Draft Final Report

E-Commerce in Bangladesh: Status, Potential and Constraints

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December 2000

A report prepared for JOBS/IRIS Program of USAID. The author gratefully acknowledges comments received from Thierry Van Bastelaer, Catherine Mann, Dewan Alamgir, Asif Khan, Abu Saeed Khan, Tahmina Begum, Shabnam Nadiya and Tonmoy Bashar. The views and analyses in the paper do not necessarily reflect the official position of the IRIS Center, the University of Maryland or that of USAID.

ACRONYMS

ASM	Asian Sources Media Group
B2B	Business-to-Business
B2C	Business-to-Consumers
B2G	Business-to-Government
BB	Bangladesh Bank
BGMEA	Bangladesh Garment Manufacturers and Exporters Association
BTRC	Bangladesh Telecommunications Regulatory Commission
BTTB	Bangladesh Telegraph and Telephone Board
CS	Contract System
DDN	Digital Data Network
DFID	Department For International Development
DI	Data International
DSL	Digital Subscribers Line
e-commerce	Electronic Commerce
EDF	Export Development Fund
EFT	Electronic Fund Transfer
e-mail	Electronic mail
e-market	Electronic Market
FDI	Foreign Direct Investment
GOB	Government of Bangladesh
GSP	Generalized System of Preferences
IDA	International Development Association
IOC	International Oil Companies
IPO	Import Policy Order
IPR	Intellectual Property Rights
IRIS	Center for Institutional Reform and the Informal Sector at the University of Maryland
ISO	International Standards Organization
ISP	Internet Service Provider
IT	Information Technology
ITU	International Telecommunications Union
JOBS	Job Opportunities and Business Support
L/C	Letter of Credit
LCA	Letter of Credit Authorization
LMDS	Local Multi-channel Distribution System
MMDS	Multi-channel, Multi-point Distribution System
MOPT	Ministry of Posts and Telecommunications
NIP	New Industrial Policy
OECD	Organization for Economic Cooperation and Development
OSP	Outside Plant

PATC	Public Administration Training Center
PC	Personal Computer
PDH	Plesiochronous Digital Hierarchy
PIAG	Policy Implementation and Analysis Group
PSI	Pre-shipment Inspection
PTT	Post, Telegraph and Telephone
QS	Quality Standards
RFP	Request For Proposal
RIP	Revised Industrial Policy
RMG	Readymade Garments
SDH	Synchronous Digital Hierarchy
SME	Small and Medium Enterprises
Taka	The currency of Bangladesh. US$ 1=Taka 54 approximately
TRIP	Trade-related Intellectual Property
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
VoIP	Voice over Internet Protocol
VSAT	Very Small Aperture Terminal
WTO	World Trade Organization

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Executive Summary

The Internet has opened up a new horizon for trade and commerce, namely electronic commerce (e-commerce). E-commerce entails the use of the Internet in the marketing, identification, payment and delivery of goods and services. This paper highlights the status, statutes, potential and constraints to e-commerce development in Bangladesh. Both the statutory laws as well as the challenges in implementing them are discussed. Major legal, regulatory and institutional constraints to e-commerce are identified. The paper also lists specific policy changes aimed at bringing improvements to the legal and regulatory environment affecting e-commerce.

Dimensions of E-Commerce

The three dimensions of e-commerce are Business-to-Consumers (B2C), Business-to-Business (B2B) and Business-to-Government (B2G). B2C e-commerce is unlikely to be of much use in the near future in Bangladesh because of low per capita income, a weak infrustructural and legal environment, lack of trust between business and consumers. B2C for cross border trade is also limited by the factors suggested for the domestic front. In addition, non-availability of international credit cards, foreign currency remittance restrictions, delays and informal payments at customs clearance even for small value and quantity items will discourage B2C.

The B2B application already exists in the export sector of Bangladesh, especially in the Ready Made Garments (RMG) industry. RMG has the lion's share of the export earnings in Bangladesh. The RMG sector has begun to use the Internet, and its dependence on e-commerce is likely to grow in the coming years. The Internet would enable them to seek information about potential buyers as well as raw material suppliers. Similarly the practice of posting a website by individual producers has begun. However, if Bangladeshi producers are unable to accommodate electronic transfer of payment and other facets of e-commerce, the business opportunity will move on to countries that have developed such systems.

B2G e-commerce is possible in Bangladesh, but on a limited scale at this stage. The government is a major buyer of goods and services from the private sector. Typically, the government procures goods and services by inviting tenders. The availability of the RFP and other relevant documents on-line provides an alternate choice. Transactions involving information collection, obtaining various governmental forms, registering activities can also be conducted on-line. This will reduce time costs, corruption and the necessity of going through lengthy bureaucratic procedures as well as increasing transparency.

Government Legislation

An overview of the government trade and industrial policies as well as various acts and statutes affecting e-commerce has been presented in this paper. For e-commerce to

develop requires an enabling environment that would ensure easy and quick movement of inputs as well as goods and services within the country and cross border trade. Two major government documents reflect the mood of trade and investment policy directions to be pursued in the medium term. These are the Five-Year Plans and the Industrial Policy. The Foreign Private Investment (Promotion and Protection) Act of 1980 guarantees legal protection to foreign investors against nationalization and also indemnifies them against losses due to civil unrest. In the area of foreign trade, the legal framework is primarily governed by three legislative Acts: The Imports and Exports (Control) Act, 1950; The Customs Act, 1969; and The Foreign Exchange (Regulation) Act, 1947. Revisions and updates of these Acts are made periodically. The Export Policy 1997-2002 aims at promoting exports in the regional and international markets.

The recently passed Intellectual Property Rights (IPR) bill of Bangladesh concentrates on software copyright protection. However, e-commerce related copyright protection is not covered in the new IPR. According to the Evidence Act, 1881, a physical signature is necessary to make any contract legal. This makes electronic contracts void under Bangladeshi law. Contract Law in Bangladesh is governed by the Contract Act 1872. Cross border contracts are legal, but a physical signature is necessary to validate the contract. Legislation that legalizes digital certificates, electronic contracts, also needs to be enacted to promote e-commerce.

Two Acts play an important role in dispute settlement -- the Arbitration Act 1940 and the Money Loan Court Act 1990. The Arbitration Act governs the settlement of any disputes arising from business transactions. The Money Loan Court (Artha Rin Adalat) is an independent judicial body established under the Money Loan Court Act 1990 and the Money Loan Court Regulation 1990 to recover public money loaned to individuals through public sector financial institutions. However, the Money Loan Courts are overburdened with the enormous number of cases they have to deal with.

Although no laws that directly provide for Consumer Protection exist in Bangladesh, certain laws, if implemented appropriately, can play a significant role in Consumer Protection. Two Articles in the Constitution in Bangladesh -- Article 15 and Article 18 – state broad principles regarding consumer protection. Article 18 specifically includes raising the level of nutrition and improvement of public health among the states primary duties. Article 15 can be interpreted as making the provision of basic necessities a fundamental responsibility of the state.

Infrastructure: Status and Issues

Internet services are directly dependent on the telecommunication infrastructure of the country. The Bangladeshi telecommunication sector is characterized by poor level of penetration, high cost to access and a lengthy waiting period. Although the Bangladesh Telegraph and Telephone Board (BTTB) continues to be a monopoly in providing basic telephone connections, the private sector’s involvement in cellular phones and as Internet Service Providers (ISP) have been allowed. Despite the need for easy and affordable access to Internet services, BTTB’s pricing and regulatory strategy on ISPs are restrictive.

BTTB's decision to itself offer Internet services since 1999 has caused concerns among private providers as they are exempted from paying fees and royalties to the government.

BTTB's monopoly over long distance and international voice traffic remains protected by the National Telecommunications Policy (NTP98) until 2000 and 2010 respectively. This has been a consistent impediment for the growth of e-commerce. A proven important catalyst in the promotion of e-commerce, Voice over Internet Protocol (VoIP) is prohibited in Bangladesh. Demand for VoIP has however, been increasing and the industry has been urging the government to liberalize the international traffic. The NTP98, enacted in 1998, suggests establishing an independent regulator, the Bangladesh Telecommunications Regulatory Commission (BTRC). However, BTRC is yet to be operational.

Financing: Status and Issues

Easy access to credit and a well-developed financing mechanism is essential for Bangladesh to compete in the highly competitive export market. There are three types of export financing in Bangladesh: pre-shipment financing in local currency by commercial banks; pre-shipment financing in foreign currency by commercial banks through the Export Development Fund (EDF); and back-to-back letter of credit (L/C) facilities.

Studies have reported that lack of access to trade financing, caused by a weak commercial banking system and foreign exchange scarcity, has constrained Bangladesh's export expansion. The insistence by commercial banks on the use of L/Cs for export financing and the existence of interest rate ceilings on export loans has had negative effects. Indirect exporters are forced to give inter-firm credit for their sales of indirect export items to direct exporters because they do not have the option of sight or advance payments from direct exporters.

Restriction on issuance of international credit cards prevails. Lack of internationally accepted credit card facilities sends wrong signals to their foreign counterparts about the inability of Bangladeshi businessmen to make speedy payments through international credit cards. Restrictions on foreign currency remittance imply that many businessmen make foreign payments through the illegal – but extensively used – system of "Hundi".

According to the Evidence Act (The Negotiable Instrument Act, 1881; Revised up to 1999), a physical signature is necessary to make any contract valid in the eyes of the law. This makes electronic contracts void under Bangladeshi law. The Evidence Law should be revised to recognize the validity of a digital signature.

Commerce Issues

Conducting business at the Chittagong port (the main port of Bangladesh) is comparatively more expensive than anywhere else in the region. One of the main reasons for such abnormally high costs for the port in Bangladesh are frequent strikes (locally known as hartaals) and arbitrary work stoppages by the trade unions.

Corporate taxes are high and burdensome, resulting in widespread tax evasion. Modest coverage and weak enforcement make corporate taxation a minor contributor to the treasury. In addition, the tax system is not client friendly, appeal procedures are lengthy, and definitions of deductible business expenses are strict and nontransparent.

Customs clearance and procedures continue to be saddled with delays and allegations of informal payments. The introduction of Pre-shipment Inspection (PSI) agents and the Green Channel are steps in the right direction in promoting speedy movement of goods. However, the government's reliance on Customs as a major source of tax revenue and the private sector's attempts to find ingenious means to forego taxes (at times in collusion with Custom officials) demands further modernization and improved monitoring systems of the Custom authorities.

Governance

Bangladesh has an intractable problem of poor governance. This has been manifested in the form of continued active involvement of politicians and public officials, often in collusion with the private sector, in adopting unfair business practices. As a consequence, institutions continue to remain weak and legal and regulatory reforms are difficult to implement. Rent seeking activities galore, discouraging competition and promotion of efficiency.

Poor governance can be both a cause and an indirect effect of ineffective e-commerce development. If the cost of doing business remains high, characterized by bottlenecks, bureaucratic red tape and corruption, the efficiency gains from e-commerce becomes mute. Trade and commerce through e-commerce assumes business norms and practices that are mutually acceptable or understandable between buyers and sellers. Poor governance discourages trade in general and e-commerce in particular.

The major reasons for poor Foreign Direct Investment (FDI) in Bangladesh are its small domestic market, poor infrastructural facilities, weak governance and poor law and order conditions. Bureaucratic red tape and corruption also dissuades domestic investment. E-commerce and FDI are likely to reinforce each other's presence and growth. Acceptance and successful application of e-commerce would enhance the business environment, sending signals to foreign investors that it is becoming easier to do business in Bangladesh.

Major Constraints to E-Commerce

This paper highlights various constraints to commerce and trade in general and e-commerce in particular.

- Too few telephone connections
- Absence of a strong independent regulatory body for the telecommunication sector
- Absence of encryption law that precludes acceptance of digital signature.
- Strong dependence on Letter of Credit (L/C) to conduct international transactions.
- Non-issuance of international credit cards for cross border transactions.
- Interest rate ceiling on export loans.

Policy Recommendations

The paper provides a list of policy recommendations. A selected number are mentioned below:

1. Bring an end to Bangladesh Telegraph and Telephone Board's (BTTB) monopoly in the nationwide long distance services and rationalize tariff of BTTB's Digital Data Network (DDN). Establish the Bangladesh Telecommunications Regulatory Commission (BTRC), independent of governmental control and political influence.
2. Allow Voice over Internet Protocol (VoIP). Abolish the provision of obtaining permission from the Ministry of Posts and Telecommunications (MOPT), prior to leasing the capacity from GrameenPhone's optical fiber network. VSAT operating licenses should not limit the bandwidth.
3. Develop encryption laws to accept electronic authentication of transactions.
4. Increase the number of pre-shipment agents (PSI). Increase fines and penalties on PSIs for breach of rules and regulations.
5. Allow Contract System and other alternates to Letter-of-Credit (L/C) as legal methods for international transactions.
6. Remove/relax interest ceilings on export loans offered by commercial banks.
7. Relax foreign exchange controls on travel and for business and allow issuance of international credit cards.
8. Make business associations and organizations aware of the benefits of e-commerce. BGMEA can play a significant role in this.
9. Instruct posting government documents and publications including budgetary information on the Web.
10. Orient government officials on the benefits of e-commerce. For instance offer short courses at training centers such as the Public Administration Training Center (PATC).
11. Simplify and expedite court procedures. Remove administrative and institutional constraints in settling disputes.
12. Political commitment to improve governance and institutional strengthening are essential for successful application of e-commerce.

E-Commerce in Bangladesh: Status, Potential and Constraints

1. Introduction

The Internet has opened up a new horizon for commerce, namely electronic commerce (e-commerce). The Internet, through advanced mechanisms of data transfer networks, establishes global linkages between customers and suppliers regardless of geographic location. E-commerce entails the use of the Internet in the marketing, identification, payment and delivery of goods and services. It involves order processing at company Websites and securing Electronic Fund Transfer (EFT) payment systems.

Box 1: Definition of E-Market
An e-market is a facilitated online environment that connects multiple buyers and suppliers in a single, Web-based hub to more effectively match supply and demand while reducing transaction cycles and costs. The e-marketplace works for companies engaging in collaborative business. This is an Internet site where goods and services suppliers publish catalogues of their wares and service offerings, which can be accessed by a large number of buyers. Value-added services an e-market can offer include the provision of automated documents to speed up the negotiation process, decision-support information, and other e-commerce services — such as company profiles and financial services for credit checks, online transaction processing, and access to efficient means of fulfillment. Source: An Executive White Paper of Aberdeen Group, Inc. (www.aberdeen.com)

1.1 The Role of E-Commerce in the Era of Globalization

Globalization has brought in many changes in the business scenario with the whole world inching towards one big market place. Communication between the buyers and sellers has become critical as each can opt to explore a greater number of alternatives than ever before. E-commerce through Internet, e-mails, websites, and other facilities, enables a businessman to be linked with every corner of the world, and thus opens up greater opportunities in the world market.

Another important factor is the time required for completing a business transaction. As markets are becoming competitive and information is more readily available, a quick, reliable and replicable transaction implies availing of prevailing opportunities. On the contrary, delays in processing a transaction might become synonymous to wasting an opportunity. Therefore, a fast and alternative mechanism of communication, contract, and payment is an integral part of a globally competitive business organization.

How important or relevant is e-commerce to the economy of Bangladesh – a developing economy – in general and to the export market in particular? The Information Technology (IT) revolution has been too phenomenal to predict its future growth and its use in an economy like Bangladesh's. In the light of the recent spate of globalization and the initiation of the World Trade Organization (WTO), assessing the immediate and short or medium term relevance of e-commerce to Bangladesh becomes imperative.

A review of the trade scenario of Bangladesh reveals that it has accepted the challenge of globalization by pursuing the most liberalized trade regime in South Asia. As a signatory of WTO, Bangladesh has accepted the Code of Good Practice of the WTO Agreement on Technical Barriers to Trade. Consequently, it is expected to adhere to various standards and technical regulations. To face the challenge posed by globalization, Bangladeshi producers will not only have to offer goods and services at competitive prices, but also ensure timely delivery, quality control and an efficient and reliable payment mechanism.

However, the steps taken towards trade liberalization in Bangladesh become ineffective as a result of poor governance and weak infrastructure. Even simple day-to-day transactions with government bodies are characterized by unnecessary delays, obstructionism by public sector officials and demands for illegal payments. In addition to corruption, trade related regulations that are vague, contradictory and improperly implemented aggravate the situation.

1.2 Objective of the Study

E-commerce facilitates the very process of international transaction; this involves securing and finalizing a contract, delivery of the product, and finally payment for performance of the contract. The movement of goods and services, as well as the payment mechanisms within a country and more so outside a country, are governed by regulatory and legal issues. Hence, the regulatory environment is at the core of e-commerce development.

This paper aims to highlight the status, statutes, potential and constraints of e-commerce development in Bangladesh. Both the statutory laws as well as the challenges in implementing them will be attempted. The paper shall also list specific policy changes aimed at bringing improvements to the legal and regulatory environment affecting e-commerce.

1.3 Organization of the Report

The following section, Section II of this paper, presents an overview of the status of e-commerce in Bangladesh. It discusses the various links and ways of communication used in e-commerce. The Readymade Garments (RMG) sector is given particular attention. Activities of the RMG Sector involve the highest level of cross-border transactions in Bangladesh. It is, therefore, strategically poised to be the front-runner in e-commerce applications as well.

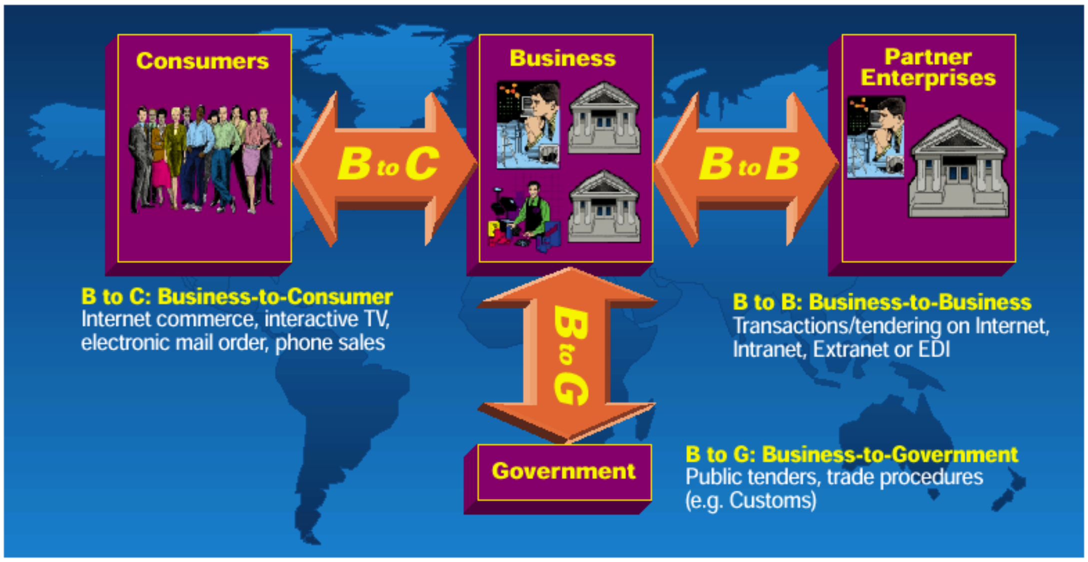
Section III provides an overview of the regulatory and legal issues related to e-commerce and telecommunication as well as presenting a brief review on their effects. It also focuses on the much-needed regulatory and institutional reforms in order to pave the way for e-commerce in Bangladesh. The finance and banking aspect of e-commerce is also discussed in this section. It also reviews the major regulatory acts affecting e-commerce, the macro trade policy regime, negotiable instruments and IPR (Intellectual Property Rights).

Major conclusions on issues relating to legal and institutional constraints are summarized in the concluding section, Section IV. This section also presents a list of short term, medium and long term policy actions in e-commerce development. The annex comprises a number of relevant tables on regulatory and policy aspects of e-commerce.

2. The Existing Situation and Potential of E-Commerce in Bangladesh

Internet services are presently available in Bangladesh. Its usage for e-commerce by the Bangladeshi producers to export as well as to access inputs will be dependent on their willingness and ability to use this medium as well as that of the buyers of final products and the sellers of intermediate goods and services.

Figure 1: The Three Dimensions of E-Commerce



Source: International Telecommunications Union, Millennium, October 1999, Geneva

Figure 1 depicts the three dimensions of e-commerce. Business-to-Consumers (B2C) e-commerce is practically non-existent within Bangladesh, while a very limited level of Business-to-Business (B2B) and Business-to-Government (B2G) transactions exists. The potential for use of e-commerce by Bangladeshi consumers and businesses with foreign firms is much brighter, and can play an important role in boosting the country's exports. A significant volume of B2G is also possible, as the government remains the biggest spender.

2.1 Business-to-Consumer (B2C) Scenarios

Business-to-Consumer (B2C) e-commerce is unlikely to be of much use in the foreseeable future in Bangladesh. At the domestic level, low per capita income, limited infrustructural facilities (e.g. low teledensity), weak legal environment (inadequate contract laws, poor implementation and enforcement), and lack of trust and confidence between business and consumers are going to hinder B2C. In the backdrop of such limitations, the low wage economy, with high levels of unemployment and underemployment, will continue to rely on the physical presence of buyers and sellers during a transaction in most cases. B2C for cross border trade is inhibited by the factors suggested for the domestic front. In addition, non-availability of international credit cards, foreign currency remittance restrictions, delays and informal payments at customs clearance even for small value and quantity items will discourage B2C.

2.2 Business-to-Business (B2B) Scenarios

As mentioned before, the Business to Business (B2B) scenario prevails in Bangladesh to a very limited extent. The B2B scenario exists mostly in the export sector, especially in the Ready Made Garments (RMG) industry. RMG has the lion's share of the export earnings in Bangladesh, accounting for 75 percent of total exports. The current value of annual exports of the RMG sector is close to $4.35 billion. The RMG sector has begun to use the Internet, and its dependence on e-commerce is likely to grow significantly in the coming years.

E-commerce through the Internet is poised to be an effective business tool for the RMG exporters. The Internet would enable them to seek information about potential buyers as well as raw material suppliers. Similarly the practice of posting a website by individual producers has begun. Opening a website is a step towards the right direction. Also, the adherence of Bangladeshi firms to quality, labor and environmental standards (e.g. ISO 9000, QS 9000) can also be shared and highlighted through the Internet technology.

Box 2: E-commerce in the RMG Sector

The RMG sector emerged during the early 1980s in Bangladesh and information has been the strategic partner in its phenomenal growth. Telex was the only tool of cross border data communication in those days. International courier services were the means of receiving the approved designs from the buyers. The Facsimile machine, in the mid 80s, radically replaced both of these orthodox communicating media (i.e. telex and courier). This "Office Automation Equipment" contributed towards accelerating RMG exports. Faster and cheaper data communications coupled with real-time design-pattern development enabled the buyer and manufacturer expediting business negotiations.

A specific use of internet technology would be to access The Bangladesh Garment Manufacturer Exporter Association's (BGMEA) website, which provides a list of member companies and key information regarding those firms. In addition, it updates and reports on the United States and Canadian quota used for the year on a given date. Concurrently, through the web site of the North American port authorities, the volume of quota items that have entered their respective countries can be found. A Bangladeshi producer may prefer to stop shipment and wait for the next year (when new quota privileges begin) to avoid the risk of collecting demurrage at a foreign port in case the quota has been exhausted.

BGMEA can play a vital role in authentication of buyers and sellers through encryption method. Authentication by BGMEA can ensure the confidence of the importers regarding the genuineness of the manufacturers. This would discourage unscrupulous enterprises from making false claims on their web pages.

Following the withdrawal of the quota system and the GSP in 2005, the RMG sector will inevitably become more competitive. As expected delivery time decreases, considering alternative payment mechanisms becomes imperative. The effective use of e-commerce both for placing orders, purchasing raw materials and for quick and efficient payment would be the necessary ingredients for any country to enhance its ability to deliver early. Necessary infrastructural, legal and regulatory reforms will be essential to avail of the e-commerce technology in dealing with the international market place.

Access to the market depends on the buyers and sellers' willingness and ability to market through mediums that are mutually cost effective, reliable, and replicable. A foreign buyer, say in the readymade garments sector, expresses a preference to use e-commerce for its purchases, thereby circumventing the Letter of Credit (L/C) mechanism to place an order. Since the overseas financial institutions often insist for "Add Confirmation" it increases the cost of L/C. Add Confirmation is basically a matter of payment guarantee depending on the country's credit rating, asset status etc., where Bangladesh generally lags behind. If Bangladeshi producers are unable to accommodate electronic transfer of payment and other facets of e-commerce, the business opportunity will move on to countries that have developed such systems.

E-commerce usage will become attractive when entrepreneurs will be convinced that this medium is capable of obtaining orders as well as increasing profitability by eliminating the role of middlemen. However, confidence and trust between the buyers and sellers is an important determinant. If the local producer fails to ensure adequate quality or timely delivery of products, the benefits of an efficient search and communication process will be undermined. Thus, authentication of both buyer and seller is a prerequisite for successful implementation of this medium.

The services of organizations like XMNet, Net ASM, etc. can be utilized in order to obtain information regarding authentic suppliers, manufacturers and buyers. XMNet is an organization that provides the service of verifying the claims of sellers with excess goods. They send inspectors to readymade garment factories world wide to check on merchandise and production lines, and also use independent agencies to check product quality. On the other hand, they also provide the seller with the credit history of the buyer to help them locate genuine buyers. For a reasonable fee, a great deal of information can be found from the Net Asian Sources Media Group (ASM) website.

With improvements in infrastructural facilities (e.g. cheaper and better access to Internet service), and greater application of the computer in management and finance by individual firms, export oriented sectors (such as frozen food, sea food, leather) as well as importers would appreciate the ease and benefits of the Internet in promoting their products.

Box 3: E-commerce in the Oil and Gas Sector

International Oil Companies (IOCs) are the dominant players in the exploration and production of the oil and gas industry. IOCs use the vendors' web pages extensively in order to obtain product information. This exercise is also limited to the international vendors as the Bangladeshi business community has yet to become sufficiently cyber-centric.

The IOCs make all the payments to the international vendors through Telegraphic Transfer. This is one good example of making cross border payments without following the complex mechanism of the Letter of Credit (L/C). The local vendors, however, receive their payments by check.

IOCs have to abide by the Production Sharing Contract (PSC), signed with Petrobangla, the state oil company. Petrobangla shares the cost of exploration and production with the IOCs after the successful discovery of an oil or gas field. The IOCs are required to justify the procurement of every product and service pertaining to the exploration and production of each well to Petrobangla. If Petrobangla is convinced with the justification, only then does it share the cost with the IOCs. In view of the above scenario, the implementation of e-commerce in the energy sector is yet to kick-off in Bangladesh. Because, the financial discipline of Petrobangla is still being governed by the conventional parameters of Audit and Accounts of the Government of Bangladesh. Therefore, despite having all the logistical capabilities and human resources, the IOCs have yet to use e-commerce. However, akin to BTTB, a limited usage of electronic communications with the vendors does exist in the form of bid invitations and providing bid clarifications.

2.3 Business-to-Government (B2G) Scenarios

The government is a major buyer of goods and services from the private sector. Typically, the government procures goods and services by inviting tenders. This has been the traditional method of any government procurement for goods and services. Tender notices are published in the major national dailies followed by selling the Request for Proposal (RFP) documents to the interested bidders. If any bidder seeks clarification on any aspect of the RFP, the customer is mandated to notify that clarification to all bidders by mail. In addition to costing money and taking time, such notification sometimes forces the customer extending the bid-closing deadline.

Bidders also obtain the RFP document “unofficially” for a comprehensive understanding of the ‘scope of work’ as well as for assessing their own capability. The availability of the RFP and other relevant documents on-line provides an alternate choice, thereby reducing the monopoly rent that can be extracted. In order to prevent such unfair practice, the Bangladesh Telegraph and Telephone Board (BTTB) initiated publishing the RFP documents of selected projects in its website. This immediately stopped the illicit practice of unofficially selling the RFP document, and only competent bidders were able to procure the RFP documents. In addition to reducing the extra administrative burden of BTTB, it also enabled BTTB to close those bids within a reasonable timeframe. The posting of the RFP documents on the Web is however an isolated effort being initiated by a few BTTB officials.

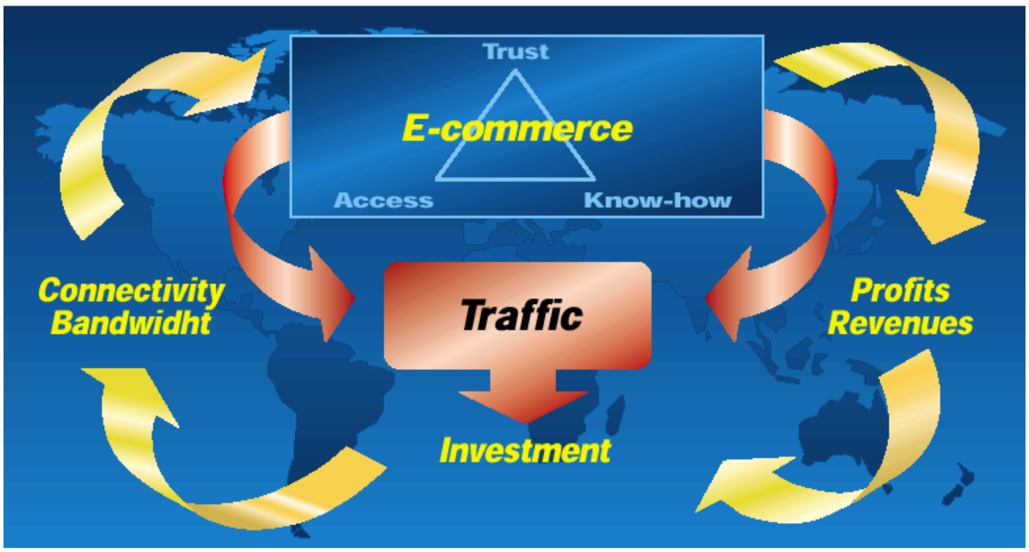
Introducing on-line payment or allowing electronic fund transfer for selling the RFP would be a significant leap towards B2G in Bangladesh. There are numerous instances of deliberate "unavailability" of the RFP, namely while the bids for civil infrastructure projects are invited. Syndicated vested groups forbid the other bidders' participation by forming a cartel. B2G inherently brings transparency in such cases and ensures a level playing field for all the bidders. Electronic submission of the RFP followed by presenting the hardcopies could also be used to promote transparency, accountability and the threat or coercion that is often evidenced during the bid submission period.

In addition, transactions involving information collection, obtaining various governmental forms, registering activities can be conducted on-line. This will reduce time costs, corruption and the necessity of going through lengthy bureaucratic procedures as well as increasing transparency.

3. Supportive Framework

Electronic commerce generates competition, revenue and profit. It also creates flows of goods and services and hence traffic. Subsequently, it can act as an incentive for investors to finance locally available infrastructures, connectivity and bandwidth. However, before this 'virtuous circle' can be initiated, the 'magic triangle' -- access, trust and know-how -- an essential precondition for the start-up and expansion of electronic commerce, must be firmly established between both the public and the private partners involved. This magic triangle can only be set in place if it receives the full and active support from the various stakeholders.

Figure 2: The Magic Triangle of E-Commerce



Source: International Telecommunications Union, *Millennium*, October 1999. Geneva

Access to e-technology such as the Internet is a necessary but not a sufficient condition for the development and growth of e-commerce. The popularity of e-commerce in any economy will be dependent not only on the cost, efficiency and reliability of Internet technology but also on the supportive framework that includes legal and financial infrastructural support as well as support in the form of technical expertise (know-how). A weak and inefficient supportive environment can damage the trust among partners and will stranglehold the possibilities and attractiveness of using technology for business and commerce.

3.1 The Regulatory and Legal Environment

To keep pace with the new era of globalization, Bangladesh's legal framework must ensure that appropriate legislative, judicial and administrative processes that support the public interest and private economic rights are in place. However, not much has been done in Bangladesh towards achieving that goal. Although certain century-old laws are being updated, the only significant legislative changes made in recent years have not proved to be very effective because of weak enforcement or provisions that allow for over-regulation (e.g. the Financial Loan Courts Act; the Securities and Exchange Commission Act).

Akin to any business sector, the regulatory and legal environment affecting trade and commerce will influence e-commerce development. These include institutional and policy directives as well as implementation capability and constraints relating to integration of the Internet and movement of goods and services. Despite the presence of a good infrastructure the failure to move goods and services and make payments on par with the international norms may dissuade businesses to embrace e-commerce.

This section highlights the overall industrial and trade policies dictating and influencing trade and commerce as well as e-commerce.

Key Macro Policies

There are two major government documents that reflect the mood of trade and investment policy directions to be pursued in the medium term. These are the Five-Year Plans and the Industrial Policy. A brief summary of these documents suggests a trend towards an increasing private sector led growth through the promotion of trade and investment.

In the Third Five-year Plan (1985-90), trade policy reforms resulted in the promotion of exports coexisting with the protection of the domestic market. The strategy of the Fourth Five-year Plan (1990-95) was similar to the preceding Plan with an increased emphasis on export promotion. The 1990s witnessed an accelerated level of reforms in conformity with the Fifth Five-Year Plan (1997-2002). The major features of the Fifth Plan are import liberalization; reduction and rationalization of the tariff structure; direct export promotion measures; and a flexible exchange rate. The Fifth Plan also advocates removal of supply-side constraints including, developing infrastructure facilities, and strengthening the institutional framework.

The two Industrial Policies of the 1980s – the New Industrial Policy of 1982 (NIP82) and the Revised Industrial Policy of 1986 (RIP86) – attempted to simplify the tax structure, reduce the sanctioning procedures, and encouraged foreign investment. Both of these documents emphasized greater reliance on the private sector. The objective of the Industrial Policy, 1999 (Box A1, Annex I), is to establish a dominant export sector with the government's role becoming increasingly that of a facilitator rather than a regulator.

The Foreign Private Investment (Promotion and Protection) Act of 1980 guarantees legal protection to foreign investors against nationalization and also indemnifies them against losses due to civil unrest. It also guarantees repatriation of capital and dividend and equal treatment with local investors. In comparison with the investment regimes in South Asian countries, the investment regime in Bangladesh attracted only marginal inflows although it is considered to be more open than that of India. For instance, while there are limits to foreign equity participation in India and Pakistan, there are no limits placed on foreign equity participation. However, licensing regulations are required by the private sector in energy and telecommunications, which is also applicable in other South Asian countries.

Trade and Commerce Related Legislation

In the area of foreign trade, the legal framework is primarily governed by three legislative Acts: The Imports and Exports (Control) Act, 1950; The Customs Act, 1969; and The Foreign Exchange (Regulation) Act, 1947. Revisions and updates of these Acts are made periodically. Other legislation relating to trade is listed in Table 3.1.

The Import Policy Order (IPO) 1997-2002 exemplifies a liberalized trade regime, which accommodates Bangladesh's decision to join the WTO. Unlike earlier import policy regimes, it does not discourage the import of consumer items. The Export Policy 1997-2002 aims at promoting exports in the regional and international markets. It calls for the diversification of exports, encouraging backward linkages, simplification of procedures and developing the necessary infrastructure. A list of documents required for import and export is provided in Annex I (Tables A2, A3, A4). The list also identifies the concerned authorities.

Table 3.1: Legislation Relating to Trade

Area	Legislation
Custom Duties	Customs Act, 1969
Import Regulations	Imports and Export (Control) Act, 1950; Customs Act, 1969; review, Appeal and Revision Order, 1977; Importers, Exporters and Indentors (Registration) Order, 1981; Licenses and Permit Fees Order, 1985
Customs Valuation	Amendments introduced to the Customs Act, 1969, in 1997
Pre-shipment Inspection	Amendments introduced to the Customs Act, 1969, in 1998
Rules of Origin	Standard Rules of Origin, 1977
Standards	Imports and Export (Control) Act, 1950
Sanitary and Phytosanitary Measures	Imports and Export (Control) Act, 1950
Marketing and Labeling	Imports and Export (Control) Act, 1950
Anti-Dumping Measures	Amendments introduced to the Customs Act, 1969, in 1995
Countervailing Measures	Amendments introduced to the Customs Act, 1969, in 1995
Safeguard Measures	Amendments introduced to the Customs Act, 1969, in 1997
Pricing and Marketing Arrangements	Consumer Index
Export Regulations	Import and Export (Control) Act, 1950; Customs Act, 1969
Government Procurement	No legislation
Competition Law	No legislation
Intellectual Property Rights	Patents and Design Act, 1919; Copyright Ordinance, 1962; Trade Markets Act 1940
Foreign Investment	Foreign Investment (Promotion and Protection) Act, 1980

Area	Legislation
Foreign Exchange	Foreign Exchange (Regulation) Act, 1947
Banking Service	Banking Companies Act, 1991
Insurance Services	Insurance Act, 1938; Insurance Corporations Act, 1973; Insurance Rules, 1953
Telecommunications Services	Telegraph Act, 1887
Air Transport Services	Details not available from the authorities
Maritime Transport Service	Merchant Shipping Ordinance, 1993; Inland Shipping Ordinance, 1976; Bangladesh Flag Vessel (Protection) Ordinance, 1982

Source: World Trade Organization, 2000. *Trade Policy Review Bangladesh*.

Customs procedures have undergone significant change since the early 1990s. Major changes include introduction of a Green Channel system for incoming passengers (customs). Pre-shipment Inspection (PSI) was introduced on a voluntary basis in 1993 and then made mandatory in the 1999-2000 Budget. Self-assessment procedure has also been introduced to facilitate customs clearance of selected commodities like food grain. Customs clearance has been computerized at the Dhaka Customs House and the Chittagong Customs House.

In January 2000, Bangladesh adopted the WTO Customs Valuation system. Minimum import process (called Tariff Value) was used until recently for customs valuation purposes. With the PSI system made mandatory in 1999-2000, the system of Tariff Values has been abolished.

A well-functioning PSI system requires high credibility and efficiency of the contracting agencies. Recently, there have been allegations of misrepresentation of commodities and country of origin. Adequate checks and deterrents in the form of fines and other civil and criminal charges are to be put in order to ensure that the PSI system is not compromised through cheating, collusion and graft.

Bangladesh amended its Customs Act, 1969, allowing provisions on anti-dumping and countervailing rules in 1995 and safeguard rules in 1997. The Act has also been amended to introduce transaction values as the basis for customs valuation in 2000.

Other Related Regulations

Other related regulations include the Intellectual Property Rights (IPR) legislation, which dates from the pre-independence era. Patents, trade marks, and copyrights are governed by: the Patents and Designs Act, 1911 and the Patents and Designs Rule, 1933; the Trade Marks Act, 1940 and the Trade Marks Rules, 1963; and the Copyright Ordinance, 1962, as amended by the Copyright (Amendment) Act, 1974, and the Copyright (Amendment) Ordinance, 1978.

The agreement on Trade-Related Intellectual Property Rights (TRIPS) provides standards for Intellectual Property Rights relating to patents, copyright and related rights, trademarks, industrial designs, and layout designs of integrated circuits, undisclosed information, and trade secrets. Bangladesh has an eleven-year transitional period (i.e. until January 2006) to meet the obligations under this agreement. The prevailing national legislation requires amendments to conform to the provisions of the agreement on TRIPS. There is also a strong need for developing administrative ability to enforce intellectual property rights.

Certain regulations (such as the Intellectual Property Rights bill, the Evidence Act) have the capability of facilitating the scope of e-commerce. The new Intellectual Property Rights (IPR) bill of Bangladesh concentrates mainly on software copyright protection. However, the e-commerce related copyright protection is not covered in the new IPR. An initiative for including these issues into the IPR is needed for the advancement of e-commerce.

According to the Evidence Act (The Negotiable Instrument Act, 1881; Revised up to 1999), a physical signature is necessary to make any contract valid in the eyes of the law. This makes electronic contracts void under Bangladeshi law. The Evidence Law should be revised to recognize the validity of a digital signature.

The Contract Law in Bangladesh is governed by the Contract act 1872. According to this Act, cross border contracts are legal. As with the Evidence Act, a physical signature is necessary to make a contract valid. However, with regard to communication regarding the contract, letters by post and telegrams are acceptable in the eyes of the law. Legislation that legalizes digital certificates, electronic contracts, etc should also be enacted.

Two acts play an important role in dispute settlement cases -- the Arbitration Act 1940 and the Money Loan Court Act 1990. The Arbitration Act governs the settlement of any disputes arising from business transactions. The primary aim of this Act is to attempt to resolve the differences of the two parties without having to resort to a Court of Law.

The Money Loan Court (Artha Rin Adalat) is an independent judicial body established under the Money Loan Court Act 1990 and the Money Loan Court Regulation 1990 to recover public money loaned to individuals through public sector financial institutions. The judges for these courts are selected from among the Sub-Ordinate Judges by the government in collaboration with the Supreme Court and administratively it performs directly under the Supreme Court. According to the Act, Money Loan Courts are supposed to be established in every district in Bangladesh, with the provision that if necessary more than one Court may be established in a single district. However, so far only a few Courts have been established.

The Money Loan Courts are overburdened with the enormous number of cases they have to deal with. In September 2000, the number of cases pending in the Courts was 57,435. According to a Bangladesh Bank report, the amount involved in these cases is US$ 1.6 billion. In the past one year, the number of cases pending increased by 3,000. A significant number of these cases have been determined to be bad debts.

In a country with only 53 percent literacy rate (UNICEF, 1999) and where almost half the population live below the poverty line, consumer protection or consumer vigilance is a concept regarding which most people still remain unaware. In Bangladesh, there are no laws that directly provide for Consumer Protection. However, a number of existing laws, if implemented appropriately, can play a significant role in support of Consumer Protection.

Two Articles in the Constitution in Bangladesh -- Article 15 and Article 18 – state some broad principles regarding consumer protection. Article 18 specifically includes raising the level of nutrition and improvement of public health among the states primary duties. Article 15 can be interpreted as making the provision of basic necessities a fundamental responsibility of the state. The Penal Code 1860 is one of the oldest existing statutes in Bangladesh. Certain provisions in this code have direct bearing on consumer rights; some of which have been broadened into separate legislative acts. However, apart from these very broad principles, specific legislation is hard to identify. The meager legislation that does exist is scattered through other acts that are only indirectly related to consumer protection (Box 4).

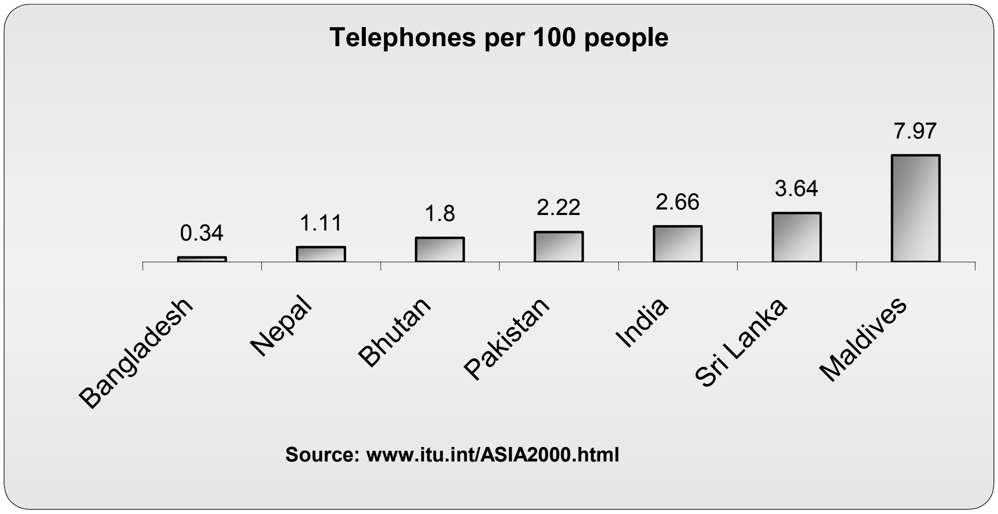
Box 4: Acts and Laws Related to Consumer Protection
1. Control of Essential Commodities Act 1956 2. Pure Food Ordinance 1959 3. Price and Distribution of Essential Commodities Ordinance 1970 4. Bangladesh Drugs Control Ordinance 1982 5. Breast Milk Substitute (Regulation of Marketing) Ordinance 1984 6. Tobacco Goods Marketing (Control) Act 1988 7. Penal Code 1860 8. Special Powers Act 1974 9. Dangerous Drugs Act 1930 10. Trade Mark Act 1940 11. Standards of Weights and Measures Ordinance 1982

Source: Rahman, Mizanur, 1994. *Consumer Protection Law and the Swedish Approach*.

3.2 Telecommunications: An Integral Part of E-Commerce

Access, pricing, and the quality of Internet services are critically dependent on the status and performance of the telecommunications sector. The telecommunication sector of Bangladesh is characterized by poor level of penetration (0.4 telephone for every 100 persons, Graph 1), high cost to access, $341 connection fees for each telephone, one of the highest in the world, and a lengthy waiting period -- average waiting period for a new telephone connection varies from three months to ten years.

Graph 1: Telecom Indicator in South-Asia in 2000



In recent years the government has demonstrated the need for increased participation of the private sector in the production and delivery of telecommunication services. Although the Bangladesh Telegraph and Telephone Board (BTTB) continues to be a monopoly in providing basic telephone connections, the private sectors involvement in cellular phones and as Internet Service Providers (ISP) have been allowed. Private sector participation in improving and widening the telecommunication infrastructural facilities has also been accepted.

In the backdrop of the public-private mix, the legal and regulatory environment plays a key role in the type of market structure under which this sector will perform. The prevailing statutes and their implementation will play an important role in bringing additional investments, infusion of technology, and dictate the level of competition among the providers of telecommunication services relating to the Internet. This section of the report highlights the major telecommunication policies and the implementation agencies along with their strengths and weaknesses.

The major body directly affecting the legal and institutional framework of Internet development is the Bangladesh Telegraph and Telephone Board (BTTB). BTTB was the regulator until the Ministry of Posts and Telecommunications (MOPT) took over that function in 1995. The Telegraph Act of 1885 in tandem with the Wireless Act of 1933 had been the governing tool until the National Telecommunications Policy (NTP98) was enacted in 1998. NTP98 may be considered the first step toward reforming the country’s telecom sector.

In tandem with the macro trade policy of the 1990s of trade liberalization and increased private sector participation, NTP98 aims at major reforms in the telecommunication sector. With the objective of improving the quality and availability of services, NTP98 emphasizes infusion of technology (e.g. digitalization), greater access across the country, and a competitive framework. In addition, the Policy encourages pooling of resources from local and foreign investors in this sector. NTP98 is supportive of creating a competitive framework whereby volume, efficiency and accessibility of the telecom services can be enhanced. To bring about the transformation and to ensure that the objectives of NTP98 are implemented, NTP98 suggests establishment of an independent regulator, Bangladesh Telecommunications Regulatory Commission (BTRC). However, BTRC has yet to become operational.

Box 5: Independence of the Regulator

Like in any other sector, independence of the regulator is the essence of telecom and IT success in Bangladesh. The World Bank has been assisting MOPT to establish an independent telecom regulator. Matheson Ormsby Prentice Solicitor, a Dublin-based Irish law firm, was hired to prepare the amended Telecommunications Act in this regard. They finalized the draft in 1998 with the provision of five full-time Commissioners. The President of Bangladesh, in consultation with the Speaker, the Chief Justice, the Prime Minister and the Leader of the Opposition would appoint the Commissioners for five years. Their appointments may be renewed for another five years or for a shorter term. The President would also appoint a Chairman from the five Commissioners, who would be the chief executive of the Commission. The rank of the Chairman would be equivalent to a Minister and the Commissioners' status would be similar to a Deputy Minister. Their remuneration would be minimum Taka 100,000 (approximately $1,800) per month and they would be reporting to the minister for MOPT.

A review session was organized in December 1998 to fine-tune the Irish lawyers' draft. All private operators, the entire hierarchy of BTTB and concerned government bodies including the civil and military intelligence attended that session. The attendees observed that the Commission should be independent of government control in order to be properly functional. They strongly opposed the Commission reporting to MOPT. It was apprehended that such provision would be detrimental to the autonomy of the Commission. Because, the Chairman and the Minister for MOPT would be holding similar rank and status. It was suggested that the Commission should rather be accountable to the President as well as to the Parliamentary Committee of the Ministry of Posts and Telecommunications. That session also recommended increasing the Commissioners' monthly salary in order to attract more competent expertise from Bangladeshi expatriates.

It took the government nine months to evaluate these recommendations. In its weekly meeting on September13, 1999, the Cabinet neither accepted the Irish lawyers' draft nor approved the suggested revisions. Rather the Government reduced each Commissioner's tenure from five years to three years. They also revoked the President's active role in appointing the Commissioners. Besides, ministerial status of the Chairman and Commissioners of the Commission was also abolished. They would be appointed by the government and reporting to the Minister of MOPT. Their proposed monthly remuneration of Taka 100,000 has also been reduced to Taka 17,000 (approximately $300).

Lately the World Bank not only declined funding this US$ 12 million project, but also demanded back US$ 1.5 million, an amount that has so far been disbursed to kick off this project. A stalemate situation has been prevailing in this regard.

NIP98, similar to policy prescriptions offered in other sectors, faces bureaucratic and political challenges to develop a well-functioning telecommunication sector that would be conducive to telecommunication improvements in general and Internet services in particular. The road to establishing a strong and independent regulatory body has been a difficult one. Identification and recruitment of qualified senior managers, called Commissioners, have experienced resistance in terms of compensation packages that may be offered (Box 6).

Four years prior to NTP98, private Internet Service Providers (ISPs) launched the Internet. Albeit NTP98 acknowledges the critical need for easy and affordable access to Internet services, BTTB's pricing and regulatory strategy on ISPs are restrictive. For instance, until February 2000, the ISPs were not allowed to choose the Very Small Aperture Terminal (VSAT) carriers other than the ones recommended by the government (BTTB). In addition to paying the standard tariff to the VSAT operators or capacity re-sellers, the ISPs were mandated to pay royalty to BTTB. Presently ISPs pay an annual royalty of $3,200 to MOPT. Also, they are currently allowed to independently deal with the VSAT carriers. The fees charged and the earlier restrictions on the selection of VSAT carriers contributed to higher pricing for Internet consumers, thereby delaying exposure to this technology to many.

Long distance transmission backbone and the 'last mile' connectivity are still dominated by BTTB. GrameenPhone, a private cellular telephone service provider, has leased the 1,700 kilometers long optical fiber network from the state-owned Bangladesh Railway. The MOPT has, however, been reluctant to allow GrameenPhone re-selling its abundant 'dark fiber' (surplus capacity of any optical fiber network) from the nationwide photonic backbone. Corporate customers including the international oil and gas exploration companies have been persuading for stretching respective LAN connectivity over GrameenPhone's infrastructure. Compared to BTTB's unreliable analog and Plesiochronous Digital Hierarchy (PDH) microwave backbone; the ring formation of GrameenPhone's Synchronous Digital Hierarchy (SDH) network has far superior quality and more than 99 percent redundancy. The government's undeclared embargo on utilizing this huge idle network has been hindering the growth of the Internet in Bangladesh. It grossly contradicts the overall objective of NTP98.

However, the government's consent on re-selling GrameenPhone's infrastructure would not be sufficient for the growth of the Internet (e-commerce) unless accessing the customers' premises is guaranteed. BTTB controls the entire outside plant (OSP) or cabling network, which is exclusively copper-based. Hence, bandwidth limitation remains as a chronic ailment at the customers' end. Customers seldom get more than 4 kbps due to the extremely poor OSP of BTTB.

While precluding the usage of GrameenPhone's optical fiber network, BTTB has rolled out Digital Subscribers Line (DSL) services in the name of Digital Data Network (DDN). DDN's prohibitively expensive pricing has failed to make it popular. The government is yet to allow the private sector's intervention in enhancing the bandwidth of BTTB's access network.

One possible means to overcome the prevailing bandwidth constraints is to introduce Multi-channel, Multi-point Distribution System (MMDS) or Local Multi-channel Distribution System

(LMDS) solutions. Radio spectrum is still being allocated in accordance with the Wireless Act of 1933. Administering the Frequency Allocation Board with BTTB officials and heading this highly technical body with a bureaucrat inherently diminishes the required proactive role of this body. Provision of unlicensed spectrum is still prohibited due to the required regulatory guidelines. NTP98, however, as a policy objective, recognizes freedom for exchange of information. MMDS and LMDS can be a viable alternative in an extremely poor teledensity country such as Bangladesh.

BTTB's decision to itself offer Internet services since 1999 has caused concerns among the private providers. They claim that there is uneven competition since the state telecommunication is exempted from paying necessary fees and royalties to the government. Since BTTB is also the Post, Telegraph and Telephone (PTT) monopoly, it neither requires any additional investment nor faces any delay on obtaining telephone lines for its Internet venture. Participation of BTTB enhances the number of sellers of ISP service thereby providing greater choice to buyers. However, uneven competition can discourage private sector participation and investment, thereby reducing competition.

Despite having four incumbent mobile operators, the MOPT has allowed BTTB to launch cordless mobile telephony with phenomenal concessions in license fees. MOPT has also announced that BTTB would be launching another cellular mobile services soon. Similar to the ISP market, BTTB's unfair advantage may crowd out private sector participation.

Box 6: VoIP Application: An Illustration

Thousands of Bangladeshi workers live in Singapore. They make a considerable number of phone calls to friends and families back home. The existing 120 voice circuits between Bangladesh and Singapore gets congested and the rate of unsuccessful calls start mounting in Singapore. Since the Bangladesh bound traffic is much higher, the Singapore Telecom (SingTel) ends up loosing substantial revenue.

In May 1999, SingTel proposed a win-win solution to BTTB. SingTel would establish a VoIP link between the two countries at its own cost followed by reducing 50 percent call charges, as they would be transported over the Internet. This would mean great savings for the Bangladeshi workers in Singapore and the congestion in the satellite circuits would be significantly reduced. It means, more Bangladesh bound calls from Singapore and BTTB making more money from the international revenue sharing agreement with SingTel. This project is yet to materialize and the government is reluctant to allow the private sector providing such solutions.

BTTB's monopoly over the long distance and international voice traffic, however, remains protected by NTP98 until 2000 and 2010 respectively. This has been a consistent impediment for the growth of e-commerce. Voice over Internet Protocol (VoIP) has proven to be a very important catalyst in promoting e-commerce. VoIP enables bypassing expensive traditional telephony and helps the users achieving the economics of e-commerce. Although sending the voice signals through data packets are independent of BTTB's circuit-switched network, the VoIP is prohibited in Bangladesh. Demand for VoIP has however, been increasing and the industry has been urging the government to liberalize the international traffic. The government's lack of comprehension is the largest obstacle to the growth of VoIP in Bangladesh.

Several policy reforms aimed at boosting the IT sector, eventually contributing to e-commerce development, have been accomplished. This includes the withdrawal of import duties from computer hardware and software in 1999. The decision to cease BTTB's role as a broker between the ISPs and the VSAT operators in early 2000 was overwhelmingly appreciated by the private sector. It reduced the potential of bureaucratic delays and uncertainties. The government's recent decision to award an operating license for 300,000 telephones in Dhaka will meet much of the unmet demand. Discussions between BTTB and Singapore Telecom (SingTel) on laying a submarine cable between Bangladesh and Singapore are progressing well. SingTel is expected to invest $140 million in this project. However, the control of the submarine cable will remain in the hands of BTTB. This implies that the monopoly that BTTB enjoys will not be compromised through this agreement.

3.3 Financing and Banking Mechanism

Financing Mechanism

There are three types of export financing in Bangladesh: pre-shipment financing in local currency by commercial banks; pre-shipment financing in foreign currency by commercial banks through the Export Development Fund (EDF); and back-to-back letter of credit (L/C) facilities.

Exporters can access credit in local currency from private and nationalized commercial banks at a concessional rate determined by the Bangladesh Bank (BB). The Interest Rate Policy introduced in 1992, which liberalized interest rate ceilings for all categories of lending except to export, agriculture, and small and cottage industries, permitted individual banks to differentiate interest rates charged to individual borrowers. The interest rate bands for exports have been set in the range of 8 percent to 10 percent since 1994-95.

Exporters can obtain export credit for up to 90 percent of the value of their irrevocable L/C or sales agreement for a maximum period of 180 days. The Export Development Fund (EDF), administered by the Bangladesh Bank (BB), provides pre-shipment financing for imports of necessary raw materials, spare parts, and packaging materials for exporters of non-traditional items. Like other export credits, the time limit for repayment is usually 180 days, extendable to 270 days in exceptional cases.

Box 7: Letter of Credit Mechanism
In Bangladesh, L/C is the predominant legal method of international transactions. Lack of real time information on the transactions and goods clearance with the Central Bank is the primary reason behind the existence of an orthodox payment mechanism such as the L/C. Inherent delay of paying the seller by L/C inevitably elevates the price up to 15 percent.

Exporters of certain products may open “back-to-back” L/Cs for the required imports of raw materials against their export L/C. These include ready-made garments, specialized textiles, household linen, hosiery, toys, luggage and fashion goods, electronic items, and leather goods. Under the inland back-to-back L/C system, local suppliers of raw materials to export industries can also obtain advantageous financing.

A number of studies have reported that lack of access to trade financing, caused by a weak commercial banking system and foreign exchange scarcity, has constrained Bangladesh’s export expansion. In the mid-1990s, whereas exports accounted for almost one third of industrial output, it received only 9 percent of total industrial financing. The insistence by commercial banks on the use of L/Cs for export financing, as well as the existence of interest rate ceilings on export loans, have negatively affected exporters’ access to local credit. On the other hand, indirect exporters are forced to give inter-firm credit for their sales of indirect export items to direct exporters because they do not have the option of sight or advance payments from direct exporters; this seems to be inconsistent with the government’s policy of promoting backward linkages. Moreover, it is reported that the users of the back-to-back L/C system may end up paying the extra cost of importing inputs, estimated at 7-8 percent higher than under the normal system.

The prevailing L/C system, albeit quite successful, is being considered for replacement in some countries. A Contract System (CS) would be introduced which would adhere to safe guards and documentation necessary under the banking regulations. CS is expected to be faster and cheaper to implement, as it would minimize the role of the commercial banks, thereby avoiding certain bank charges and other related fees. Banks will be used primarily for transfer of funds, which will be made electronically within 48 hours of the shipment.

To make the CS more effective, the means of e-commerce e.g., the web version of necessary documents (original contract and supporting documents), encryption, digital signature, digital identification need to be introduced. The prevailing L/C system can be difficult to implement through e-commerce because of its unavoidable complexities.

Banking Mechanism

Automation and EFT in the Financial Sector: In Bangladesh, electronic fund transfer is at an early stage and used on a very limited scale. Electronic banking, which is highly dependent on the application of IT, has been pioneered by the foreign commercial banks. The local banks are yet to be fully automated. Most local banks use computers on a stand-alone basis. The extent of computerization in the local banks is limited to database management and electronic communication (through e-mails) only. A few foreign commercial banks and local banks are offering on-line banking facilities in the form of Automated Teller Machines (ATM) and local credit cards. Only one multi-national bank is now practicing on-line fund transfer between its branches, and two other local banks are supposed to introduce it within 2001. Also, the banks now offering ATM facilities have formed a common ATM pool. Under this system, a customer of any bank in the pool can receive the services using the same ATM.

An off-line computerized reconciliation and data management system has been implemented by the Central Bank of Bangladesh (Bangladesh Bank). However, a network system between Bangladesh Bank and the commercial banks is yet to be developed. On-line fund transfer between banks and between banks and other institutions are yet to be introduced.

The development of electronic banking within the country as well as outside the country is saddled with various infrastructural, institutional and regulatory constraints. A selected list of these constraints is provided below:

- Lack of network infrastructure of commercial banks
- Absence of a centralized clearing system of the Central Bank
- Absence of EFT legislation
- Exchange controls are too restrictive to promote e-commerce
- Absence of a need based business plan for on-line banking
- Inadequate qualified manpower to set up and maintain the network

Convertibility of the Taka: The Taka (the currency of Bangladesh) has been convertible for current account transactions since 1994. Consequently, earnings from the trading account are freely convertible into foreign exchange for the importation of goods.

Retention Quota: Exporters are at present allowed to retain 40 percent of their f.o.b. export earnings in foreign currency accounts denominated in U. S. Dollars, Pound Sterling, Deutsche Marks, Japanese Yen or the Euro. The ceiling for foreign currency retention has gradually been increased: 20 percent under the Export Policy 1993-95, and 40 percent since the Export Policy 1995-97.

For export items with a high imported-input component, such as petroleum products (naphtha, furnace oil, bitumen), ready made garments, and electronic goods, the exporter's retention quota is 7.5 percent of f.o.b. earnings. According to the authorities, the higher retention quota allowed for exporters with low imported-input component is intended to encourage exporters to use more locally available inputs in their production. Exporters of services, such as legal advice, consultancy, and similar professional services, can retain 5 percent of their export earnings. Foreign currency can be used by exporters for, inter alia, undertaking business abroad, participating in export fairs and seminars, importing raw materials, machinery and spare parts or setting up overseas business offices. Only exporters are beneficial of this privilege. Such restrictions would inhibit e-commerce as traders and businesses have restrictions on remittance of funds.

International Credit Cards: Restriction on issuance of international credit cards prevails although local credit cards introduced by multi-national banks have become popular in Bangladesh. The Central Bank's main concern against issuance of international credit cards is flight of capital from Bangladesh. However, the Central Bank has no objection on issuance of a generally accepted credit card, which will be honored by all commercial banks for local use only. Regrettably, the network for this type of credit card has yet to be established.

Lack of internationally accepted credit card facilities deprives genuine businessmen from initiating businesses or making international transactions smoothly. Furthermore, it also sends wrong signals to their foreign counterparts about the inability of Bangladeshi businessmen to make speedy payments through international credit cards. The concern for abuse of credit cards for transfer of capital is weak since all credit cards have a maximum credit limit.

Illegal Cross-border Payment: As businessmen are allowed to carry a restricted amount of foreign currency legally, many of them make foreign payments through the illegal – but extensively used – system of “Hundi”. The Hundi system is based on a basic barter principle. In this system, an individual or even a business in one country can instantaneously transfer funds to another country without the inevitable hassle that characterizes official fund transfer channels. The Hundi works through middlemen who ensure that the amounts required by the individual or the business reach the recipient almost instantaneously. When the borrower is assured (through telephone calls or other means) that the recipient is in possession of the loan, he/it then pays an equivalent amount in the local currency to the local counterpart of the middleman. The popularity of this system increases whenever the official rate of international currencies varies significantly from the market rate. The Hundi system deprives the government of the much sought foreign exchange reserves.

3.4 Human Capital

Successful application of e-commerce demands not only availability of technology and infrastructural facilities but also a skilled manpower that can appreciate and apply it. Bangladesh lacks skilled manpower and knowledgeable managers in the IT sector. Computers are primarily used for word processing, making presentations, e-mails in selected formal sector business establishments. However, the communication is constrained by the quality of verbal and written communication skills in English, which is mediocre at best, even among university graduates. If Bangladesh aims to interact closely with the international markets and seeks growth through exports, improved communication and computer skills among various segments of the society are imperative.

A good understanding of the current benefits and future opportunities of e-commerce is essential for the advancement of e-commerce. The lack of knowledge among public officials about the Internet and its potential, and their application in e-commerce, significantly handicaps policy reforms in this sector. In the private sector, viable IT sector projects fail to obtain financing due to the lack of understanding of the investors.

In the software development sector, Bangladesh has not shown much success because of the lack of qualified programmers and lack of initiative in the development of skilled manpower. Isolated, individual efforts were taken for initiating data entry and software export with limited success. These efforts were not successful because of inadequate experience, lack of quality control, inability to meet the deadlines as well as a failure to globally market Bangladesh's keen interest and attempts to enter this market. However, selected entrepreneurs and organizations continue to make concrete and positive efforts to become involved. For instance, the Grameen Bank has recently set up a Software Village, the long term goal of which is to increase software exports from Bangladesh.

3.5 Governance and Policy Implementation Constraints

Regulatory intrusiveness is a way of economic life in Bangladesh. Ageing laws on patents, trademarks and copyrights; post and telegraphs; land ownership and transfer; and employment have yet to be brought into alignment with modern practices and requirements (The World Bank, 1996).

In addition to this, Bangladesh has an intractable problem of poor governance. This has been manifested in the form of continued involvement of politicians and public officials, often in collusion with the private sector, in undermining the rule of law. As a consequence, institutions continue to remain weak and legal and regulatory reforms are difficult to implement. Rent seeking activities galore, discouraging competition and promotion of efficiency.

The problem of poor governance in conjunction with ambiguously drafted, inconsistently applied, and often contradictory regulations makes the whole process of dealing with the government an experience that most businessmen prefer to avoid. The lack of confidence in secure and flexible business transactions is widespread among the business community. This makes the prompt implementation of legislation and enforcement of court rulings just as important as the very substance of the legislation itself.

Poor governance can be both a cause and an indirect effect of ineffective e-commerce development. If the cost of doing business remains high, characterized by bottlenecks, red tape and corruption, the efficiency gains from e-commerce becomes moot. Trade and commerce through e-commerce assumes business norms and practices that are mutually acceptable or understandable between buyers and sellers. Poor governance discourages trade in general and e-commerce in particular. The amount of time that businesses have to spend as well as the side payments they have to make to complete any simple transaction can be lengthy and time consuming. As examples, obtaining a passport, registering a land title, procuring a building permit or accessing telephone connection or licenses are usually an expensive and unpleasant experience (Table 3.2).

Conducting business at the Chittagong port (the main port of Bangladesh) is comparatively more expensive than anywhere else in the region. The handling charge for a 20 feet container is $640 in Chittagong as compared to $220 for Colombo, $360 for Bangkok and $216 for Singapore. One of the main reasons for such abnormally high costs for the port in

Bangladesh are frequent strikes (hartaals) and arbitrary work stoppages by the trade unions. (The Daily Star, December 8, 2000)

Table 3.2: The Hidden Cost of Service

Service	Standard Waiting Time	Informal Payment for Faster Service
Electricity		
High Tension Connection		Taka 100,000-150,000
Low Tension Connection		Taka 10,000-15,000
Gas	3 months	Taka 40,000
Water	3-4 months	Taka 14,000-20,000
Phone	10-12 years	Taka 50,000-70,000
Trade License for a Garments Factory	1 year	Taka 5,000-8,000
Garments Factory Construction License	Supposed to take 1 month but takes longer	Taka 30,000-33,000

Source: *Government That Works, Reforming the Public Sector*, The World Bank, 1996

Customs clearance and procedures continues to be saddled with delays and allegations of informal payments. The introduction of Pre-shipment Inspection (PSI) agents, and the Green Channel are steps in the right direction in promoting speedy movement of goods. However, the government's reliance on Customs as a major source of tax revenue and private sector's attempts to find ingenious means to forego taxes (at times in collusion with Custom officials) demands further modernization and improved monitoring systems of the Custom authorities.

Corporate taxes are high and burdensome, because of the hassle involved in dealing with tax authorities – resulting in widespread tax evasion. Modest coverage and weak enforcement make corporate taxation a minor contributor to the treasury. In addition, the tax system is not client friendly, appeal procedures are lengthy, and definitions of deductible business expenses are strict and nontransparent.

For developing economies like Bangladesh, Foreign Direct Investment (FDI) is believed to be critical for much needed capital in infrastructural development, infusion of technology and for accessing overseas markets. Bangladesh, primarily through its governmental agencies, has been wooing FDI for more than a decade with limited success. The annual foreign direct investment in Bangladesh was $83 million in 1994-95 and increased to more than $380 million in 1997-98 [Data International, 1999]. In recent years, FDI has come primarily in the gas, power and telecommunication sectors.

The major reasons for poor FDI into Bangladesh are its small domestic market, poor infrastructural facilities, weak governance and poor law and order conditions. Bureaucratic red tape and corruption also dissuades domestic as well as foreign investment. E-commerce and FDI are likely to reinforce each other's presence and growth. Greater involvement of international businesses will offer greater demonstration effect on the merits of e-commerce, and concurrently remove the impediments to its use. Acceptance and successful application of e-commerce would enhance the business environment, sending signals to foreign investors that it is becoming easier to do business in Bangladesh.

4. Conclusions and Recommendations

Despite being a poor country, selected segments of the Bangladeshi business community has embraced technology with reasonable success. The Facsimile in the 1980's and mobile telephones in the 1990's popularized modern technology in the mass market. Personal computers and the Internet are also emerging as day-to-day business tools. These positive indicators are favoring the prospects of e-commerce in Bangladesh.

The focus of this paper was on the current state of the regulatory environment in the financial and technological sectors of Bangladesh. Necessary reforms in order to introduce e-commerce have also been suggested. Lack of awareness among the policymakers has been identified as the major deterrent to introducing e-commerce. Conventional understanding of payment mechanisms raises false alarms against the flight of capital if e-commerce is implemented.

Synergy between telecommunications and information technology has the proven capability of monitoring and administering the real-time transactions. Therefore, liberalizing the telecom and IT sectors as well as reforming the country's financial and commercial procedures is the preconditions of successfully implementing e-commerce in Bangladesh.

In the case of marketing, simply having a website in the vast sea of the Internet is not sufficient. Uniformity is an important factor in the commencing of contracts through the Internet. Therefore, to take advantage of the newer opportunities that IT development presents, the Bangladeshi companies have to attain internationally accepted certification on quality control, competitive price and timely delivery.

This paper presents possible e-commerce application in the RMG sector. Availing of the IT technology by the RMG as well as other export-oriented industries is likely to become a necessity (because of international demands and expectations) rather than a choice. Banks, customs and other supporting institutions, along with the entrepreneurs exporting goods and services, will have to accommodate the external demands in order to maintain competitiveness and open new global opportunities.

Creating awareness among the Bangladeshi exporters regarding e-commerce is essential. They have to be knowledgeable to appreciate and to utilize the benefits of IT. The exporters are not required to acquire operating knowledge on IT. Their understanding on the cost-benefit aspects followed by adopting e-commerce would be an achievement. Business associations can play a major part at this juncture by highlighting the benefits of IT to its members, and encouraging them to use customized software for their day-to-day operations.

The overview of the legal and regulatory statutes suggests that Bangladesh has made significant progress in facing the challenge of globalization and concurrently, embracing e-commerce in due course. Technological and infrastructural constraints to e-commerce can be overcome if existing laws and regulations are implemented. A better understanding of the potential benefits of e-commerce by the policy makers and bureaucrats is essential for speedy implementation and further reforms.

4.1 Major Constraints to E-Commerce

This paper highlights various constraints to commerce and trade in general and e-commerce in particular. Many of these constraints are endemic across the business sector and demands major reforms through strong political commitment and an ability to implement policy changes. A list of specific constraints to e-commerce that policy makers can address in the short and medium term is summarized below.

- Too few telephone connections.
- Absence of a strong independent regulatory body for the telecommunication sector.
- Absence of encryption law that precludes acceptance of digital signature.
- Strong dependence of Letter of Credit to conduct international transactions.
- Non-issuance of international credit cards for cross border transactions.
- Interest rate ceiling on export loans.

4.2 Recommendations

<u>Short term (Achievable by June 2001)</u>

1. Bangladesh Telecommunications Regulatory Commission (BTRC) should be established independent of the government control.

1. Voice over Internet Protocol (VoIP) and private international gateway for voice and data should be allowed.

2. The provision of obtaining permission from MOPT, prior to leasing the capacity from GrameenPhone’s optical fiber network should be abolished.

3. The tariff of BTTB’s DDN should be rationalized in order to make it affordable for the mass market.

4. Unlicensed radio frequencies should be made available on demand.

5. VSAT operating licenses should not limit the bandwidth.

6. The number of pre-shipment agents (PSI) should be increased. The size of fines and penalties on PSIs should be increased for breach of rules and regulations.

Medium term (Achievable by June 2002)

1. Basic telephony in private sector should be allowed for nationwide operations.

2. Posting of government documents and publications including budgetary information on the Web should be instructed.

3. Contracts and other alternates to Letter-of-Credit (L/C) should be allowed as legal methods for international transactions.

4. Foreign exchange controls on travel and for business should be relaxed.

Long term (Achievable by December 2002 and thereafter)

1. BTTB's monopoly in the nationwide long distance services should be ended.

2. The number of telephone lines should be increased to encourage private providers to come into this sector.

3. The control of foreign exchange should be liberalized gradually, and issuance of International Credit Cards should be allowed.

4. Government officials are to be oriented on the benefits of e-commerce. For instance short course can be offered at training centers such as the Public Administration Training Center (PATC).

5. Business associations and organizations should be made aware of the benefits of e-commerce. BGMEA can play a significant role in this.

6. Greater competition among the Internet Service Providers (ISPs) should be promoted and new ISPs should be encouraged to come into business.

7. Revise and update ageing laws on trademark, copyrights and evidence.

8. Court procedures should be simplified and expedited. Administrative and institutional constraints in settling disputes should be removed.

9. Laws that allow encryption should be developed, thereby paving the way for authenticating transactions electronically.

10. Political commitment to improve governance and institutional strengthening are essential for successful application of e-commerce.

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Annex I: Regulatory and Policy Aspects of E-Commerce

Table A1: List of Documents Required for Import, and the Relevant Authorities

Document	Authority
Letter of Credit (L/C)	Issuing bank
Letter of Credit Authorization (LCA)	Issuing bank
Bill of Lading (BL) / Airway Bill (AWB)	Shipper / carrier
Invoice, packing list	Supplier
Pre-shipment inspection Certificate	Pre-shipment Inspection Agency
Health and Phytosanitary Certificate (applicable to import of food and edibles)	Country
Radiation Test Certificate (applicable for products of plant origin)	Atomic Energy Commission
Quarantine Certificate (applicable for products of plant origin)	Plant protection wing of ministry of Agriculture
Certificate of quality (applicable for pharmaceutical products and raw materials used by the pharmaceutical industry)	Drugs Administration
Certificate regarding economic use and life expectancy (applicable for used and reconditioned machinery)	Internationally reputed surveyor
No Objection Certificate / prior permission (applicable for explosive substances)	Chief Inspector, Explosives
Aquatic Animal Health Certificate (applicable for live fish)	Department of Fisheries of exporting country
Phytosanitary / Health Certificate (applicable for fruit)	Ministry of Food

Source: Trade Policy Review, April 2000, Ministry of Commerce, Dhaka

Table A2: List of Documents Required for Export, and the Relevant Authorities

Document	Authority
Export Letter of Credit (LC)	Issuing bank
Invoice	Exporter
Packing list	Exporter
Certificate of origin	Export Promotion Bureau
Health-cum-quality Certificate (applicable for frozen fish)	Department of Fisheries
Quarantine Certificate (applicable for goods of plant origin)	Ministry of Agriculture
Authorization Certificate (applicable for tea)	Tea Board
No Objection Certificate (applicable for pharmaceutical products)	Drugs Administration
No Objection Certificate (applicable for goods sent to international fair / exhibition)	Export Promotion Bureau
Export Price Certificate (applicable for jute)	Bangladesh Bank
Export Permit and NOC (applicable for goods for repair)	Chief Controller of Import and Export for export permit, and Chief Conservator of Forests for NOC

Source: Trade Policy Review, April 2000, Ministry of Commerce, Dhaka

Table A3: Certificates Required for Export (by Item)

Product	Certificate or Permit	Issuing Ministry or Agency
Any product as required by the importing country	Certificate of Origin	Export Promotion Bureau or Chamber of Commerce and industry
Frozen fish	Health-cum-quality Certificate	Department of Fisheries
Goods of plant origin	Quarantine Certificate	Ministry of Agriculture
Tea	Export Authorization	Tea Board
Pharmaceutical products	No Objection Certificate	Drugs Administration
Goods For International fair or exhibition	No Objection Certificate	Export Promotion Bureau
Jute	Export Price Certificate	Bangladesh Bank
Goods for repair	Export Permit	CCIE
	No Objection Certificate	Bangladesh Bank
Ready-made garments	GSP Certificate	Export Promotion Bureau
Live wild animals	Export Permit No Objection Certificate	CCIE Chief Conservator of Forest

Source: Trade Policy Review, April 2000, Ministry of Commerce, Dhaka

Table A4: Ministerial Responsibility for Trade and Trade-related Issues

Government Ministry / Agency	Area of responsibility
Ministry of Agriculture	Agricultural policy, SPS
Ministry of Commerce	Import and export policies, WTO coordination, SAPTA and other regional agreements, insurance services
Chief Controller of Import and Export	Registration of importers and exporters
Export Promotion Bureau	Export promotion, textile quota administration
Tariff Commission	Tariff policy, anti-dumping and countervailing investigations, safeguards
Ministry of Cultural Affairs	
Copyright Office	Copyright
Ministry of Finance	Banking services, subsidies
National Board of Revenue	Customs, pre-shipment inspection, customs valuation, tariffs and other duties, tax holidays and tax concessions, duty drawbacks
Ministry of Industries	Industrial policy
Bangladesh Standards and Testing Institute	Standards
Bangladesh Small & Cottage Industries Corporation	Small and cottage industries
Department of Patent Designs, and Trademarks	Patents, industrial designs, and trade-marks
Bangladesh Bank	Export finance, banking services, interest rate subsidies
Ministry of Post and Telecommunications	Telecommunications service
Ministry of Civil Aviation and Tourism	Air transport
Privatization Board	Privatization of state-owned enterprises
Board of Investment	Registration of investors (including foreign investment), investment facilities
Ministry of Energy and Mineral Resources	Energy policy
Ministry of Shipping	Maritime transport
Ministry of Health	SPS

Government Ministry / Agency	Area of responsibility
Ministry of Economic Planning	Five-Year Plan
Bangladesh Export Processing Zones Authority	Export processing zones
Ministry of Jute	Jute policy
Ministry of Textiles	Textile policy
Ministry of Fisheries and Livestock	SPS
Department of Supply and Inspection	Government procurement

Source: WTO Secretariat, base on information provided by the Bangladeshi authorities

Box A1: Objectives of the Industrial Policy 1999

1. To expand the production base of the economy by accelerating the level of industrial investment.
2. To encourage the private sector to lead the growth of industrial production and investment.
3. To focus the role of the Government as a facilitator in creating an enabling environment to expand private investment.
4. To permit public undertaking only in those industrial activities where public-sector involvement is essential to facilitate the growth of the private sector and/or where there are overriding social concerns to be accommodated.
5. To attract foreign direct investment both in export and domestic market-oriented industries to make up for the deficient domestic investment resources, and to acquire evolving technology and gain access to export markets.
6. To ensure rapid growth of industrial employment by encouraging investment in labor-intensive manufacturing industries including investment in efficient small and cottage industries.
7. To generate female employment in higher skill categories through special emphasis on skill development
8. To raise industrial productivity and to move progressively to higher-value-added products through skill and technology upgrading.
9. To enhance operational efficiency in all remaining public manufacturing enterprises through appropriate management restructuring and pursuit of market-oriented policies.
10. To diversify and rapidly increase the export of manufactures.
11. To encourage the competitive strength of import substituting industries in catering to a growing domestic market.
12. To ensure a process of industrialization that is environmentally sound and consistent with the resource endowment of the economy.
13. To encourage balanced industrial development throughout the country by introducing suitable measures and incentives.
14. To utilize effectively existing production capacity.
15. To coordinate trade and tax policies.
16. To develop indigenous technology and to expand production based on domestic raw materials.
17. To rehabilitate deserving sick industries.

Source: Industrial Policy 1999

Box A2: E-Commerce in the Developing World

In Bangladesh about 82 per cent of Internet traffic consists of e-mail, while in the United States the Web accounts for 70 per cent and e-mail only 5 per cent (ITU 1999). As a mode of information management, the Internet competes with, but also complements, other modes. It is a cheap if imperfect substitute for telephone and fax services: cheap because of the higher transmission speed of a given information bundle or, viewed differently, the large quantities of information that can be transmitted per unit time; imperfect because, unlike telephone at least:

(a) it does not permit two-way communication in real time, and

(b) it presumes basic literacy or the ability to hire a literate message transcriber.

In any event, it makes use of the telecommunications infrastructure, whose inadequacy in many parts of the developing world (notably in rural areas, where most of the developing world's population, and a disproportionate share of its poor people, still lives) precludes telephone, fax, or Internet use. Wireless (or mobile) telephony has emerged as a potential solution to the rural telephone deficit and as a possible "bridging" technology from an unwired world to an Internet-accessible one. While state-of-the-art mobile telephones already offer the potential of direct Internet access, even without this capability in many low-income countries mobile phones are diffusing rapidly, in some cases even in rural areas (e.g., the Grameen village phone network in Bangladesh).

Source: Andrea Goldstein and David O'Connor, www.oecd.org/dev