# CHAPTER 9: INFRASTRUCTURE AND GROWTH - A FOCUS ON POWER AND TRADE FACILITATION

9.1 Infrastructure bottlenecks related to power and trade facilitation (ports and transportation) are severe in Bangladesh and place a major (and growing) drag on its economic performance. Only about 35 percent of the population – four-fifths of urban population and one-fifth of rural population – has access to network power, and load shedding to those fortunate enough to have access is rapidly increasing. Firm-level surveys consistently reveal access to power as being among the top obstacles to investment. Trade facilitation, critical for export competitiveness, is also not faring well. For one, Chittagong port, which handles nearly 85 percent of the country's merchandise trade, is plagued by labor problems, poor management, and lack of equipment. Moreover, transport networks connecting the ports with hinterland are underdeveloped and beset with logistical problems that impose significant costs on exporting and importing firms. This chapter presents an overview of these two infrastructure areas critical to sustained good growth in Bangladesh, and outlines a practical reform strategy for each.

## I. Power Sector: Weak Governance, Poor Outcomes

### Introduction

9.2 ***Political economy factors have caused power to be chronically under-priced in Bangladesh, contributing to supply shortfalls for well over a decade***. Unreliable power supply forces Bangladeshi industry to operate back-up generation, which, in most cases, is run on natural gas that is also heavily under-priced. Even then, it is estimated that firms pay up to 50 percent more for power they themselves generate compared to buying it off the public system grid, which undercuts their global competitiveness. Switching between public grid and own generation due to supply cuts is also not seamless – disruptions in power supply result in significant productivity losses in the manufacturing sector, as shown in **Chapter 1**. Moreover, this coping strategy may have also contributed to the concentration of industry in the Dhaka area, where gas is more readily available than, say, in the port city of Chittagong.

9.3 ***The de facto policy of using the country's limited gas supplies to offset power shortages, unless corrected, is likely to prove fatally flawed***. Bangladesh is running out of natural gas, for commercial rather than geologic reasons; projections show that without significant power and gas sector reforms the country can experience major gas shortages as early as the next decade.

9.4 ***Recent government-commissioned studies indicate that new investment of US$1.5 billion may be needed annually to develop the gas and power sectors.*** Clearly, the public sector is not in a position to undertake investment of this magnitude. Attracting large-scale private investment in gas exploration and production and in gas-fired power generation will be key. To achieve that, it would be important to:

- raise power tariffs – although in phases to give consumers time to adjust – and encourage further efficiency gains to enhance the sector's self-financing capacity;
- urgently address corruption problems plaguing the power sector and tighten its governance;
- fill any remaining investment gaps (not covered by private investment) with donor financing and/or budget support; and
- take steps to manage demand growth better, primarily through more efficient pricing.

Although not particularly controversial, these measures appear to be somewhat at odds with the political economy realities in Bangladesh. Nonetheless, the economic toll from failure to reform the energy sector is likely to be steep and can be considered among the main risks to the achievement of the 7 percent plus GDP growth target set by the Government in its Poverty Reduction Strategy (PRS).[202]

### I.1. Overview of Power Sector Trends and Issues

9.5 ***Electricity consumption and generation remain quite low in Bangladesh, despite rapid growth since independence.*** Bangladesh's per-capita electricity consumption of 160kwh in 2005 (**Figure 9.1**) was among the lowest in the world. This is despite the fact that electricity generation has grown twenty-fold since independence (from under 1,000 GWh per annum to over 20,000 GWh), compared with the three-and-a-half fold increase in the country's real GDP. Installed capacity has grown to about 5,350 MW, of which 1,260MW is privately owned and operated. Largely because of unreliable state-owned power plants, it has been difficult to generate more than 3,700 MW at any given time (**Figure 9.2**). Growth in both industrial and residential electricity sales has been strong, driven in large part by the success of the country's RMG sector and also by the rapid expansion of the Rural Electricity Boards's (REB's) household customer base. The result is a customer base that is dominated by these two categories, accounting for about 85 percent of total sales (**Figure 9.3**).

**Figure 9: 1: Electricity Cons. in 2005 (kwh per capita)**

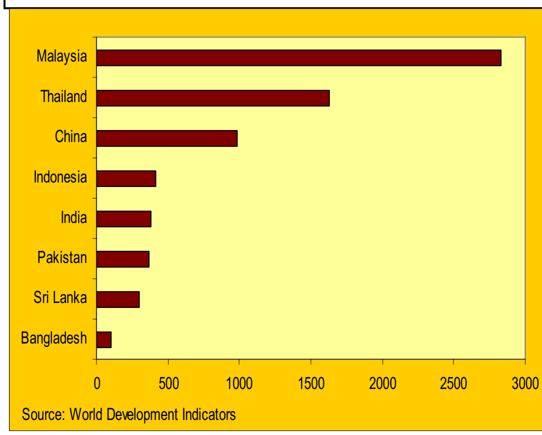
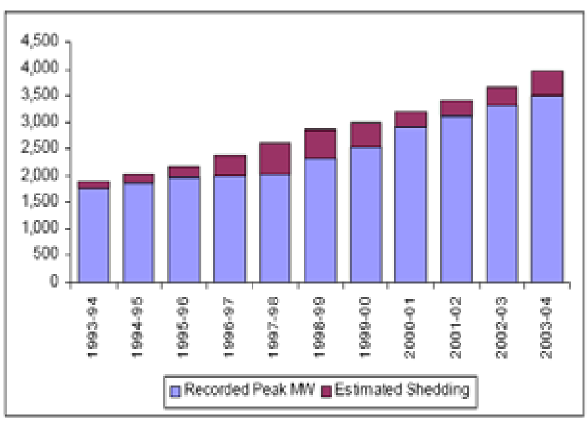
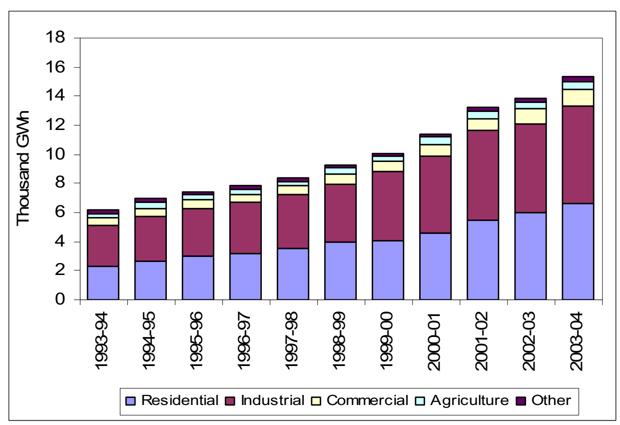



**Figure 9.2: Installed Capacity and Available Supply**




Source: BPDB; Nexant

**Figure 9.3: Electricity Sales Trends by Customer Type**




*Source: BPDB/Nexant. Captive power not included here*

9.6 ***Electricity demand, which has grown even more rapidly than supply, is fairly concentrated geographically, with Dhaka region alone accounting for 47 percent of national demand in 2003***. The Southern region, including Chittagong, accounts for another 20 percent.

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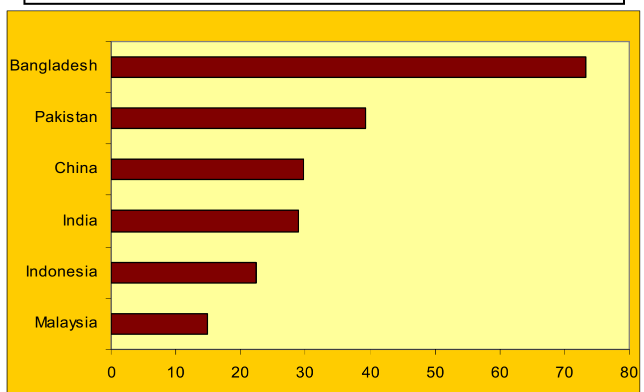
202 *Unlocking the Potential: National Strategy for Accelerated Poverty Reduction*. Government of People's Republic of Bangladesh, 2005.

The rest is fairly evenly split among the western, northwestern, and central zones. Most generation plants are also located close to Dhaka, with smaller plants near the gas fields or other load centers: approximately 70 percent of overall transmission capacity is in the Dhaka region. Majority of generation plants (about 85 percent) are gas-fired generation, with the balance comprised of heavy oil, diesel, hydro, and coal.

9.7 ***The rate of expansion of electricity generation and access though significant has proven thoroughly insufficient relative to the country's growing needs.*** It is estimated that in FY05 only about 35 percent of the population – four-fifths of urban population and one-fifth of rural population – had access to network power. This is considerably better than the 5-6 percent coverage rate a decade ago but still low in comparison with achievements in South and East Asia: for example, in 2005, the estimated connection rates in India, Pakistan, and Sri Lanka were 56, 60, and 64 percent, respectively. Moreover, load shedding – the practice of cutting off customers during periods of peak demand – is at historic highs and growing fast, both in terms of the percentage of peak demand that cannot be met and in terms of the total volume of unserved demand. While peak demand exceeds 5,000 MW, the country has experienced load shedding during peak times of as much as 2,800 MW. An exacerbating factors is the lack of reliability of the generating plants because of poor maintenance. In September, 2006, for example, as many as 20 generating units, with nearly 2,000 MW of capacity, were out of service.

**Figure 9.4: Percentage of Managers Ranking Power Shortages as a Major Constraint**




Source: Investment Climate Assessment of Bangladesh: WB and BEI

9.8 ***The 2003 Investment Climate Assessment confirms the concern about power at the firm level.***[203] The average firm interviewed experienced power losses for 2 of every 3 days in a calendar year, versus 1 in 5 days in the region as a whole. This necessitated reliance on expensive captive power generation: 71 percent of firms surveyed reported that they shared or owned a generator (versus 56 percent of firms in the region), which added to their electricity costs by an estimated 50 percent. Electricity supply easily topped the list of "major or severe obstacle" with 73 percent of firms citing it as a major obstacle to investment (**Figure 9.4**), versus 38 percent in the region as a whole. Lack of access to power is a lot more constraining for rural enterprises. A recent survey found only 32 percent of rural firms with access to electricity compared to 60 percent in urban areas.[204] For those fortunate enough to have a utility connection, reliability is a major issue—power outages and surges are all too frequent. This again affects the rural enterprises more, since only 1.8 percent of them own a generator.[205]

9.9 ***Predictably, the growing power shortages hit the economy hard***. Evidence in **Chapter 1** shows that productivity of manufacturing firms is seriously impaired by power supply disruptions. The developing power crisis also adversely affects agriculture production: growing power shortages hurt irrigation, as irrigation pumps run mainly on power. Additionally, power voltage fluctuations also often cause irrigation pumps to go out of order.[206, 207]

[203] *Investment Climate Assessment Survey,* World Bank and Bangladesh Enterprise Institute, 2003.
[204] *Promoting the Rural Non-Farm Sector in Bangladesh,* World Bank, 2004.
[205] *Ibid.*
[206] *The Daily Star*, February 16, 2006.

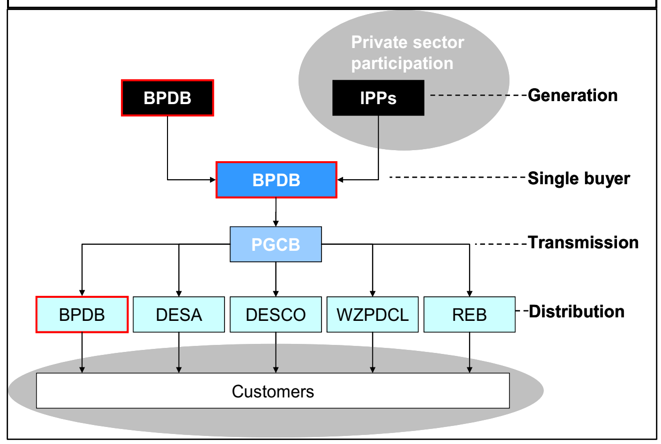
9.10 ***Moving ahead, the policy priorities of the sector would need to focus on implementing commercial and regulatory reforms, including price adjustments, and mobilizing investment***. With the help of international consultants, the Government completed three important studies in 2006 – the Power Sector Master Plan, the Gas Sector Master Plan, and the Power Sector Financial Restructuring and Recovery Plan. These studies indicate a need for about US$1.5 billion in new investment in the sector every year going forward to pay for natural gas exploration, production and transportation, and for power sector generation, transmission, and distribution assets. The state-owned firms in these sectors are in no position to self-finance this investment requirement (or any significant part of it), and attracting private investment in each of these areas will be crucial.

## I.2. Power Sector Structure and Performance

### Institutional, Ownership and Regulatory Structures

9.11 ***Figure 9.5 illustrates the institutional and ownership structure in the power sector. The sector is essentially operating under four key ownership components***:

**Figure 9. 5: Power Sector Institutional & Ownership**




- The state-owned entities: These are the dominant players, and include the Bangladesh Power Development Board (BPDB), Dhaka Electricity Supply Authority (DESA), Dhaka Electricity Supply Corporation (DESCO), the Power Grid Corporation of Bangladesh (PGCB), and a growing number of corporatized entities in distribution and generation owned by BPDB.
- The Rural Electrification Board (REB), the apex organization for the 70 rural electric cooperatives that have been established. On paper these coops are owned by their customers, but for all practical purposes, the state – particularly the REB and Power Division – controls them.
- Various independent power producers (IPPs), which own one-third, or 1,260 MW, of total generating capacity. These have turned out to be the most reliable source of generation capacity.
- 1,000 MW of private captive generation that is not connected to the main grid.

9.12 ***The industry's ownership and institutional structure has undergone major changes since the 1980s***. BPDB, the largest power sector entity, has been under pressure to restructure for over two decades because of poor performance. The first step of its ongoing transformation was the formation of DESA in the 1980s. This was followed in the 1990s by formation of DESCO out of DESA assets to cover parts of the key Dhaka market, and PGCB out of BPDB transmission assets; and in this decade by moves to create regional distribution companies out of BPDB's remaining distribution assets. This process is expected to result in four new distribution companies: West Zone, Northwest Zone, South Zone, and Central Zone. West Zone, and

[207] Some farmers have resorted to converting their power-run pumps into diesel-run ones, but even those were hurt by problems in getting adequate supply of diesel.

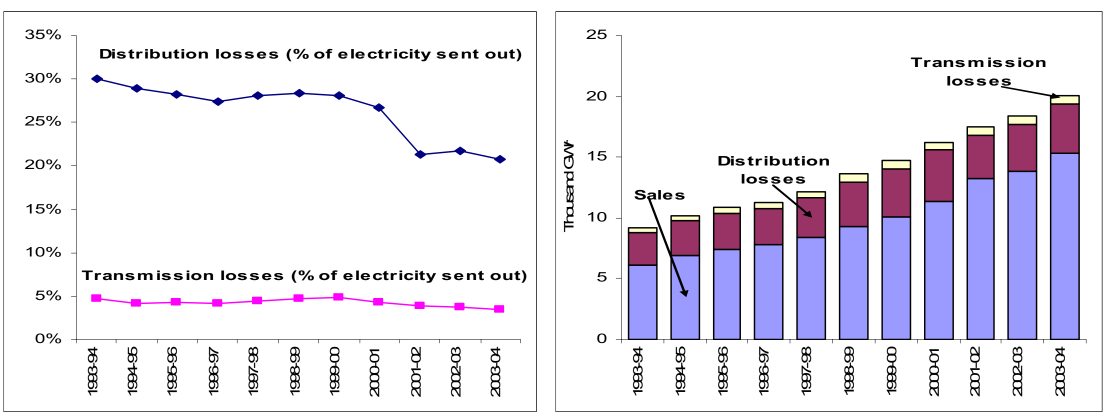
Northwest Zone, along with DESCO have been corporatized. The PGCB was created to handle all of BPDB's transmission assets. More than 9,000 kilometers of distribution lines were transferred from BPDB to the more efficient REB between FY03-06. As a result, the industry structure has noticeably changed in recent years. BPDB now owns about 60 percent of generation, compared with 86 percent in FY99, and just 22 percent of distribution.

9.13 ***On paper, regulatory responsibilities lies with the Bangladesh Energy Regulatory Commission*** (BERC), which is intended to be an independent regulator. In practice, however, BERC is yet to be made fully functional, despite its legal creation in 2003. Policy remains primarily the responsibility of the Power Division of the Ministry of Power, Energy and Mineral Resources. A dedicated management and implementation unit called the Power Cell, in turn, supports the Power Division. Policy and regulatory decisions of any consequence are decided at much higher political levels. ***Any serious reform effort would need to de-politicize the policy-making and regulatory processes***.

**Operational and Financial Performances of the Sector**

9.14 ***The power sector suffers from weak operational and financial performances,*** a***lthough recent trends are encouraging***. Distribution losses (20 percent) and transmission losses (3.5 percent) are estimated to be twice the best practice level (in a developing country context) of around 12 percent, (**Figure 9.6**). Two important factors have contributed to the recent improvements. First, the creation of DESCO out of DESA assets led directly to lower distribution losses in parts of the key Dhaka market. Second, the transfer of certain BPDB rural distribution lines to various cooperatives also produced significant loss reduction, due to the generally better performance of REB.

**Figure 9.6: Operational Performance of the Power Sector**




*Source: BPDB/Nexant; Net generation requirement = sales + distribution losses + transmission losses*

9.15 ***The financial performance of the sector has suffered on account of the poor cost recovery.*** Transmission and distribution losses are exacerbated by a low bill payment rate and a high electricity theft rate, especially for DESA, and by retail electricity tariffs that have not kept pace with costs. Over 20 percent of delivered electricity to retail customers is not paid for, although this is an improvement over the 28 percent loss is 2002 (**Table 9.1**). Moreover, whilst the average cost of electricity supply has increased consistently since 2002, the average billing charges have not kept up (**Table 9.2**). Poor accounting practices, resulting in delays in finalizing accounts and audits, overvaluation of assets, underestimation of expenses and inadequate provision for bad debts further add to the financial woes of the sector. The combined effect of these distortions is that the power sector currently has long and short term liabilities of over Tk

250 billion (about US$ 3.7 billion, or 6 percent of GDP), and approximately TK 70 billion of these is not being serviced by sector.

*Table 9.1: Collection Rates*

| Collection/import ratio | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 (e) |
|---|---|---|---|---|---|
| Retail customers | 72% | 77% | 79% | 78% | 78% |
| Overall | 70% | 83% | 87% | 97% | 92% |

Source: BPDB (est. for FY2006)

*Table 9.2 Average Costs and Billing Rates*

| | 2002-03 | 2003-04 | 2004-05 | 2005-06 (e) |
|---|---|---|---|---|
| Average supply cost (Taka/kWh) | 2.52 | 2.54 | 2.63 | 2.73 |
| Average billing rate (Taka/kWh) | 2.45 | 2.40 | 2.27 | 2.29 |

Source: BPDB (est. for FY2006)

9.16 ***Within the sector, there is considerable heterogeneity in the financial performances of the various distribution companies. While the BPDB faces a fragile financial position, some other public sector entities are faring far better.*** These disparities arise from differences in customer mix, density, and service costs. For a variety of political economy reasons, Bangladesh maintains two tariff structures: one for DESA, DESCO, and BPDB (including West Zone) areas, and another one for the REB cooperatives. While the cooperatives charge slightly more than the others, their costs are also typically higher. Thus, DESCO and nine out of the 70 coops make an adequate distribution margin, while others, with higher costs and less favorable customer mixes, are saddled with significant losses. BPDB's financial situation is complicated by the authorities' reluctance to pass-through fuel and exchange rate related cost increases to distribution companies. As it is, these costs – which mainly affect BPDB's generation business and its IPP purchases – are absorbed entirely by BPDB. While there is a pass-through mechanism on paper, the Government has not followed it. It did implement, however, a 5 percent increase in urban retail tariff and 10 percent increase in bulk tariff in March 2007, the first such increase since September 2003. As a result, BPDB has gone from a thin operating profit of Tk 1.8-billion in FY04 to an operating loss of Tk 3-billion in FY05, and is on course for an operating loss of about Tk 10 billion in FY07.

## I.3. Energy Security, the Political Economy, and the Growth Challenge

9.17 ***There is fairly compelling evidence that economic development and improvements in energy supply go hand in hand***. Of course, power plants alone do not spur economic growth: a conducive overall investment climate is essential for that. Studies of capital investment in India and Nigeria have shown that as much as 30 percent of overall capital expenditure in some industries is attributable to the cost of self-provision of power. However, shortage of energy supply can, and often times does, act as a bottleneck to economic expansion. The causality, therefore, runs both ways – economic growth spurs demand for energy, while provision of energy can support a higher growth trajectory, at least over the short term.[208] **Chapter 1** of this report showed firm-level evidence that power cuts and firm productivity are negatively correlated in Bangladesh.

[208] For example, the bi-directional relationship between growth and energy is shown in the case of Taiwan, Thailand and Sri Lanka in Risako and Hope (2001).

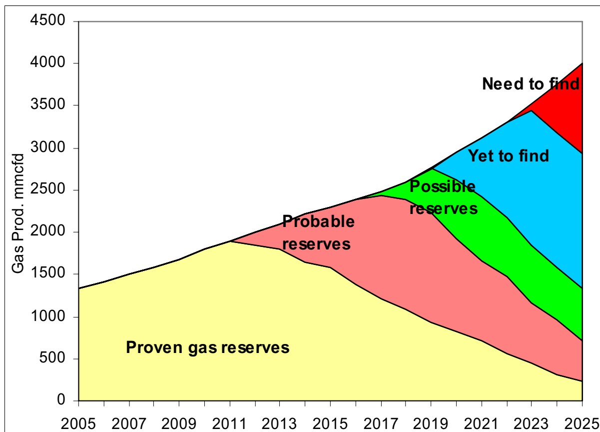
9.18 ***Bangladeshi authorities, no doubt, comprehend the economic (and social) significance of providing reliable energy (especially power). Their approach, unfortunately, has been rather ad hoc and often driven by political considerations***. This is exemplified most by the failure to attract IPPs since the late 1990s and by the (de-facto) policy of supplying subsidized natural gas for private captive generation to offset power supply shortages.

9.19 ***The IPP program worked well in the 1990s, but since then GoB has failed to close a deal***. Plants have been tendered and awarded but then cancelled due to questions about whether rules were followed. Underlying this failure is alleged interference in the technical evaluations by vested interests and rumors about particular parties having been chosen for political reasons. This atmosphere puts off legitimate investors and attracts those who can work the system, which in Bangladesh's relatively open polity ultimately results in controversy and aborted deals. Potential investors are also put off by the BDPB's financial problems and the resulting problems in meeting its financial obligations.

9.20 ***Part of the Government's response to power shortages has been increasing the supply of natural gas, at highly subsidized rates*** (of just over US$2-mcf for industry, roughly equivalent to a US$12 barrel of oil) ***and with scant regard to the sustainability and costs of such policy stance***. As a result, captive generation, most of it gas-fired and most of it used for back-up, adds up to about 1,200 MW and just about covers the industry demand.[209, 210] The resulting demand for natural gas is sometimes so strong in the evenings (peak electricity hours) that it causes substantial pressure drops in the natural gas system which result in an effective cut in generation capacity, further exacerbating load shedding.

9.21 ***In an apparent effort to make up for failures in electricity supply, Bangladesh is, therefore, running down its limited gas reserves***. This somewhat bears similarities to hydrocarbon-rich countries, many of which put low-cost provision of energy at the core of their growth strategies: a tack that typically backfires in the end.[211] The risks, of course, are even higher for a Bangladesh, which does not have significant proven hydrocarbon reserves. In fact, under certain assumptions, production from proven reserves would be insufficient to meet demand as early as the beginning of the next decade – although the scenario envisaged here assumes that significant new gas-fired capacity coming on-line by that time (**Figure 9.7**).[212]

**Figure 9.7: Predicted Demand-Supply of Natural Gas**




Source: Wood MacKenzie, consultants for the Bangladesh Gas Master Plan

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[209] The captive generation figure excludes very small, inefficient units that run on expensive liquid fuels.

[210] Anecdotal evidence further suggests that some companies are tapping directly into feeders and bypassing their gas meters (official statistics also show some mismatches between gas produced, transported, lost, and billed).

[211] Salman Ghouri, in "Correlation between energy usage and the rate of economic development" (OPEC Review, March 2006) concludes that wealth creation in G-7 countries is directly associated with efficient use of energy, in contrast with the typically inefficient energy consumption and slow growth in OPEC countries.

[212] Given current paralysis in finalizing new deals, demand from the power sector is likely to be lower than envisaged under this scenario, which means that the shortages would also develop more slowly.

9.22 ***In addition to power supply shortages, there is further evidence that energy use in Bangladesh is also relatively inefficient***. Analytical work for the gas and power sector master plans shows that in recent years electricity consumption has grown at 1.5 times the rate of GDP growth. This ratio would not have been atypical in the 1970s and 1980s, but is now. Developed countries and even many middle-income countries have since attained ratios close to 1:1. Given the acute power supply shortages in the Bangladesh and the tremendous pressures on its limited gas reserves, it is clear that increased efficiency in energy use would bring considerable benefits. While Bangladesh can move only gradually to the ratio of 1:1, global experience suggests that more efficient pricing would help accelerate the process.

9.23 ***At the very heart of many of the sector's shortcomings is the political economy of energy pricing***. In common with many other developing countries, Bangladeshi authorities, unable to provide adequate services, have deflected political pressures by maintaining artificially low tariffs. Weighted average gas prices are set at less than half their economic value (estimated to be close to US$5-mcf at current global energy prices). And power plants only pay about US$1-mcf, so the subsidy is even greater for network power consumers. Similarly, average retail power tariffs are around 3.4 cents/kWh, quite low by international standards and certainly insufficient to cover costs. Annual subsidies from BPDB to its bulk buyers add up to about US$120 million. Additionally, about US$1 billion in accumulated power sector debt is not being serviced by the power sector entities; since much of this is owed to donors, it is being paid by the government. An important consequence of under-pricing of power, therefore, is significant direct and quasi-fiscal support to the sector, crowding out productive public sector expenditure in the process. This, of course, in addition to retarding expansion of generation capacity – by public entities because of their weak financial position and by private sector because of insufficient returns on offer – and the mentioned rapid depletion of the precious gas reserves.

### I.4. Reform Agenda and Prospects

9.24 ***The Government, in its 2000 Vision Statement and Policy Statement on power sector reforms, has set forth reasonable overall objectives (Box 9.1)***. The existing set of policies, laws, and regulations in place, if implemented well, also appear sufficient. Unfortunately, the implementation of these is so off-track and sector institutions so weak in managerial and technical capacity that progress on the Vision Statement objectives has been frustratingly slow.

***Box 9.1: Vision Statement And Policy Statement: Formal Objectives Of Power Sector Reform***

- *Bring entire country under electricity service by the year 2020*
- *Make the power sector financially viable and able to facilitate economic growth*
- *Increase the sector's efficiency*
- *Make the sector commercially oriented*
- *Improve the reliability and quality of electricity supply*
- *Use natural gas as the primary fuel for electricity generation and explore the option of exporting power to augment and diversify foreign exchange earnings*
- *Increase private sector participation to mobilize finance*
- *Ensure reasonable and affordable price for electricity by pursuing least cost options*
- *Promote competition among various entities.*

9.25 ***The Government's implementation strategy, to get the sector back on track, is laid out in its recently adopted three-year "road map" (see Box 9.2)***. However, progress thus far has been undermined by the lack of prioritization and the absence of clear political support; already the Government is several months into the road map period, and almost none of the milestones set for the period have been achieved.

9.26 The critical issue of efficient pricing (not even directly mentioned in the road map) needs to be addressed as a priority item in any credible strategy. Despite the significant political resistance, the way forward on pricing must involve:

- explicit commitment to cost-reflective pricing in power and to economic costing of natural gas, including reinstatement of the pricing formula that ensures automatic pass-through of future fuel and foreign exchange related costs;
- adoption of a credible timeline to increase power and gas prices to full cost recovery levels, including a fair return on investment for the entities, full ability to service debt (assuming debt restructuring, as suggest in the draft financial restructuring plan), and increased ability to self-finance investment.
- hard-wiring of budget support during the transition to full price adjustment, so that utilities can adequately plan and, importantly, meet the counterpart financing requirements of donors.

9.27 ***Over the longer run, turning around the power sector's performance will require a much stronger commitment to strengthening governance in the sector***. Corruption problems have been most visible in the generation procurement process, resulting in expensive and unreliable plants. Just as striking have been the missed opportunities – instances where the procurement process was stymied due to lack of transparency. It is estimated that at least 2,000 MW of planned IPP capacity, has fallen through as a result at various negotiation stages.

***Box 9.2: GoB's Three Year Road Map for Power Sector Reform: 2006-08***

- Evaluation of options for corporatization of BPDB.
- The existing power generation stations are to be converted into profit centers for eventual conversion into profit centers on an individual or on a cluster basis. Ownership of the corporatized entities shall be retained by a BPDB holding. The corporatization process shall be completed in FY2007-08.
- New generation will be established through a mix of private and public sources, whereby the employment of private sector resources shall be encouraged.
- Transmission will continue to be operated by PGCB as a system operator and wheeler of electricity. The development of business and financial plans shall be pursued as well as the establishment of PTAs. The demarcation between generation, transmission and distribution shall be finalized.
- The BPDB distribution shall be converted in a number of Distribution Companies – the BPDB Holding shall retain ownership. Up to date the distribution circles have been converted in Strategic Business Units (SBUs) which shall continue their function.
    - West Zone Distribution Company has been corporatized and started full commercial operation in April 2005 – commercial issues related to the transfer of employees need to be resolved in FY 2005-06;
- North Zone Distribution Company shall become fully operational by FY2006-07;
- Preparatory works for the South Zone Distribution Company and South Zone Distribution Company shall start and shall become fully operational in FY2006-07 and FY 2007-08 respectively.
- Corporatization of DESA will start in FY2005-06 and full commercial operation is to be completed in FY 2007-08.
- Finalization of Captive Power Policy by FY2005-06
- Preparation of Comprehensive Investment Plan, including Generation Financing Strategy
- DESCO shall continue its commercial operation and improve its performance.
- BPDB shall continue to operate as the Single Buyer – the establishment of a multiple buyer /seller market is not envisaged as long as the market has not reached a mature and staple condition. The establishment of a Single Buyer as an independent entity shall be achieved in the FY2007-08.
- The Regulatory Commission has been enacted under the Bangladesh Energy Regulatory Commission Act of March 2003. It will commence to be fully functional in June 2006 which will include the appointment of all the members and the staff and the issuance of a tariff order.

9.28 ***Tackling the symptom of pervasive corruption will no doubt require some bold steps***. In generation procurement, appointment of a credible and internationally reputed transaction advisor would help address the worst of the transparency issues. To address corruption in service delivery and in network expansion, it would be important to fully commercialize the utility companies and fully support and empower their managers. That will mean de-politicizing the rural electrification program, and putting significant law and order resources behind managers who seek to enforce payment from customers (including cutting off delinquent customers and those stealing power and gas).

9.29 ***Strong measures on pricing and corruption would create an environment in which the Government can then look to attract (much needed) private investment into the energy sector.*** An estimated US$8 billion worth of investment would be needed into natural gas exploration and production through the year 2025 according to the gas sector master plan, which is unlikely to materialize with the current pricing framework. In addition, significant investment is also needed into new, primarily gas-fired power generation capacity. Most reasonable forecasts suggest that

Bangladesh would need at least one utility-scale plant in the 500 to 700 MW range every year for the foreseeable future. As long as gas is available, it would remain the least-cost fuel for power generation even if priced at economic levels. This bodes well as it ensures affordable power going forward. Failure to revitalize gas exploration and production and build reserves, however, would inevitably and fairly quickly push Bangladesh into the more expense and environmentally damaging coal-fired power plants.

9.30 ***These mentioned key reform areas constitute a clear set of priorities and will also create the space for other, complementary reforms***. Corporatization and regulatory institutional strengthening would be meaningful and achievable only in a framework of price reform, better governance, and clear investment requirements stemming from gas exploration and production and power generation programs. Similarly for implementing financial restructuring in the sector. Efficient and cost-reflective pricing would also be the cornerstone of implementing the Financial Recovery and Restructuring Plan (FRP), prepared by a group of reputable international consultants and recently adopted in principle by the Government. The first-phase steps of the FRP would include reconciliation of inter-company arrears, restructuring of balance sheets, and analytical inputs for determining future tariff increases. Financial restructuring along with measures to reduce technical loss and improve collections would also allow a more gradual adjustment of tariffs – something of considerable political appeal.

## II. Trade Facilitation and Growth

9.31 ***Trade facilitation, critical for export competitiveness, involves procedures at the port for import-export transactions, efficiency of transport networks to bring raw materials from and finished goods to ports, logistics services, and implementation of food safety and quality standards.*** Seaport infrastructure is an especially significant component of trade facilitation in Bangladesh. Chittagong Port is the country's main seaport, handling about 80-85 percent of manufacturing trade flows, including the bulk of ready-made garments (RMGs), and the cargo traffic at the port is growing fast.[213] Cargo handled at the port increased from c.16 million tons in 2000 to c.22 million tons in 2004, while the number of vessels handled each year increased from 1,462 to 1,764.[214]

9.32 ***It is somewhat disconcerting then that trade facilitation is assessed to be a major bottleneck to Bangladesh's export competitiveness***.[215] It is becoming an even more critical factor as Bangladesh's exposure to competition in global markets is increasing, including for the critically important RMGs. With tightening margins and ever shrinking order cycles, the costs to Bangladesh's external competitiveness from these distortions are mounting and it is essential that they be tackled.

### II.1. Overview of Trade Facilitation in Bangladesh

9.33 ***Customs services in Bangladesh have undergone significant reforms in recent years***. Key measures have included:

- Introduction of a Simplified Administrative Document following the UN key layout;
- expanded use of the Automatic System for Customs Data (ASYCUDA++);

[213] "Improving trade and transport efficiency – understanding the political economy of Chittagong Port" Bangladesh Development Series – paper no. 6. World Bank Office, Dhaka, Dec. 2005.
[214] "Chittagong Port – an overview" Chittagong Port Authority 2004.
[215] *Bangladesh: Growth and Export Competitiveness*, World Bank, 2005.

- mandatory Pre-Shipment Inspection (PSI) for a wide range of non-government imports, helping lower informal payments and average time for clearing cargo – the average time to clear cargo that has proper documentation has fallen from 10 days to five days;
- use of a simplified tariff based on the Harmonized Code (8 digit); and
- red and yellow (but not green) channels in Chittagong, Dhaka internal container depot (ICD) and the Benapole land port.

9.34 Furthermore, the procedure for clearing temporary imports of fiber and fabric and exports of fabric and garments has also been greatly simplified. The number of steps at the import stage was recently reduced by two-third and for the latter by three-fourth, and the number of signatures from over 40 to 8. As a result, clearance times have dropped from more than one week to one day for exports and to 1-2 days for imports of raw materials for the production of exports. These outcomes are all the more impressive in light of the absence of computerization of cargo handling activities.

9.35 ***Nonetheless, important inefficiencies remain at the customs. Complex clearance procedures at the ports and customs and the associated high costs – in large part due to delays and rent-seeking – are a major source of concern to firms***. As is common in many other countries, the problems are more severe at the import stage. The documentation that must be provided to customs is lengthy and needs to be submitted in hard copy.[216] Even with the PSI system now in place, customs continues to check 5-10 percent of the shipments that have a CRF (Clean Report of Findings) and up to 100 percent of the packages in these consignments. The mere specter of such an inspection is sufficient to elicit the informal payments linked to the value of the cargo.

9.36 ***Around 85 percent of Bangladesh's trade flows through Chittagong port. Yet various inefficiencies and very high shipping and port costs continue to undermine the country's international competitiveness***. The port ranks among the world's least productive container ports, as elaborated below. In addition, an archaic paper-based terminal management system and document processing system and limited connectivity to the country's highway network add to transportation costs. Survey results suggest that Bangladesh's garments exports could increase by 30 percent if various capacity constraints at the port are addressed.[217]

9.37 ***Additional shipping costs arise from the absence of a deep-sea port***. Because of the relatively small volume of cargo, Bangladesh's imports and exports are transported on feeder vessels between Chittagong and both Singapore/Tanjung Pelapas and Colombo. The transshipment at these ports adds to the time and cost for the port-to-port container shipments. A typical voyage includes five days transit time in each direction, one-day turnaround in the transshipment port and five days turnaround time in Chittagong for a total voyage time of 16 days.

9.38 ***The two major transport corridors that serve Bangladesh's international trade – connecting Dhaka with the Port of Chittagong and with West Bengal in India – are beset with significant logistical problems***. Bangladesh Railways operates a twice-a-day train service in

[216] This should be reduced, however, as the Direct Trader Input (DTI) data entry system operated by the customs agents is fully implemented. At present this system is used only for exports and temporary imports.
[217] www.textileandapparel.com/story/2005/12/8/20246/8014.

each direction between the port of Chittagong and the Dhaka Rail ICD in Kamlapur.[218] The transit time for the 298 km trip is about 8 hours. Despite the high level of demand and potential for growth, Bangladesh Railways has not increased the frequency of its profitable unit train operation. The road connecting Dhaka and Chittagong – a combination of two-lane and divided four-lane segments that is being gradually upgraded to 4-lane – is experiencing an increase in congestion, especially around Narayanganj and Dhaka with transit times of 6-7 hours, implying an average travel speed of 35-40 kmph. Still, because of the limited railroad capacity, the road handles about 83 percent of the container cargo between Dhaka and Chittagong. The trucks plying the route are mostly vans carrying the equivalent of one TEU (up to 15 tons assuming a 10 tons axle load). The vehicle fleet is relatively old and composed primarily of two axle trucks. The travel time between Dhaka and Chittagong is expected to get even worse as congestion in the corridor increases. This congestion is being addressed through donor-funded improvements, but the planning appears to be incremental rather than systematic.

9.39 The West Bengal-Dhaka corridor includes a road route via Petrapole/Benapole and rail routes via Darsana, Rohanpur, Benapole, and, to a lesser extent, Biral. This was a major route for importing Indian fabric and yarn for the Bangladesh garment industry until a ban was imposed on yarn import via this route.[219] The potential for growth in rail traffic, both bulk and container, is considerable but requires lifting of restrictions on cross-border and internal movements. The truck border crossing at Petrapole/Benapole is a major source of delay for imports from India, largely because inefficiencies in logistics service and customs there have gotten institutionalized. The time that cargo remains in the land port depends on the importer and type of cargo, but with the exception of perishables the period is not less than 4 days: most of this time is spent waiting for customs officials.

9.40 ***The airfreight business in Bangladesh is relatively competitive with a number of carriers providing freighter services and all of the passenger services carrying belly cargo***. Biman has the exclusive franchise for cargo handling operations at the airport, but its charges are reasonable even if its equipment is limited and service unreliable. Airfreight charges are high compared to ocean freight rates but not significantly higher for the neighboring countries. Biman Airlines offers low freight rates relative to its competitors and is able to attract marginal traffic. However, most exporters are willing to pay a premium for the more reliable service and integrated logistics provided by the larger international carriers, but these have restricted access to Bangladesh. As a result, there is large unmet demand for reliable airfreight service mostly from the exporters who are late in shipping their goods and must resort to airfreight in order to meet contracted delivery dates.

### II.2. Chittagong Port – a tragedy of the commons

"*Chittagong port is the noose which is tightening around our neck", Dr. Mohammad Yunus, 2006 Nobel Peace Prize winner and founder of Grameen Bank.*

9.41 ***The Chittagong Port ranks among the world's least productive container ports, suffering from major institutional weaknesses as well as from the poor state of its physical infrastructure.*** The port ranked 72nd out of 75 ports in the Global Competitiveness Report of 2001-02. Despite an increase in throughput and overall improvement in performance in the past decade, productivity measures remain low relative to comparator countries. Average container

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[218] While on occasions three trains are operated in each direction, this only occurs when the delay for containers waiting in the port exceeds acceptable limits as it is accomplished by canceling a passenger train movement.

[219] The ban was recently removed for 100 percent exporters.

dwell time was reported at 18 days, compared to 10-12 days for other ports in the region.[220] Similarly, the average wait time for a loaded import container was found to be 20-25 days compared with international standards of 4 days for imports and 2-3 days for exports.[221] Another telling indicator is the average time of 110 hours that a vessel needs to spend at berth, a 60 percent improvement over 1999 but still unacceptably high. The port's container terminal handles only 100-105 lifts per berth a day, well below the UNCTAD benchmark of 230 lifts per berth a day. Various studies suggest that container handling costs in Chittagong port are four times higher than in Colombo and twice as high as in Bangkok.

9.42 ***No doubt, many of these performance measures have improved in recent months*** – since January 2007 – in large part because of the crackdown on union activity among dockworkers and retrenchment of about 4,000 workers under the heavily unionized Dock Workers' Management Board (DWMB) that was declared defunct. Many of the retrenched workers have been hired back by the 12 private berth operators asked to takeover port operations in place of the old stevedoring system. According to officials, efficiency at the port has improved by about 30 percent because of these measures.[222] These are welcome improvements in the labor efficiency at the port, although the sustainability of the new structure put in place on an experimental basis remains to be seen.

9.43 ***What is causing the malaise at Chittagong Port? A recent World Bank report[223] argues that Chittagong port is a classic example of the 'tragedy of the commons' in that individual stakeholder interests predominate to the detriment of overall port interests and those of the national economy***. See **Box 9.3** for an understanding of who is who in Chittagong Port. Lack of incentives for those providing port services due to the absence of performance based pay and lack of transparent competition in private service provision contribute to the resistance to change. Moreover, the substantial incomes to workers from speed payments add to the resistance. One estimate shows that bribes and related costs account for about one-eight of the total port-related expenses for imports and about one-tenth for exports, not including duties and taxes.[224] Chittagong Port Authority (CPA), on the other hand, lacks the legal authority to coordinate and steer through a radical reform program. This arrangement significantly, albeit expectedly, lowers the efficiency of port operations and especially reduces its ability to respond to peaks in demand, thereby increasing uncertainty for traders.

9.44 ***The port also suffers from a number of physical constraints:***

- *Inadequate container handling equipment*. Chittagong Port handles about 400,000 containers per year, but only recently has procured fixed container handling equipment. The container ships are the more costly self-sustaining vessels because the port lacks Ship-to-Shore Gantry (SSG) cranes. The on-board container-handling equipment ranges from primitive to reasonably modern depending on the age of the vessel, but overall the vessel productivity is low, handling only 5-6 boxes on average per vessel hour. Typically, a container port acquires a mobile container crane once volumes exceed 25,000 containers or a SSG crane once the volume reaches 50-75,000 containers, and a second SSG before the volume reaches 100,000 containers. To its credit, the Chittagong

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[220] Asian Development Bank, Chittagong Port Trade Facilitation Project
[221] "Improving trade and transport efficiency – understanding the political economy of Chittagong Port" Bangladesh Development Series – paper no. 6. World Bank Office, Dhaka, Dec. 2005.
[222] *New Age*, May 17, 2007.
[223] *ibid*.
[224] *Bangladesh: Growth and Export Competitiveness,* World Bank, 2005.

Port Authority (CPA) recently did procure 4 SSGs, although the current volume would justify another 1-2 such cranes.

- *Ineffective physical organization of the port.* The port lacks an effective and modern logistics tracking system and containers are unstuffed within the port which is inefficient. About 90 percent of the containers that arrive at Chittagong port are unstuffed and shipped as break-bulk in ten-ton trucks even though they are FCLs (Full Container Loads) and should be delivered directly to their destinations or to a customs facility near that destination. There are three main reasons for this practice. First, the interconnecting infrastructure (rail and trucking) is unable to carry the container load for reasons specified below. Second, importers must provide a bank guarantee to remove the container from the port unless shipped to the Dhaka Rail ICD (although the larger freight forwarders can make do with a company guarantee). Third, there are no customs facilities for clearing cargo near where most of the importing production units are located.

- *Weak interconnecting transport infrastructure:* The problems at the port are compounded by the insufficient road and rail infrastructure for fast onward delivery, including and especially along the critical Chittagong-Dhaka corridor. Road transport, which handles bulk of the load, cannot carry containers because of their large size, while movement of containers by rail is slow and greatly constrained by the limited infrastructure

**Box 9.3: Chittagong Port**

It is 3:00 p.m. on the quay and a peak time for unloading the general cargo berths. As far as the eye can see ships are being unloaded, the first 10 with general cargo - timber, bagged sugar, paper, fertilizer, steel. The nearest ships are from India, Burma and China. Beyond view are 6 more berths all unloading containers. Out of sight and along the coast are the specialized berths for bulk goods - oil, grain, cement etc. Unloading the bagged sugar are dock workers, all dressed in sandals and *lungis*. These workers are some of the 4,300 members of the Dock Workers' Management Board (DWMB) scheme. They receive the goods craned down from the ship and load and stack them in the waiting trucks. They are working for the Stevedore, one of 55 Stevedoring companies certified by the Chittagong Port Authority (CPA) to operate in the port. The Stevedore is responsible for unloading and loading ships and is on deck monitoring ship to shore operations. He would much prefer to employ his own workers and use his own equipment but he cannot do this because he must use DWMB workers and CPA equipment and operators.

A fork-lift truck driver dressed in trousers and shirt is one of about 8,500 CPA employees. He moves some of the goods into the nearby shed – they have not cleared customs so they cannot be loaded onto trucks for removal. The man on a motorbike is a Clearing and Forwarding Agent (C&F) representative, one of 2,500 C&F companies licensed by the CPA to operate in the port. He is responsible for clearing goods through customs and for onward delivery to the importer. He is arguing heatedly with a dozen truck drivers who all want to be loaded first. Their colorful Bedford trucks now cut off the narrow road between the quay and the storage sheds making movement impossible. They are some of the 5,000 truck drivers whose owners are responsible for removing 90% of all goods out of and into the port – only about 10% go by rail. A number of security guards, all in uniform and supervising the storage sheds, employees of the CPA, look on.

Half a mile furthers on, in the container terminals, the situation is even more crowded. Several containers, unloaded onto the quay, are being opened for inspection by Customs and, at the same time are being unstuffed and loaded into the waiting trucks. The unstuffing is done by another group of workers – some 30 merchant workers. They are not part of the Dock Workers' Management Board scheme and negotiate rates individually, through their leader (Majhi) with the C&F Agent. There is meant to be a queuing system but this is not apparent. The train that transports containers to the Internal Container Depot (ICD) in Dhaka is trying to pass through the area but trucks are parked across the railway line. The engine driver has his hand on the siren making conversation impossible. All of this appears to take place in an impossibly small space amidst many hundreds of containers stacked in the immediate area.

A Customs official, an Assessor, is checking to see that the goods mentioned in the Bill of Lading are indeed those stored in the container. He is also checking whether the PSI (pre-shipment inspection) certificate that valued the goods at the port of export is accurate for duty assessment purposes. He is talking to one of the C& F agents whose consignment he is examining. The C&F representative has just returned from the Customs building where he had to present paperwork relating to the consignment at 17 different tables.

Why are containers being unstuffed on the quay? The whole idea of containers is that they provide a door to door service? Why do they need to be unstuffed in the port at all? Why is the port so full of containers? Why can't they be stored outside the premium site area of the port? Why is Customs checking the container given that the value of goods has already been certified at the port of export (a service for which Bangladesh Customs pays US$58m annually)?

Answers to these questions lie in an understanding of who is who in Chittagong Port, who makes decisions about what and who is accountable to whom?

*Adapted from "Improving Trade and Transport Efficiency – Understanding the Political Economy of Chittagong Port", Bangladesh Development Series Paper No. 6, The World Bank Office, Dhaka.*

[225] The reform agenda focuses on the Chittagong port, it being the dominant port in Bangladesh with preponderance of background analytical coverage, the malaise affecting other, smaller ports, particularly

## II.3. Reform Agenda to Strengthen Trade Facilitation[225]

9.45 ***There is some evidence that the CPA management is beginning to take up a more proactive role.*** In addition to the earlier mentioned measures to improve labor efficiency and break the hold of union activity, it has introduced some private contractors for operations such as internal container distribution, running of the new road truck terminal, and rail container loading. In a significant move, it has proposed a separate concession arrangement for the operation and management of the new Moorings Container Terminal. This terminal will provide five new dedicated container berths with 22 hectares of back-up land. In fact, the CPA management expects productivity improvements from this arrangement to catalyze institutional reforms in the rest of the port. However, the scope and reach of such institutional innovations and operational practices are still quite limited.

9.46 ***An important challenge is to carry out the requisite policy and institutional reforms at Chittagong port, by letting private service providers be the catalysts, thereby also creating more conducive conditions for much needed investment in the port's physical capacity***. The following measures appear to be key:

- ***Increase the penalties on service providers for creating congestion.*** Stakeholders currently do not face adequate penalties against defaulting actions that reduce the port's overall efficiency –even the limited penalties that are there on paper are not imposed uniformly. For instance, higher charges for container storage at the port would reduce congestion – the current tariff of c.$1.50 per container after 4 days with graduated weekly increase is way too low.[226] Stiffer penalties for congestion caused by stuffing and unstuffing containers on the dockside is another example.
- ***Modernize the container terminal operations, to take advantage of the recently procured SSGs and rubber-tire-gantries***. This measure seems to have the highest immediate pay-off. Effective use of the equipment will involve computerization, restructuring of the workforce, and close interaction with the shipping lines. Such modernization will benefit from the recent measures to engage private berth operators and depoliticize the labor force. These need to be sustained and deepened, and complemented with handover of the port management to an experienced private contractor – initially a management contract could be issued, which could later be converted into a concession.
- ***Improve efficiency of customs clearance processes.*** As noted, a relatively high proportion of imports (up to 10 percent) continue to be inspected by customs despite having in place a PSI system. While the introduction of the ASYCUDA++ system should help improve selectivity, some remaining incentive distortions faced by customs officials need to be tackled. For instance, officials are given monthly revenue targets, which, together with the potential for speed payments, contributes to excess inspection.

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the important Mongla port, is understood to be of a similar nature and, therefore, much of the reform agenda is also be applicable to these.

[226] "Improving trade and transport efficiency – understanding the political economy of Chittagong Port" Bangladesh Development Series – paper no. 6. World Bank Office, Dhaka, Dec. 2005.

[227] As noted in *Bangladesh: Growth and Export Competitiveness*, World Bank, 2005, these reforms, together with strengthening performance of Chittagong port, emerged as the most critical ones in discussions with manufacturers, third-party logistic providers, and Government agencies involved in trade and logistics.

9.47 ***Other, complementary, key reform measures needed to improve trade facilitation include***:[227]

- ***Increase customs bonded facilities, including road-based and inland container depots (ICDs), in the Dhaka region***.
- ***At the land borders, re-engineer all the procedures from a land port to a cross-docking facility with the eventual goal of door-to-door movement of goods crossing the border(s) under bond***.
- ***Improve interconnection transport infrastructure***. In this regard, GoB has prepared an ambitious National Land Transport Policy designed to promote key reforms in the road and railway sectors.[228] Under this plan, a number of initiatives are being supported by the international development (including AsDB, World Bank and JBIC) that should carry the added benefit of improved governance in the sector, creating the basis for increased opportunities for private sector involvement. Reform is already underway in terms of transport connections between Chittagong and Dhaka. In particular, major investment and extensive institutional reforms in the railways sector are being planned, with special emphasis on the Dhaka-Chittagong corridor. Bangladesh can also usefully emulate India in separating container-unit train services from other less profitable and less time-sensitive services and placing them under commercial management. Decision-makers should further consider inland-water transport where there is latent demand or potential demand as traffic volume increases.
- ***Finally, minimize the additional costs and time associated with trucking both Indian and Bangladeshi goods through the Benapole border crossing***. An efficient regime would permit sealed containers or vans to carry imports from India from the border to Dhaka where the cargo would be cleared, using either a trailer exchange or a cross-docking operation. Eventually door-to-door movements by Indian and Bangladeshi trucks should be permitted under a bilateral arrangement that incorporates a regional licensing scheme and payment of a transit fee. Since these improvements are unlikely to materialize in the short term, procedures need to be simplified on both sides of the border.

[228] Government of Bangladesh: National Land Transport Policy (2004).