facilities were reviewed, and as next step –that would ensure the long-term sustainability of the reform - was to provide for competition on a permanent basis by privatizing these facilities. In SSA, however, most distribution and retail facilities were already owned by private companies but operated under cost-plus pricing agreements that were reflected in the fuel prices administered by the state. SSA countries, therefore had to design carefully the steps required to introduce economic pricing, before removing state price controls, to ensure that existing private operators remain in the market.

Deregulation of Honduras oil market: Since 1992 Honduras has embarked on a program to deregulate the oil market with a view to attracting private investment and promoting competition (Mayorga-Alba, 1995). In 1992, the private sector was allowed to import crude oil and petroleum products. The guaranteed margins for local refinery, distribution, transport, and retail sales were eliminated. The Petroleum Administration Commission (CAP) was entrusted with the responsibility to regulate private the private sector companies are responsible for the import, storage, transport, and distribution of petroleum products, using objective criteria. The domestic prices are regulated but these are set at international levels by using a parity formula. As a result, most of the oil subsidy has been eliminated.

Reform of the petroleum market in Chile: Chile provides an excellent example of the separation of policy and regulatory responsibilities into different government agencies and of the elimination

of barriers to competition (Mayorga-Alba, 1995). Empresa Nacional Administradora del Petroleo (ENAP) continues to own all the refineries and most of the common storage facilities but operates them on a commercial basis. Since the mid-1970s, barriers to the downstream segment have been abolished, and qualified operators have run facilities with open access under nondiscriminatory rules.

Reform of the Mexican oil market: Growing demand for oil has seen a surge in imports from USA. Imports account for some 48% of Mexican oil consumption, mostly from USA. Indeed, Mexico is now the largest export destination for US oil. Traditionally, the oil industry has been heavily controlled. Prices have been kept below cost leading to subsidies. Consumer choices and services are limited by lack of investment and completion.

Through a series of deregulation measures starting in 2013, Mexico is on the way to dismantling government control over the oil market. Deregulation laws passed in 2013 and 2014 have established a permit regime by the Ministry of Energy for downstream oil markets. “The Energy Regulatory Commission provides permits for crude oil, petroleum products, petrochemicals, transportation, storage, distribution, compression, liquefaction, decomposition, regasification, marketing and retail sale of crude oil and petroleum products, along with integrated pipeline transportation and storage systems” (Wyman, 2016). Deregulation is ongoing in a phased approach on a yearly basis as follows- Year 2015: permits to transport, store and distribute (2015); Year 2016: permits to own and operate retail stations; Year 2017: permits to import and export fuel; and Year 2018: opening up retail prices fully to allow a fully deregulated oil market.

Mexican government controls prices, but progressively these prices have been adjusted. With the fall in global oil prices, the average retail prices of gasoline are now higher than in USA. While there is some uncertainty about the details of the deregulation implementation, the policy reforms have opened up exciting opportunities for domestic and foreign private investors to upgrade and modernize the Mexican oil market with considerably improved consumer service options.

Oil Market Reforms in East and South Asia

Philippines deregulation of the oil market: As noted above, Philippines has undertaken major deregulation of its oil market. Before deregulation there were 3 major players in retail marketing - Caltex, Petron, and Shell. The deregulation move allows new entry into the market, which is key to having a competitive market, which not only brings in more competitive prices, but also better quality products and much improved service levels. After deregulation, it is now estimated that there are as many as 80 service providers (PIDS, 2000; Oil Deregulation, 2016). Deregulation has been taken to a point where even ordinary citizens can set up their own retail stations. Safety and skills issues have been addressed through the Oil Deregulation Law (ODL). Under the ODL, the Philippines Congress made Peso 300 million available for management and skills training for the management, establishment, and operation of gasoline stations and LPG retail outlets. This training program is under the auspices of Technology and Livelihood Resource Center (TLRC);

Technical Education and Skills Development Authority (TESDA); and the Department of Environment (DOE).

The Government put in place a support program to facilitate small business to enter the petroleum downstream market. Persons who successfully complete the program are entitled to government assistance extended by government lending agencies, in the form of medium- to long-term loans with low interest rates. In the same manner, a Jeepney (a local transport mode) cooperative can opt to put up its own station for its members and source the supply of diesel and/or lubricants from any of the many players already in the industry.

Along with deregulation, the regulatory oversight has also been strengthened. While importers can import from whichever source, they have to notify the DOE of any importation. The importer also needs to make sure that any importation conforms to international standards of quality and to the specifications of the Philippines *Clean Air Act of 1999*. Likewise, an environmental compliance certificate (ECC) has to be secured from the DOE before a retail station, storage depot, ocean-receiving facility, or a refinery can be established. Further, there are penalties in case a dealer sells LPG with an under-filled cylinder.

The Philippines deregulation law prohibits cartelization and predatory pricing on the part of oil companies and dealers. The law defines cartelization as “any agreement, combination or concerted action by refiners, importers and/or dealers, or their representatives, to fix prices, restrict outputs or divide markets, either by products or by areas, or allocate markets, either by products or by areas, in restraint of trade or free competition, including any contractual stipulation which prescribes pricing levels and profit margins.” On the other hand, predatory pricing is defined as “selling or offering to sell any oil product at a price below the seller’s or offeror’s average variable cost for the purpose of destroying competition, eliminating a competitor or discouraging a potential competitor from entering the market.” However, pricing below average variable cost in order to match the lower price of the competitor, and not for the purpose of destroying competition, is not considered predatory pricing under the law.

The DOE Secretary can investigate any unreasonable increase in the prices of oil products. The ordinary consumer can report any violation of the law to the Joint DOE-DOJ (Department of Justice) Task Force. If the DOE-DOJ Task Force finds that there is indeed a violation of the law, it can order the violator to take proper actions to ensure full compliance with the law.

Philippines, while deregulating the sector, had also declared incentive measures for new investment in refining, storage, marketing and distribution of petroleum products. The industry has been given the same incentives granted to the Board of Investment (BOI)-registered enterprises engaged in a preferred area of investments pursuant to Executive Order No. 226, otherwise known as the “Omnibus Investments Code of 1987”.

Indian deregulation: India's demand for liquid fuels grew by 400,000 barrels per day in the first quarter of 2016, which was the fastest in the world, accounting for about 30% of the total global increase (Cunningham, 2016). Some 24 million new vehicles came on road in India in the most recent fiscal year adding to the demand pressure (Strumpf and Sparshott, 2016). The good news is that the Indian oil market was prepared for it. In October, 2014 the Indian government fully deregulated diesel prices in India (Kojima, 2016).

The Indian oil market deregulation started in bits and pieces during the 1990s. India sequentially liberalized private investors in oil exploration, production and importation but the government retained control over pricing policy. As a result, the private participation and competition was limited. Prices were set through the Administrative Pricing Mechanism (APM) that involved a complex pricing formula with cross subsidization. In 1997 the government decided to dismantle the APM in a phased manner over a 5-year period (April 2002). In practice, political economy considerations hampered full implementation and the government retained its control over oil prices even after dismantling the APM.

Faced with mounting cost of oil subsidies, balance of payments problem and low investments, the government took a fresh resolution to go back on the reform track. In 2010 the government deregulated the petrol prices. It also allowed a steady adjustment to diesel prices to bring it in line with international prices. The Indian government's October 2014 decision to deregulate diesel prices is expected to have a positive effect on the national oil marketing companies that are the principal retailers of petroleum products. The decision is also likely to lead to more private firms entering the diesel market in the medium term, resulting in greater competition. Now with the prices of two major petroleum products fully deregulated, it is likely to benefit OMCs or the public sector petroleum refiners, private refiners, upstream oil and gas public sector companies, and Indian economy as a whole (Singh, 2015).

With this 2014 pricing reform and previous reforms that removed the entry restrictions for domestic and foreign private investors in oil, India has now established a fully deregulated oil market (except for kerosene). Both public and private enterprises are now competing in the oil sector. Indeed, the largest refining capacity in India is privately owned by the Reliance Group.

Benefits for public oil companies: Public sector petroleum refiners, also known as OMCs, had been making huge losses on sale of regulated petroleum products (diesel, domestic liquefied petroleum gas (LPG) and kerosene sold through the public distribution system (PDS) at below-cost prices. With deregulation of diesel prices, the losses will be reduced and eventually eliminated. Though OMCs are compensated for their losses by the government through subsidy, the uncertainty in timing and the actual amount adversely affected the finances of OMCs. Therefore, after deregulation of diesel prices, the finances of OMCs are likely to improve significantly. Improved finances will enable them to invest in plant and machinery and, hence, improve their refining margin, which is currently far below the private refiners.

Benefit to private petroleum refiners: It is expected that deregulation will result in heightened competition for market share by private oil retailers with the existing dominant national retailers. By allowing diesel to be marketed profitably, the sector will once again be attractive for private companies that had left when price restrictions were put in place. Private refiners (Reliance Industries Limited (RIL) and Essar Oil Limited (EOL)) had not been in a position to sell diesel into the domestic retail market because retail diesel prices were regulated and they could not sell diesel at a loss as unlike with public sector refiners, no compensation from the Government was available to them. Hence, they could either export diesel or sell it into the domestic retail market through the public sector refiners. Now RIL and EOL are likely to restart their diesel retail operations.

Deregulation of diesel prices provides a level playing field to private refiners who can sell diesel directly into the domestic retail market. With deregulated petroleum product prices, private investors can also invest on the necessary infrastructure to expand their network of retail outlets to sell diesel and petrol into domestic retail market without compromising their profitability and quality. Evidence shows that private retail market shares have already gone up from zero to about 5% in less than 2 years (Pathak, 2016). RIL reopened 950 of its 1400 retail outlets by May 2016. EOL has already commissioned 2100 outlets and has plans to expand this to 5000. If this is done, EOL will become India's largest oil retailer. Importantly, the state oil companies are responding positively to this competitive pressure by announcing their own retail outlet expansion plans and improving services (Pathak, 2016).

Pakistan oil market deregulation: Pakistan's oil and gas sectors are regulated by the Oil and Gas Regulatory Authority (OGRA) that has been set up under the Oil and Gas Regulatory Authority Ordinance dated 28th March 2002 to foster competition, increase private investment and ownership in the midstream and downstream petroleum industry, protect the public interest while respecting individual rights and provide effective and efficient regulations. The Federal Government has assigned functions (March 15, 2003) for the regulation of activities relating to LPG (Liquefied Petroleum Gas) and CNG (Compressed Natural Gas) sectors in the country to the Oil and Gas Regulatory Authority and has designated the OGRA as an Authority in place of the Director General for Gas of the Ministry of Petroleum and Natural Resources.

The government of Pakistan traditionally has managed the import, refining, distribution, and pricing of petroleum products. Over the years, there has been significant deregulation of the oil market in refining and distribution activities. Although the government maintained its control over oil prices, it has adopted a policy of greater pass through of international oil prices through regular adjustments. The petroleum products prices are revised on a monthly basis by the Government (Ministry of Finance) and petroleum prices are suggested by the OGRA every end of the month for the next month and onwards. The proposed fuel prices by OGRA are based on international market of oil & gas and its current position of imbalance. The role of OMCs operating in the country has been restricted to procuring products from the state-owned oil company and then

storing them at their installations. The products are then transported to the OMCs' depots throughout the country. From there they are supplied to retail sites to be sold at government-prescribed prices.

In the past, the Ministry of Petroleum and Natural Resources set and maintained uniform prices of petroleum products throughout the country, irrespective of the distance of retail sites from the depots or installations. This was achieved through a freight pool system. The government maintained a particular price structure by means of subsidies and taxes. For example, gasoline was highly taxed, but kerosene was subsidized. While the system aimed at promoting parity among various economic groups, it provided limited incentive for OMCs and dealers to operate efficiently because business was being run on set margins that were incorporated into the prices.

With the growing role of private refineries, the petroleum prices have been deregulated on a limited scale by the Federal Government since June 1, 2011. The oil marketing companies have been authorized to notify petroleum products prices as per the government approved formula, including taxes. At present, two types of taxes are being charged from the oil consumers consisting of a petroleum levy and general sales tax. The oil marketing companies provide their retail prices which are then published for the information of the consumers. Nevertheless, government intervention in pricing remains substantial.

Lessons learnt From Successful Deregulation Reforms Implementation

Lessons learnt from LAC and SSA countries: Drawing on the recent experiences of several Latin American and Caribbean (LAC) and Sub-Saharan African (SSA) countries, Mayorga-Alba (1995) reviews the successes and problems of implementing structural reform and "new style" regulation and proposes some general lessons. A particularly important lesson is that to be successful with the reforms, deregulation should start upstream, introducing competition in the local crude oil market and thus attracting capital to exploration and production activities. An important caveat here is the need to institute prudential regulations for avoiding any environmental damages from oil activities. Environmental concerns did not make headline news with the early oil market reformers. They now are of paramount importance and a critical factor is designing oil market deregulation reforms.

Opening procurement of crude oil and products to competition is more difficult to accomplish, but it is critical to successful reform. It requires facilitating access to domestic markets to qualified importers and exporters of crude oil and products, thus obliging local refineries to face competition. Most LAC and SSA refineries needed to be upgraded or to be closed if they could not be operated economically. Where governments persist in delaying such reform, the technical and environmental gap between these refineries and the international industry will continue to widen, which is detrimental to efficient market being in operation.

Deregulation downstream requires adequate industry facilities and a change in pricing policy. To attract new entrants into a market, product prices - before taxes - have to be set by the market in line with economic border prices, and the taxation regime must not discriminate between local and foreign suppliers. Several LAC and SSA countries have used transitory pricing formulas to simulate import-export parity prices during a short period before prices are deregulated fully.

Deregulation of markets could cause temporary difficulties and so temporary protection is advisable where deemed fit. For example, protected operations, such as uneconomic refineries operating under cost-plus systems, need to adapt or disappear. Where investments for-improving existing facilities make economic sense, temporary (explicit or implicit) tax protection could be granted. This had taken place in Kenya and in Cameroon, as part of World Bank adjustment programs.

Lessons learnt from India:

- India has fully deregulated the downstream markets for both gasoline and diesel fuel. These reforms were separated in time, with the deregulation private investment of gasoline taking place first in a single policy change, while diesel prices were increased regularly on a monthly basis for over a year and a half before deregulation was announced. The policy of diesel price increases was continued even after a change of government in 2014.
- Previous attempts to remove government controls over India's fuel pricing faltered for political reasons. Strong political support under a reform-minded prime minister has played a key role in deregulating diesel oil prices,
- In recent months, India has responded to the rapid decline in world oil prices by hiking up its excise taxes on both gasoline and diesel, resulting in price increases.
- The state of transparency about fuel prices in India is relatively good, with the Ministry of Petroleum and Natural Gas providing specific information about different fuel price components from different parts of the country.
- India's experience shows that the full benefit of private participation in oil market cannot happen without deregulation of oil prices. Because of regulated diesel prices, private operators withdrew from retail market but re-engaged once diesel price was deregulated in 2014. The private supply response has been substantial, which has also pushed up competitive supply response from public operators.

Lessons learnt from the Philippines

- The deregulation of the downstream market for gasoline and diesel has not ended debates about fuel pricing in the Philippines. Over the past decade, a number of high-profile independent reviews have been conducted to respond to public demands related to fuel pricing and the costs and benefits of deregulation. But each time the decision was taken to stay with the deregulated regime (IISD 2014a).
- The growth of the Philippine social safety net has reduced the significance of oil price

controls. In addition, the Philippines has successfully implemented a number of non-pricing measures to mitigate impacts during periods of increasing fuel prices, including targeted compensation measures to the transport sector.

- The state of transparency in the Philippines is high, with the Department of Energy not only publishing information on its websites but actively engaging with media to explain fuel price changes. Transparency has been further strengthened by the successive independent reviews, which have created a public space for recognizing complaints, exploring and publishing findings on the evidence basis behind complaints, and recommending improvements to price regulations and enforcement.

G. A Strategy for Oil Pricing and Subsidy Reforms And Oil Market Deregulation in Bangladesh

Strategic Considerations for Pricing and Subsidy Reforms and Oil Market Deregulation

A review of international reform experiences suggests that the strategy for reforming oil prices and subsidies should involve the following key elements: (i) Proper timing of reforms; (ii) a comprehensive reform plan; (iii) appropriately phased energy price adjustments that can be sequenced differently across energy products; (iv) improving the efficiency of SOEs to reduce producer subsidies; (v) targeted mitigating measures to protect the poor; and (vi) depoliticizing energy pricing to avoid the recurrence of subsidies (vii) a far-reaching communications strategy¹.

(i) Timing of reforms: As noted, although many reforms happen as response to crises, some of the politically sensitive reforms, like oil price subsidy and pricing reform, are best done from a position of strength. Bangladesh economy is growing, the macroeconomy is stable and inflation has come down. In this overall positive macroeconomic environment, low international oil prices present a historic opportunity to reduce economically costly and environmentally damaging fuel subsidies. When oil prices are low, subsidy removal has limited social and economic consequences. In fact, the domestic prices of oil products in Bangladesh today are below the international price and subsidy reforms will not increase oil prices immediately. The outlook for international oil prices is also positive, which will help maintain price stability in the near future. But the window to oil subsidy reform may be limited, given uncertainties about the long-term outlook for international oil prices. Indeed, oil prices have already moved up significantly from the lowest point achieved in 2015.

(ii) A comprehensive reform plan: Most of the successful oil subsidy reforms were well planned with a clear reform strategy and the establishment of long-term objectives, assessing the impact of reforms, and consulting with stakeholders. Reforms are more likely to be successful and durable

¹ Drawing on lessons of international experience, IISD (2013) provides a guidebook for Southeast Asian policy makers for developing a strategy for fossil-fuel subsidy reforms.

if they are embedded within a broader reform agenda. In particular, reforms should incorporate both a sustainable approach to energy pricing and a plan to improve the efficiency of energy consumption and supply. Designing a comprehensive subsidy reform strategy requires information on the likely impact of reforms on various stakeholders and the identification of measures to mitigate adverse impacts.

This suggests that, for Bangladesh, instead of looking at oil subsidy reform in isolation, a full package consisting of oil market deregulation that allows private sector participation in all aspects of the oil market, oil pricing deregulation and reform of oil public companies aimed at improving their performance and competitiveness may be the way to go. Proper pricing policy must also address the issue of oil taxation as an instrument for addressing the issue of resource mobilization. Many countries have successfully used oil pricing as a solid instrument for mobilizing resources to finance transport infrastructure and other development programs. Bangladesh has a serious resource constraint and oil provides a lucrative source of revenue generation to finance required development spending in support of the government's 8% GDP growth target. The taxation regime can also be used to stabilize international oil price movements as in India.

The reforms should be conceived in totality but implementation may be phased over a number of years based on implementation capacity and political economy considerations. In this regard, the Government can learn from the experience of Philippines and India that have now fully deregulated the oil market and oil prices. India, for example, established a number of task forces to develop the oil market reforms that were extensively debated and discussed.

(iii) Appropriately phased and sequenced price adjustments: While there is no oil subsidy now, international prices might increase in the future. Exchange rate changes can also trigger price increases. So, it is important for the government to adopt a phased approach to passing on any possible near-term, price increases. Phasing-in price adjustments and sequencing them differently across oil products may be desirable to manage the political economy of reforms. A phased approach to reforms permits both households and enterprises time to adjust, and permits the country time to build credibility by showing that subsidy savings are being put to good use. As noted earlier, it also helps reduce the impact of subsidy reform on inflation and creates room for governments to establish supporting social safety nets.

Price increases can also be sequenced differently across energy products. For example, petroleum price increases can initially be larger for products that are consumed more by higher-income groups and by industry, such as gasoline (petrol, octane and diesel) and jet kerosene. As the safety net is strengthened, subsequent rounds of reform can include larger increases in prices for fuel products that are more important in the budgets of poor households and part of the budgetary savings can be used to finance targeted transfers to poor households.

(iv) Improving the efficiency of oil SOEs to reduce producer subsidies: Improving the efficiency of the oil SOEs can reduce the fiscal burden of the oil sector. The BPC is financially

bankrupt and receives financial support from the Treasury and the public banking sector to stay afloat. A part of the subsidy reflects price controls, but there are also efficiency concerns. Lack of competition and weak performance monitoring leaves no incentives for efficiency drive. Improvements in efficiency can strengthen the financial position of BPC and its affiliates. The efficiency improvements will be particularly important in an environment of deregulated oil market so that BPC and affiliates can compete effectively with private producers and distributors. Governance of BPC can be strengthened by subjecting it to international audit in order to establish proper business accounts, improve its transparency, and provide the government appropriate baseline to establish proper monitoring and performance evaluation system. In particular, this can help identify system inefficiencies (e.g., overstaffing) and vulnerabilities (e.g., major loss points and bottlenecks in energy flows). With the establishment of proper pricing, BPC should be required to earn a profit, finance its own investment and service its full debt servicing obligations. Delinking BPC operations from the budget and converting it to a profitable enterprise will be a major positive reform.

(v) Targeted mitigating measures: Well-targeted measures to mitigate the impact of oil price increases on the poor are critical for building public support for subsidy reforms. In a recent World Bank study undertaken for the G-20 Finance Ministers and Central Bank Governors (World Bank, 2014), a range of transitional measures have been identified to assist the poor while phasing away inefficient fossil fuel subsidies. These transitional measures fall into two broad categories:

- Improving the poverty targeting of existing subsidies
- Introducing or strengthening other forms of support for the livelihoods of the poor – in cash or in-kind

The first of these approaches focuses on: (i) limiting the number of goods subsidized to those used primarily by the poor; (ii) limiting the quantities subsidized, generally with reference to the minimum necessary to cover basic needs; and/or (iii) limiting the number of beneficiaries, by targeting eligibility for the subsidy. An advantage of such measures, particularly the first two, is that they rely on existing systems, though they might involve some additional investment, for example, in setting up institutions to screen beneficiaries for eligibility. They can therefore play a useful role as stop-gap measures while longer-term solutions are put in place. Some subsidies, such as those for public transport, may be largely self-targeting, as lower-income people are more likely to rely on it than are wealthier groups.

A clear disadvantage of this approach is that significant differences in prices for relatively similar products may create perverse incentives or diversion from the intended uses. For example, protracted lower prices of kerosene than those for diesel fuel might provide incentives for adulteration. Similarly, seeking to protect the poor by subsidizing small cylinders of liquefied petroleum gas (LPG) on the grounds that the poor can buy only small quantities at a time can provide an incentive for richer customers to switch from large to small cylinders.

The second broad approach relates to the provision of cash or in-kind transfers to cushion the impacts of higher fossil fuel prices. Targeted cash transfers or near-cash transfers (vouchers) are the preferred approach to compensation. Cash transfers give beneficiaries the flexibility to purchase the level and type of energy that best suits their needs, and at a time and place of their choosing. They also remove the need for governments to be directly involved in the distribution of subsidized energy to households, which is often extremely costly and prone to abuse. The main challenge us that implementation requires effective implementation capacity that may be lacking. Further, care is required in developing appropriate institutional arrangements to prevent fraud and corruption. There are examples of large-scale cash transfer programs being introduced in difficult contexts, such as highly diverse and decentralized Indonesia, over a short time span. The Indonesian case also shows how strengthening social protection programs can facilitate the timely delivery of transitional measures. In addition, information technology, advances in biometric identification, and other new technologies offer the promise of simplifying the setup of effective cash transfer programs.

In the case of Bangladesh, there is no existing system of targeted oil subsidy. Subsidized oil products –diesel and kerosene-- are available to all the population. As shown in Table 3 earlier, both diesel and kerosene prices are above supply costs presently owing to low international prices. The study recommends the removal of any future diesel subsidy as there is no empirically justifiable equity argument. This is the top most pricing reform priority. Once the diesel subsidy is removed, policy attention can move to kerosene.

In the case of kerosene, there is some evidence that the poor and low middle income consumers have a significant share of the subsidy benefit. The policy choices relate to the following: leaving kerosene subsidy open-ended as presently, but narrow the price gap with cost to a small level (i.e. 10-15% max) to limit the amount of subsidy; introduction of targeted kerosene subsidy through a voucher system; removing the subsidy but compensating the poor with a cash income transfer.

Regarding the implementation of a kerosene subsidy, the practical difficulty is to find a method of subsidy that targets only poor households and avoids leakages through diversion of kerosene to other markets (including smuggling across the border to India). The review of Maharashtra's attempts to subsidize kerosene through the rationing system noted earlier is illustrative of the practical difficulties. Where the objective is to support poor households and poor communities against prices that are too high, a possible solution can be the use of cross-subsidy. The many challenge here is to set up a proper implementation mechanism. For example, governments wishing to support the poor rural households often use cross subsidies as a method of reducing prices charged to rural areas. The problem is that this benefits all rural households and not just the poor. Another suggested approach is to use a voucher scheme. The main challenge here is to identify the poor. A different approach to the use of two-tier petroleum pricing as a means of providing support to low-income households is the use of smart cards that will allow the poor

households to buy a limited amount at a subsidized price. Any amount exceeding the given quota will be subject to a higher price (possibly the market clearing price).

Given the problems of leakages, adulteration and smuggling, the best policy option would be to adopt the cash transfer approach. Fortunately, Bangladesh is already well advanced in undertaking necessary preparatory work towards a cash-based social security system. In 2015 Bangladesh adopted the National Social Security Strategy (NSSS) that calls for a substantial overhaul of the social security system including transition to cash transfers (Government of Bangladesh, 2015). The preparatory work undertaken in that context can also apply to the needs for phasing away fossil fuel subsidy.

The elimination of diesel subsidy will increase the cost of irrigation. This adverse effect on cost of production and farmer incentives can be offset through improvements in farm productivity, investments in rural infrastructure including flood control and removal of export ban on food. The removal of diesel subsidy can lead to cost increases in transport when international oil prices go up. To address this concern, the government may need to develop direct ways to subsidize public and private mass transit systems. These include direct subsidy to public mass transit and tax breaks including import duty reductions, accelerated depreciation options and profit tax reductions for private buses. The government can commission a study to look into ways to lower transport cost in an un-subsidized oil price regime.

(vi) *Proper oil pricing:* Successful and durable reforms require a proper mechanism for setting energy prices. Many countries have successfully implemented reforms only to see subsidies reappear when international oil prices increase. Establishing a proper oil pricing system is important to ensure the sustainability of reforms.

GIZ (2015) suggests a set of four principles to guide the development of a sustainable oil pricing policy: pricing principles; price regulation principles; transparency principles; and enforcement principles.

- a) *Pricing principles:* These comprise of three elements: cost coverage; applying fuel taxes; and internalizing the external effects of the transport sector. The idea behind cost coverage is that prices should at least cover all costs of production (import, refining, transport and depreciation). The next consideration in price setting is the use of taxes (i.e. value added taxes, excise duties) to develop the transport sector (cost recovery of road infrastructure including maintenance) or more broadly to generate revenues for the government. A third consideration is to internalize the external costs from use of fossil fuel (i.e. the tax on carbon emission). Most countries are moving towards this broad-based pricing policy (Box 4).
- b) *Price regulations principles:* This principle advocates that price adjustments must reflect the changes in cost of production, exchange rate changes and general inflation. The rationale for this principle is to avoid subsidy by allowing full pass through of all factors that affect the cost

of production.

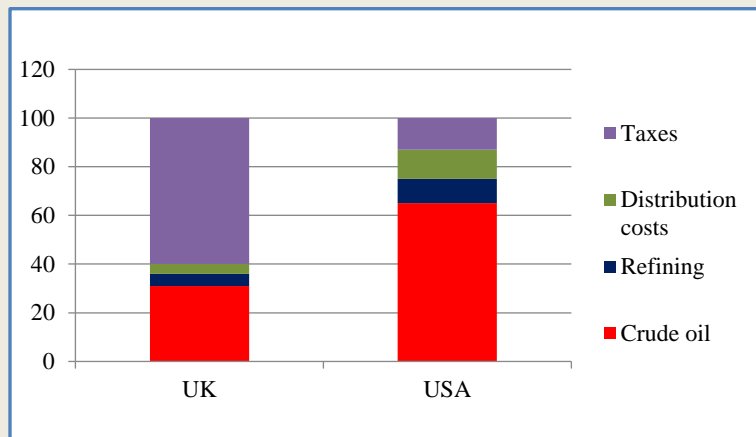
- c) *Transparency principles:* The idea here is that stakeholders have full information about how prices are set. Information about the main components of pricing (costs and taxes), how prices are set, who sets the prices, the frequency of price changes and the reason for changes must be communicated to the general public through a website and mass media so that there is common understanding for the oil price behavior.
- d) *Enforcement principles:* The proper implementation of defined pricing principles requires that they are properly monitored, supervised and enforced. Enforcement must also pay attention to issues of smuggling, black-markets, adulteration and quality assurance for oil products as per specification.

Box 4: Taxation of Gasoline through Oil Pricing

Several countries have introduced substantial taxation of oil through oil prices. The leadership is provided by European countries, with environmental protection as a major objective. USA also uses oil taxation, but primarily as an instrument for cost recovery for use of the road transport network.

The current gasoline taxation in UK and the USA are shown in Figure 9. The oil taxation regime in UK is vastly different from USA. In the USA the largest cost item is crude oil, which accounts for some 65% of the price of gasoline. Taxes account for 12%. In the UK, taxes account for 60% of the gasoline price, while crude oil cost accounts for only 31%. The heavy taxation in the UK (and many other European countries) is partly a reflection of incentive to conserve the consumption of fossil fuel with a view to reducing carbon emission. UK also uses oil taxation for road user cost recovery and general purpose tax revenues.

Figure 9: Petrol Taxes in UK and USA



Source: author estimates based on data from concerned authorities

The current Bangladesh oil pricing system does not meet any of the above principles, suggesting that a thorough overhaul of the pricing system is needed. Two policy questions emerge: Should government continue to regulate oil prices by instituting an automatic pricing formula or should it deregulate the prices and leave pricing to the market? This is a political economy choice. For example, India and Philippines have completely deregulated oil prices, except for kerosene in the case of India. The advantage of a market-based pricing is the complete de-politicization of oil pricing. However, this requires adequate competition in the oil market and proper administrative

and regulatory capacities to monitor the performance of the oil companies and prevent cartelization.

Since Bangladesh does not yet have a competitive oil market, full deregulation of oil prices may be pre-mature at this time. So, in the first phase of the reforms the adoption of an automatic pricing formula that reflects the above principles may be the way to go along with deregulation of the oil market to allow private sector participation in all areas of the oil industry. This pricing policy should be administered by the BERC without any government intervention. This requires that the BERC should be strengthened with greater autonomy and quality staffing to do its assigned job with proper competence. BERC will also be responsible to provide all necessary information to the public at large to meet fully the transparency criteria for oil pricing. The government's main role will be to decide the taxation policy for oil as appropriate.

The issue of oil taxation merits serious political consideration. Even if pure climate change considerations do not enter the calculations owing to the present low carbon footprint for Bangladesh, revenue considerations must play a huge role. The absence of proper road user charges and the need for large spending on road infrastructure alone advocates strong consideration of the use of oil taxation. Additionally, the oil taxes can be used as an instrument for stabilizing domestic oil prices in the face of any future wild swings in international prices. In this regard, Bangladesh can learn from the experience of its neighbor India that has introduced hefty taxation of diesel taking advantage of the current low international oil prices (Box 5).

Over the longer term, subsidy reforms for petroleum products should aim to fully liberalize pricing. More liberalized regimes—where prices are determined by private sector suppliers and move freely with international prices—tend to be more robust to the reintroduction of subsidies than automatic pricing mechanisms. Under a liberalized regime, the role of the government is to develop prudential regulations to ensure that fuel markets are competitive and there is free entry and exit from the sector. A well-functioning social safety net should be in place before countries liberalize prices to ensure that low-income groups can be protected from future price increases and thus avoid public pressure to reintroduce subsidies. Successful implementation of an automatic pricing mechanism can facilitate the transition to a liberalized pricing regime by getting the public used to frequent changes in domestic oil prices. It can also build up the confidence of private suppliers that the government will not return to subsidized pricing.

Box 5: Oil Taxation in India

India not only has fully deregulated petrol and diesel prices, it has taken advantage of the present low international oil prices to set up a comprehensive system of oil taxation that is yielding the government substantial revenues. As of January 2015, the tax on gasoline (excise and VAT) amounted to a whopping 42%. This tax rate can be adjusted downwards to avoid any future short-term wild swings in international oil prices.

Components of Petrol Prices in Delhi, January 02, 2015

NO.	ELLEMENTS	UNIT	AMOUNT
1	C&F (cost & freight) price of gasoline (petrol) BS III equivalent	\$/barrel	67.09
2	Average exchange rate	IDR/\$	63.26
3	Refinery Transfer Price (RPT) on landed cost basis for BS IV Petrol (price paid by the oil marketing companies to refineries)	IDR/liter	27.26
4	Price charged to dealers (excluding excise duty and VAT)	IDR/liter	33.68
5	Add: specific excise duty @ IDR 15.40/liter (IDR 14.95/liter+ 3% Education Cess)	IDR/liter	15.40
6	Add: Dealer Commission	IDR/liter	2.03
7	Add: VAT (including VAT on Dealer Commission) applicable for Delhi @ 20%	IDR/liter	10.22
8	Retail Selling Price at Delhi (rounded)	IDR/liter	61.33

Source: IISD (2015)

(vii) A far-reaching communications strategy: A far-reaching communications campaign by the Bangladesh government can help generate broad political and public support and should be undertaken throughout the reform process. The information campaign should explain the magnitude of energy subsidies and their implications for other parts of the budget. The benefits of removing subsidies, including on a post-tax basis, should be underscored, in particular the scope for using part of the budgetary savings or additional revenues to finance high-priority spending on education, health, infrastructure, and social protection.

It is equally important that the government should also disclose all pertinent information about how prices are formulated and the factors behind planned price increases. The adopted pricing system must meet the transparency criteria for price setting noted above. All relevant information should be available in usable form in the government's website.

Additional Strategic Consideration in Deregulating the oil Market

In addition to the above strategic elements of the oil pricing and subsidy reform and oil market deregulation, there are some additional considerations that concern specifically to the strategy for oil market deregulation.

While there are considerable benefits for Bangladesh in deregulating the oil market, it is important to understand the proper meaning of deregulation. Thus, deregulation is defined to mean the removal of all entry barriers to private participation in all aspects of the oil market. It does not imply the absence of government regulations. Indeed prudential regulations relating to monopoly

control, safety and environmental standards, protection of consumer interests and taxation are very much necessary to ensure a healthy, competitive market that also protects public interests relating to safety and quality. The potential benefits and challenges of oil market deregulation are as follows.

Deregulation makes the industry more competitive and stimulates investments. The deregulation of the LPG market in Bangladesh is a good example of this. Originally LPG was in the domain of the public sector. With deregulation there was an immediate supply response from the private sector that has not only brought competitive investments but also led to higher supply and lower prices. After deregulation, price of LPG has come down from Taka 1600 per bottle to Taka 900. Besides, the availability of LPG across the country has been ensured in a more competitive environment. This is a marked departure from the time when BPC subsidiary had the monopoly of bottling and marketing of LPG. The discriminating customer has now the opportunity to choose from the preferred source based on price and quality. With full deregulation, the same could be true for petroleum fuels; particularly diesel, kerosene, and octane. Deregulation and competition would therefore spur private investment and encourage oil companies to be more effective, efficient and provide better service. The supply response from private investors in Philippines and India is a major evidence of the positive impact of oil market deregulation.

Deregulated market provides incentive for better service at all levels of the market: Given the present market structure, there is no incentive for the publicly owned OMCs to provide better service. Under a deregulated environment, the industry players would have to compete against each other for customers, and consequently, returns on their investments. The threat of new entrants and loss of market share would also provide incentive for better service and quality of the petroleum products. Additionally, with the deregulation of the industry backed by prudential regulations, suppliers will try and avoid malpractices, such as violating environmental laws, providing adulterated fuel products, or under filling LPG cylinders, not only because of presence of regulators but also owing to competition. In a deregulated market, the rules implementing the law, for instance, would require petrol stations to provide price boards in conspicuous places so that the consumers will know how much the prices are. A supplier that is found guilty of violating the regulations and safety standards would not only face legal penalties but also get a bad name and lose customers.

Political economy challenges to deregulation: Two issues are of particular strategic importance for the government. First is energy security and maintaining effective supply chain of petroleum products - both domestic and international. The second issue concerns ensuring affordable price and unhindered supply of diesel to farmers for food security. These are valid strategic concerns and have to be addressed when any deregulation is undertaken. Competition and incentives are better policy instruments than state owned monopoly service provider without regards to service quality, cost effectiveness and subject to misuse. Furthermore, the Energy Division of the Ministry of Energy and Power can take actions to ensure that the industry (or a public-private

entity) complies with the minimum strategic storage levels once they are established under an agreed framework separate from commercial inventories.

Environmental and safety standards have to be maintained and enforced when deregulating the petroleum sector: Oil industry inherently carries potential of hazards for the environment and may impact it at different levels: air, water, and soil. The most serious consequence is pollution related hazards. After recovered and transported, crude oil has to go through refining processes in order to be converted into products that hold commercial value. Pollution risk is associated with virtually all stages of oil and gas production, from exploratory activities to transportation and refining. Oil refineries are major polluters, consuming large amounts of water and energy, producing large quantities of wastewater, releasing hazardous gasses to the atmosphere and generating solid waste that are difficult both to treat and dispose of. The distribution of crude and refined hydrocarbons requires a significant infrastructure that typically requires trans-boundary shipments; pipeline, boat or tanker may transport oil and gas. Spillage from distribution can cause contamination of the surrounding area and therefore should be carefully planned. Wastewaters, gas emission, solid wastes and aerosols generated during drilling, production, refining (responsible for most pollution), and transportation amount to over 800 chemicals.

While Bangladesh does not produce crude oil there is condensate that comes as bye-product from natural gas production. But the two key areas where Bangladesh faces environmental challenges are from transportation and refining of the crude oil. With increased private participation at different stages of the oil market supply chain it will be important that the environmental challenges are addressed upfront through strict enforcement of environmental laws. There may be need to revisit the existing laws to fill up any gaps that may exist in the law.

In particular, the government should ensure that it has effective institutions that are capable of enforcing environmental and safety standards. Some of the Bangladeshi agencies responsible for enforcement are:

- *Environment:* The Department of Environment (DOE) should be capable of monitoring and enforcing environmental standards of installations and operations (such as emissions and water contamination). However, it is now the Energy Division, the BPC, the BSTI (Bangladesh Standards and Testing Institute), and the District Administration that are effectively in charge of monitoring and enforcing product specifications. As fuel specifications are tightened, this role becomes increasingly important and needs to be strengthened. Alternatively, in the interest of avoiding conflict of interest, the government may consider delegating this role to the DOE.
- *Safety:* Inspector of Mines/Explosives (Ministry of Industry) should be made more effective in enforcing the safety norms applicable to the industry.

Competition may be challenged from collusion or emergence of a dominant player: The risk of collusion/dominance in the petroleum downstream industry will remain high should there be proper further deregulation in both upstream and downstream markets. Normally, an anti-competition regulator like the proposed Bangladesh Competition Commission (BCC) should carry out the oversight. In the absence of BCC this task could also be taken up by a revamped BEREC with greater autonomy and with necessary strengthening of capacity in this area (notably economists and lawyers focusing on competition issues). Bangladesh already has experience in regulating collusion and monopoly in the telecommunication sector through the Bangladesh Telecom Regulatory Commission (BTRC). The BEREC can learn from this experience (see Box 6).

Condensate refining and pricing a challenge to quality control: The small private refineries are producing different petroleum products for the downstream market. Of particular importance are petrol and octane. Given the lower price (Taka 60 per liter) of the refined petrol/octane from condensates, there is ample scope for petrol pumps to adulterate with octane, which is supposed to be of higher quality. This can be the case also with other refined products from condensates. The challenge here is ensuring quality and standards while at the same time ensuring that private participation continues. Prudential regulations on quality assurance and safety standards are very important. Equally important is the need to have strong monitoring and implementation of quality standards.

Box 6: Successful Deregulation of the Bangladesh Telecommunications Sector

The Bangladesh telecommunication sector used to be dominated by one public sector telephone operator the Bangladesh telegraph and Telephone Board (BTTB). In early 2000 the government decided to deregulate the telecoms industry and started issuing licenses to private suppliers in 2004. In July 2008 the BTTB was converted to a public limited company and renamed the Bangladesh Telecommunications Company Limited (BTCL). To stimulate private investment, the government then separated policy making from regulatory oversight (which were both in the Telecommunication Ministry) and set up the Bangladesh Telecommunications Regulatory Commission (BTRC) as the regulator. This changed the structure of the telecommunication sector with both public sector entity and new private sector entrants operating in a competitive environment. The BTRC introduced transparent licensing regime, allocation of spectrum, interconnection regime and put in place standards for setting of tariffs. Private investments in cellphone services became a major source of FDI and the stiff competition resulted in fast drop in call rates and other services benefitting the consumer. BTCL also had to take a license after converting to a public limited company. BTRC has competent and quality staff and has earned the respect of the private providers. It has been able to regulate collusion and anomalies in providing services as stipulated in the license.

Possible Path to Oil Market Reforms

Over time, international oil markets have evolved significantly and competitive markets have emerged even in developing countries that are setting internationally accepted prices for crude and refined products. As noted in Mayorga-Alba (1995), in many developing countries structural reform of petroleum markets has become a critical component of macroeconomic liberalization

policies. The role of the government in the petroleum sector is being redefined, and markets are being deregulated (i.e., state intervention such as special treatments of state-owned oil companies, price controls, and restrictions to trade are being removed, and monopolies are being broken up). Increasingly the private sector is participating in more competitive petroleum market.

As discussed earlier, there has also been some deregulation in Bangladesh, and as a result structural adjustments have slowly been brought in different segments of the petroleum sector. However, the extent of deregulation is small. The special treatment of the state owned enterprises (SOEs) remain in all segments and the import of all fuel other than furnace oil remains exclusively in the hands of BPC, with government setting prices. Moving forward, some of the broad lessons emerging from the experiences of successful oil market deregulation in developing countries that can inform the oil market deregulation strategy in Bangladesh are as follows:

Ensuring correct price-signals: Pricing reforms are essential to ensure successful market deregulation. Without proper incentives through sound pricing policies, deregulation will not attract private investment. In addition, downstream taxation must not differentiate between local and foreign supplies or between fuels.

Introduce prudential regulations: Prudential regulations need to be put in place along with the following principles:

- Policy formulation responsibilities and regulatory functions need to be assigned clearly to different agencies.
- Barriers to enter the local market need to be removed.
- Open access needs to be introduced to offset monopolistic facilities (such as marine terminals, storage facilities, and pipelines) through nondiscriminatory tariffs.
- Quality standards need to be set for products that take into account the market characteristics and maximize the number of supply sources.
- Environmental and safety standards must be well defined and monitored for compliance.

Create conditions for competition: It takes time - depending on the location of the country, the size of its market, and the overall macroeconomic program - to create the minimal conditions for competition. It also takes time for a market to react to new competitive conditions. During the transition, the following features are important:

- A certain number of players must be ready to operate (the number depends on the size of the market);
- Relations with private companies need to be handled sensitively by the government. Qualified operators should prove their financial and technical capacity, be liable for environmental and safety regulations, and keep a minimum security stock; and
- A regulatory entity must be established to monitor the market and to react rapidly to any

deterioration of product quality or noncompetitive behavior.

Reduce oil price volatility through cost reduction and demand management: Many countries have used fuel pricing systems to fully or partially prevent exposure of households and businesses to oil price volatility, but volatility still affected those countries (IISD, 2015). The strategy used was simply to shift risk from businesses and households onto the government budget, but without reducing the risks. The IISD report points out that costs can be reduced in two ways: lowering the overall cost of fuel in the country by ensuring that the price components related to processing, distribution and retail systems are as efficient as possible; and reducing the amount of fuel that consumers and businesses require for an average unit of economic activity or consumption, through energy efficiency, conservation or diversification. Thus, more effective strategies should focus on reducing the costs in the fuel supply system, thereby reducing the absolute cost of fuel sold domestically at any given international market price; reducing energy demand by promoting efficiency and more rational consumption, which will reduce the importance of fuel prices on household and business budgets; and finally managing the impacts of volatility after they take place, targeting assistance to help vulnerable groups cope.

Suggested Specific Recommendations for Oil Market Deregulation

The following are some specific recommendations for possible implementation of oil market deregulation in Bangladesh:

- i. Deregulate all segments of the oil market to allow private investment and competition. Provide a level playing field by reducing the monopoly hold of BPC in both upstream and downstream segments of petroleum trade and processing that will incentivize other globally well-known petroleum brands to invest in petroleum infrastructure, storage, pipelines, transportation, and at retail levels
- ii. Make BEREC the effective regulator of the energy sector including oil that would regulate any monopolistic behavior but at the same time allow prices to be market determined (something in line with the practice in the mobile telephone sector).
- iii. Zoning laws and environmental and other safety standard for setting up petroleum infrastructure needs to be in place and enforced.
- iv. A transparent open access regime for terminals, storage, and pipelines be implemented to facilitate entry, and to enhance competition – there is already some private sector participation in these areas.
- v. Special steps be taken to introduce competition in the transportation of petroleum products, with long-term plans developed for handling redundant road transport fleet keeping the social ramifications into account
- vi. Help reduce cost of fuel in the country by ensuring that the price components related to processing, distribution and retail systems are as efficient as possible; and reducing the amount of fuel that consumers and businesses require for an average unit of economic

- activity or consumption, through energy efficiency, conservation or diversification.
- vii. Establish product quality standards that should be posted in retail outlets and monitored by the government.
 - viii. Over the longer term, let market competition ensure that prices are competitive and that prices at pump-head at retail level actually reflect quality and standard of the petroleum product sold – there should be option for the discriminating customer;

This is undoubtedly a challenging agenda given the political economy concerns and strong vested interests (Overland, 2010). Very likely, the reform will face opposition from consumers as well from BPC and subsidiaries. But once implemented it can be expected to provide many benefits to consumers, the government and the economy. The positive supply response to limited deregulation in Bangladesh is one indication of this. The successful deregulation experiences in India and Philippines are another very reassuring example of this conclusion. Reforms require time, given in particular the complexity of the issues, the need to appease stakeholders and the necessity to secure broad ownership of the program at the levels of both the government and general public. To facilitate this, the proposed reforms should be explained and widely discussed and stakeholders should be given an opportunity to air their views so that legitimate concerns can be addressed. Given the considerable benefits the reform program will provide, it is well worth the challenge.

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