  

Market Scan on the Bangladesh Water Sector

Final Report

December 2010

Dutch Government

Mott MacDonald

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Embassy of the Kingdom of The Netherlands

Mott MacDonald, Amsterdamseweg 15, 6814 CM Arnhem, PO Box 441, 6800 AK, Arnhem, Netherlands
T +31 (0)26 3577 111   F +31 (0)26 3577 577   W www.mottmac.com

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Content

Appendices

Tables

List of Abbreviations

ADB	Asian Development Bank
ADP	Annual Development Plan
BADC	Bangladesh Agriculture Development Corporation
BDT	Bangladesh Taka
BEPZA	Bangladesh Export Processing Zone
BIWTA	Bangladesh Inland Water Transport Authority
BIWTC	Bangladesh Inland Water Transport Commission
BO	Business Organization
BOI	Bangladesh Investment Board
BWDB	Bangladesh Water Development Board
CEGIS	Center for Environmental and Geographic Information Services
CZM	Coastal Zone Management
DoE	Department of Environment
DPHE	Department of Health Engineering
DWT	Dead weight tonnage
IFI	International Financing Institutions
IWM	Institute of Water Modelling
IWT	Inland Water Transport
LGED	Local Government Engineering Division
LGRDC	Ministry of Local Government, Rural Development & Co-operatives
MoA	Ministry of Agriculture
MoWR	Ministry of Water Resources
NGO	Non-governmental Organization
NWMP	National Water Management Plan
NWP	Netherlands Water Partnership
ONRI	NL Ingenieurs
ToR	Terms of Reference
WARPO	Water Resources Planning Organization
WASA	Water Supply and Sewerage Authority
WSS	Water Supply and Sanitation

Executive Summary

Introduction

1. The study “Market Scan on the Bangladesh Water Sector” aims to provide an insight into the business opportunities that are available within the various water markets in Bangladesh and whether the Dutch private sector would be interested to transact in that market. The perception of the Dutch private sector about doing business in Bangladesh and a matching of market opportunities with interests of private sector from both countries is a strong focus of this study. In preparing the study surveys of Dutch and Bangladesh private sectors as well as relevant public organizations and donors with significant portfolio have been carried out. Data and information from the surveys, discussions with several key players in the Dutch and Bangladesh public and private sectors, reviews of recent relevant studies on different aspects of the water sector provided the basis for the Consultant’s findings and conclusions outlined in this report.

The Water Sector and Water Markets

2. The water sector covers a range of different markets and themes. The water sector is defined by positing an outline of the water chain and combining product types such as services, works, and goods/supplies. The resulted definition corresponds reasonably close to those defined by the Water Mondiaal Mission Report, the publication Dutch Water Sector 2009-2010, which provides a directory of companies under various market segments. The water market segments then includes (i) water surface (flood protection and drainage), (ii) Water harvesting, (iii) water use for consumption purposes (urban and rural drinking water, agricultural water), (iii) water use for non-consumption purposes (river and sea transport, dredging, tourism), and (iv) water discharge (wastewater). Chapter 2 of the report provides a broader definition and outlines a typology of the full water markets. The inclusion of the above water markets is rationalized in terms of identification of specific opportunities for business development through product market combinations. Several of the markets have been left out from this study because of a lack of market opportunity and involvement of the private sector, small size of the market, and that market is locally dominated.

3. The water markets, as identified above, have solid growth potentials and need expansion in order to contribute and support economic growth in Bangladesh. A brief analysis of markets in (i) Dredging, (ii) Shipbuilding, (iii) Inland Water Transport and Container Terminal, (iv) Urban and Rural drinking Water, (v) Sewerage, (vi) Seeds, (vii) Irrigation Pump Technology, (viii) Water-Based Tourism, and (ix) Flood Protection and Drainage indicates an increased level of private sector engagement, robustness of the market, and fiscal and other incentive regimes in place. In all these markets the private sector has established itself, and it will more in the near future, as the key player. Foreign firms have also entered several markets such as Dredging, Shipbuilding, Water Treatment Plants, Water-Based Tourism, and Effluent Treatment Plants forming joint venture operations with Bangladeshi counterparts indicating the markets soundness and feasibility.

Public Sector – Roles and Performance

4. While the water sector has been significantly supported by funding agencies, the public sector within the water market plays a dominant role in overall planning, design, and implementation of programs and projects. In the majority of the cases, the agencies within the public sector act as the regulatory body and ensure the management and operation of relevant activities. Public sector is directly and indirectly involved in the planning, programming, management and operations of all activities for water resource management, water and sanitation supply, flood protection and drainage, and coastal zone management. It also through its policy and regulatory roles impact other areas such as shipbuilding, inland water transport, tourism, wastewater, and water treatment where increasingly private sector engagement is seen. A large number of departments and agencies supporting 10 different ministries have shared responsibility for such an extensive engagement of the public sector. It is to be noted that success has been achieved in terms of managing cyclones and disasters, tackling emergency issues, establishing decentralized planning and community based participation that has increased accessibility of water and sanitation services. However, performance of most agencies is poor and governance remains weak. The critical issues relating to public sector institutional performance are:

- <u>Lack of coordination:</u> While each agency’s roles are strongly interconnected, they are ineffective in coordinating activities leading to a failure in project implementation and addressing market needs.

- Lack of an integrated Approach: There is no comprehensive analysis of the financing requirements necessary to achieve the objectives of the projects and ensure the sustainability of the investments. Neither there is an analysis of the project's suitability within existing plans and strategies.
- Capacity: There is a lack of manpower or manpower with appropriate skills, lack of technology, database, and institutional strategy. In some cases, this has led donors to add clauses to loans stating that additional staff will need to be employed prior to the provision of the loan. However, recruitment of suitably qualified staff, particularly in rapidly growing new fields (e.g. water quality management, database and information management) remains difficult, with many posts left unfilled.
- Strategies and ad hoc operations: Many existing plans and policies (National Water Policy, National Water Master Plan) provide a clear and effective framework for projects and operation but they are not followed during implementation.
- Fund Allocation and disbursement: Often it is reported that the funds are insufficient resulting in the agency's inability to meet investment and O&M costs. Service charges for water consumption are low and inadequate to cover even O&M costs.
- Corruption and transparency: The issue is a significant challenge within the water sector.

The Bangladesh Private Sector Engagement in Water Markets

5. Until recently even within the non-consumption areas of the water sector such as inland waterways, wastewater, tourism, the public sector is engaged in direct management and operations. Private sector contractors are engaged in works and services mostly restricted to small-scale contracts awarded to small and medium size firms. Selection of contractors/service providers is based on low cost proposals resulting in low quality construction and maintenance works. Where large-scale schemes exist, for example in case of BWDB and BIWTA, contracts are fixed terms and there is a tendency to break the overall value into smaller parts. A lack of forum to hold dialogue with private sector operators exacerbates a long-tradition of distrust between the two parties making it difficult to jointly pursue challenges of and solutions for the water sector by attracting private sector management and finance. The GoB has recently put in place a Policy and Strategy for Public Private Partnership 2010. Without a PPP law or pertinent regulation that underpins any envisaged PPP it still is not sure how much of investment in infrastructure, particularly in the water sector could be attracted. There are several PPP frameworks arrangements being implemented such as in power generation (IPP), central effluent treatment plants in Export Processing Zones, water treatment plants, and these may provide further boost and lessons for increased PPP arrangements in water infrastructure projects.

6. Although private sector has been a key player in Bangladesh's achievement of sustained economic growth its involvement in the water sector has been limited. The water policy emphasizes private sector involvement in the water sector essentially to provide specific services in carrying out public institution's mandates. It does not mention the potential role of the private parties in financing or operating water infrastructure. A lack of clear policy and investment program by the government on PSP in the water markets is the principal reason for limited involvement of the private companies. Findings from the market research indicate substantive involvement of the private sector in non-consumption areas such as in shipbuilding, river port and transportation, dredging, industrial wastewater treatment, water-based tourism, pump technology, and water treatment. Commercial prospects and increased growth in those markets are attracting private sector activity and interests with the ability to provide better technology, management, and financing. In the traditional water sector such as water resources, coastal zone management, drinking water and sanitation, flood protection and drainage private businesses provide consultancy services and contract works and that will continue in the future. Unless there is a change in business models under which the public sector operates the above sectors and fair and transparent procurement processes are established private sector participation under B2G framework in traditional water sectors would remain local and within small and medium size contracting companies.

7. A sound enabling environment and investment climate is key to attracting any foreign investment, including Dutch private sector investments. Bangladesh has a good investment code comparable to regional country codes and it has appropriate incentive structures in place to attract foreign investment. There are though several investment climate constraints that thwart increased foreign investments in the country. Lack of serviced land and availability of land at an economic price, increased shortage of electricity, gas, and water, poor road network and transportation, difficulties with financial transactions such as L/C guarantees, customs regulations, all are contributing to a low level of investments, poor image that is further exacerbated by unstable political and security issues. With increased level of foreign investments in the country exploiting its comparative advantage of inexpensive labor, strategic location, and a long-term growth prospect, the removal of investment climate constraints could usher the country in sustainable growth path. The investment climate constraints that has created an image of the country as a difficult place to work in and operate impacts the perceptions of the Dutch private sector.

The Dutch Private Sector Engagement in the Water Sector and Perceptions of Bangladesh

8. More than half of the surveyed companies are currently transacting and/or considering carrying out business in Bangladesh, but this number is a result of the focus of the survey/questionnaire. It would be accurate to state that a large number of Dutch companies involved in the water sector do not operate in South Asia and more specifically in Bangladesh. Among the surveyed companies all are internationally active and while Europe appears to be the primary market, interests in the Asian market are high, and more specifically in the South Asian market. They also operate in at least one of the Delta countries of Indonesia, Vietnam, Bangladesh, Egypt and Mozambique. Dutch companies possess superior technology, top end know-how, and proven products and services and these are the key strengths of their operations in the international markets. These strengths indicate high-end markets where quality is sought after. What companies consider strengths in the water market vary from the type of market offers made. For services offers, for instance consultancy companies, having local contacts is a significant strength compared to other types of market offers. Besides the above, the Works group considers local contacts and the ability to finance as strengths, while the Services group considers the Dutch public sector support as a key strength.

9. Those operating in the Dutch private sector water markets, having been engaged in Bangladesh in the past or is currently operating, views the market as satisfactory and possessing a positive or neutral risk-reward ratio. The majority of the companies operate with some forms of local presence such as association with local firms, working with agents, and partners. Where a local office is set up and operated by a Dutch company or other foreign companies the results are very satisfactory. Much of this though would depend on market opportunities, management organization, and a strategic goal for long-term investment. In terms of barriers to doing business Dutch companies engaged in services sector indicate poor local management skills, lack of market information, low labor productivity, red tape, and supervising activities from the Netherlands as top ranked issues. The goods and supplies companies on the other hand see significant barriers in the business environment such as banking operations, organizing trade finance, profit repatriation, payment collections, fiscal structure, all financial aspects and lower down business environment aspects such as security risks and administrative hassle and corruption.

10. Those Dutch companies contemplating to entering the Bangladesh market perceive red tape and corruption as top barriers to doing business. Those companies still considering to entering the market in Bangladesh have similar views, placing a heavy emphasis on Business Environment barriers. Bangladesh's image as a corrupt, complex administrative and bureaucratic structure, uncertain rules and policies, are reflected in most responses. It is noted that there are differences in perceptions between the services/works groups and good/supplies groups as the former does business specifically in Bangladesh (B2G framework) where projects are financed by the international financing institutions (IFI), while the latter are directly engaged (B2B framework) with Bangladeshi private sector where projects are financed from commercial sources. Most IFI financed projects tendered by the public sector goes through unfair bidding practices. This view is also expressed by the Bangladeshi private sector. Some perceptions such as poor and deteriorating economic conditions, lack of knowledge of market and information is perhaps due to the inability of the Bangladesh Investment Board to promote Bangladesh as an attractive investment destination.

Facilitating Identified Business Opportunities

11. Business opportunities for Dutch private sector in Bangladeshi water sector have been identified mainly in the water non-consumption areas where B2B engagement is feasible. Opportunities in river and sea transport are highly perceived by Dutch companies already engaged in Bangladesh, as well as urban drinking water, wastewater and drainage and sewerage markets. Those companies operating in other countries of South Asia and not in Bangladesh perceive market opportunities to exist in surface and ground water, rural drinking water and agricultural water. The Bangladesh private sector indicates the need for partnering with foreign companies in order to fill gaps in management, technology, skills, and knowledge of specific technical areas. Interests from Bangladeshi private sector range from forming joint venture partnership to design, construct, and operate shipyards, inland container terminal, water treatment plants, effluent treatment plants, and providing water-based tourism marketing and technical assistance.

12. In order to ensure B2B and B2G/G2G engagement as outlined above further activities need to be carried out and they are outlined below.

- Supporting companies providing goods and supplies could include (i) preparation of specific market information briefs and leaflets, (ii) facilitating acquaintance with Bangladesh in order to overcome negative perceptions by supporting BOI in preparing appropriate promotion materials, publications, strategy, use of local companies for match-making, due diligence studies, (iii) supporting market entry to make initial contact, improvement of entry barriers such as partnering with commercial banks, (iv) broader networking and capacity building.
- Supporting companies engaged in the services sector could include (i) national and international policy domains by entering into public/private dialogue, (ii) supporting PP framework and capacity, (iii) exploring co-financing efforts for large projects to position Dutch expertise/companies, and (iv) engaging in specific studies such as port development (more ports, more shipbuilding, more maritime business), climate adaptation measures, etc.

1. Introduction

The Embassy of the Kingdom of the Netherlands in Bangladesh commissioned Euroconsult Mott MacDonald to carry out a study of the Bangladesh water sector aiming to understand the potentials and challenges of private sector involvement in the water market. Water Mondiaal is the new Dutch government policy to strengthen bilateral relations between some selected Delta countries: Indonesia, Vietnam, Bangladesh, Mozambique, and Egypt. One of its aims is to intensify the cooperation between the Dutch and local private companies in the water sector. The challenge is to understand what business opportunities exists, under which circumstances Dutch investors would be motivated/incentivized to invest in the Bangladesh water sector, what roles and capacity the Bangladesh public and private sectors have in realizing possible partnerships with Dutch investors, and what is the current enabling environment for investments and whether an improved enabling environment and governance is necessary for furthering the aims of the Water Mondiaal. This report details the above issues.

1.1 Objective of the Study

The objective of the assignment as formulated in the Terms of Reference (ToR) is clearly embedded in the Multi Annual Strategic Plan 2010-2011 and is defined as follows:

"The objective is to get insights in the business opportunities offered in the Bangladeshi water sector for the Dutch private water sector. This requires an analysis of the role of the government in this sector in Bangladesh, its relationship with the private sector, and an analysis of the enabling business environment - and good governance aspects in particular - in the water sector in Bangladesh."

The scope of the study is detailed in the ToR presented in Annex 1 to this report.

1.2 Methodology and Approach to the Study

In order to undertake assessments and analysis in the Dutch and Bangladesh markets in terms of the involvement of the private companies in the water sector sufficient and reliable data and information had to be collected. The following approach has been taken to collect data/information:

- In order to assess perceptions of the private sector in Bangladesh some 68 companies were approached, of which 34 respondents agreed to carry out an interview. A list of the companies interviewed is presented in Annex 2. All interviews were carried out with a structured questionnaire and the survey relied on qualitative assessments of the stakeholder's perceptions and opinions.
- Senior officials from relevant public sector institutions and donor organizations were interviewed. The list of the agencies contacted is presented in Annex 2. Discussions with the public sector organizations focused on an understanding of the roles of the specific institution, involvement with private sector, ongoing and planned projects and programs. Discussions with donor organizations focused on donor's views on the water markets, governance, strategy relating to donor involvement in the water sector, and ongoing and planned projects and programs.
- A database of 240 Dutch organizations/companies was prepared and contacted for an online survey. The survey was carried out with a structured questionnaire presented in Annex 3. From those contacted about 31 responded by completing the questionnaire[1]. Face-to-face interviews were also held with several companies such as shipbuilding, dredging, NWP members, etc.
- Reports and documents relating to the water sector were collected and consulted. A list of the documents is attached in Annex 4. These were found to be useful secondary sources of information and assisted the study in learning the current trends in the water sector.

[1] The response rate of 13% corresponds to a response rate of 15.8% achieved under a telephonic survey on internationalization of SMEs carried out by Berenschot in 2009.

2. The Water Sector in Bangladesh

Bangladesh is the largest River Delta in the world. Situated between the Himalayas and the bay of Bengal with three major rivers and an extensive network of 700 rivers, water of Bangladesh is a major resource that needs managed exploitation. Water of Bangladesh sustains a fragile environment, provides livelihood to millions of people and contributes strongly to economic growth. Over the last three to four decades, the government has paid considerable efforts with support from donor and multilateral financing organizations, to manage Bangladesh's water resources and water use.

2.1 Description of the Water Sector

The water sector covers different water market segments and themes. In developing a long-term partnership on delta management between the Governments of the Netherlands and Bangladesh it is clearly important to define the areas and themes of the water sector where cooperation would result in feasible and viable outcomes. Although the ToR defines the water sector to include river/water management, and drinking water supply and sanitation (surface drainage, solid waste, and sewerage),[2] there is a need to broaden this definition in order to assess the feasibility of B2B partnership.

The Water Mondiaal Mission to Bangladesh in April 2010 developed several themes and application areas such as: *Main themes can be summarized in the following clusters: spatial planning, salinity, sediments and river and coast morphology, ground water, agricultural water use, fresh water conservation and management versus drought, waste water, monitoring and data management, water governance and local empowerment, climate proofing (of national plans like NWMP), PPP models (BOT, BOO, DBFM), operation & maintenance, water treatment and water quality management.*

Major application areas are coastal zone management (including land reclamation), river management (including dredging), institutional reform of water management, climate change adaptation, food security and agricultural land/water use, spatial planning, inland navigation and transport.

The above provides a guidance to define the water sector for this study. A typology of the water sector is presented in Table 2.1. In preparing this typology Mott MacDonald consulted the above themes and applications of the Water Mondiaal Mission and the publication "Dutch Water Sector: 2009-2010", which provides a directory of companies under various market segments.

The rationale behind the typology is to allow identification of specific opportunities for business development through product market combinations. Products are works, goods or services. These three types of products are defined for the individual market segment. The typology allows investigations of the:

- Roles and involvement of the GoB in each market and for each product;
- Operation by the Bangladeshi private sector in specific markets and products;
- Quick scan of the specific market in order to assess product types, market opportunities, key players, market-specific incentives and barriers;
- Understanding of key Dutch players in specific markets where opportunities for business development appear to be strong and feasible within the same Bangladesh market

Based on the above typology further investigations and assessments are carried out in Chapters 3, 4, and 5. Business opportunities exist in several markets but not in all. Chapter 6 outlines the niche areas with market product combinations that indicate feasible and viable opportunities for market development based on B2B and G2B cooperation and partnership.

[2] ToR page 1 Section 1: Background.

Table 2-1 A Typology of the Water Sector

Water Chain	Market Segment[3]	Services (Consultancy/K-transfer)[4]	Works	Supplies/goods
Water Resource	Surface water	• Spatial planning • Water resource planning • Water governance reform • Remote sensing • Climate proofing/adaptation	• Erosion control • Data management	• Coastal Zone Protection • Flood control/protection • Management Information Systems
	Ground water	• (Geo-) Hydrology services • Ground water management • Pump technology • Contamination	•	• Purification/filtration • Extraction • Pumps
	Water harvesting	• Option engineering		• Harvesting technology • Desalination
Water Use (consumption)	Urban Drinking water	• Planning and feasibility • Operational Management • Water supply & Sanitation	• Management contracts • Treatment plant management	• Distribution and supply • Metering • Treatment and purification
	Rural Drinking water	• Groundwater management • (Geo-) Hydrology services • Extraction/ Recharge • Water Supply & Sanitation	• Arsenic reduction •	• Extraction and purification • Distribution and supply • Treatment • Water security • Pump technology (electric; manual)
	Industrial water	• Policy and Regulatory	• Treatment plant management	• Treatment plants • Recycling and re-use
	Agricultural water	• Irrigation management • O & M organisation • Ground water management • Water Management Organisations	• Erosion control • O&M management	• Dams & canals • Pumping • Second/tertiary • Drainage

[3] Divides the sector up on the basis of the core product. This division corresponds reasonably well with Dutch Water Sector 2009-1010 publication with index of companies.

[4] Divides the companies active in the sector on the basis of the type of market offer.

Water Chain	Market Segment3	Services (Consultancy/K-transfer)4	Works	Supplies/goods
Water Use (non-consumption)	River and Sea transport	• Port development	• River shipping services • Dredging and land reclamation • Water civil constructions • Port exploitation	• Navigation • Ship- and yacht building • Ferry terminals • Port infrastructure • Maritime suppliers
	Fisheries	• Policy and Regulatory • Aquaculture know how	• Aquaculture production/fish processing management	• River fishing • Pond fisheries • Sea fishing • Aquaculture
	Tourism	• Nature preservation in delta's and wetlands • Eco-tourism development	• Infrastructure investments	• Water based tourism supplies
	Energy/Oil & Gas		• Inspection services • Marine contracting • Logistical services	• Hydropower installations
Discharge	Sewerage	• Water supply & sanitation • Municipal infra planning • Local governance		• Latrines • Solid waste • Sludge
	Drainage	• Drainage and salinity	• Drainage infra	• Drainage supplies
	Waste water	• Policy and Regulatory	• Treatment plant management	• Waste water treatment • Process water recycling • Re-use

Below we briefly discuss the various market segments leaving out ground and surface water, industrial water, fisheries, and energy/oil & gas. The reason for leaving these market segments is because of a lack of market opportunity and non-involvement of private sector (ground and surface water/energy/oil & gas), small size of market (industrial water), and a local dominated market (fisheries). The description within each market segment in this study at times refers to product types such as Dredging (which is part of river and sea transport). Within the market segments some of the critical product types are then briefly described in this section. The outline for each market/product describes the position of the sector, role of the private sector, policy and regulatory issues, as well as key public sector institutional arrangements.

2.2 River and Sea Transport

2.2.1 Dredging

While different sources have identified dredging as a priority agenda for poverty alleviation and ensuring food security, dredging has only received due importance as recently as 2010, following government's initiative in chalking out a BDT 12,000 crore equivalent to € 1,270 million (project for dredging more than 300 rivers within the next eight years, as the length of navigable waterways in the country nearly halved in just two decades. The project proposal of Bangladesh Inland Water Transport Authority (BIWTA) titled Capital Dredging on Inland Waterways which was approved by the Planning Commission in July 2009 for implementation in two phases, identified 2,393km of waterways on 53 major river routes for dredging, to improve and restore navigability by 2018. The first phase, scheduled to start in January 2010 and conclude by December 2013, marked 23 routes for dredging at an estimated cost of Tk 4,201 crore (€440 million). The second phase, scheduled to start in January 2014 and conclude in December 2018, will dredge 30 river routes at an estimated cost of Tk 7,271 crore (€770 million). With the existing number of dredging projects that the government has in pipeline, it is estimated that at least 50 dredgers are needed. The government itself has approximately 18 dredgers, while the private dredgers have a total of nine dredgers. The dredging sector in Bangladesh has hence called for significant foreign investments for such massive dredging projects.

The private companies operating in the dredging market are expecting business worth BDT 15,000 crore (€1,590 million) in the coming years, as mentioned by the Bashundhara Group – a new entrant in the dredging market. The company already owns a fleet of 20 dredgers, which are used to acquire landfill for their real estate and other projects, while it has recently purchased two Merlin dredgers from USA each at a cost of $5.85 million, and having a capacity of dredging around 1843 cubic meter per hour. Apart from this new entrant, the private sector dredging market has for around a decade been operated by major players, namely: Abdul Monem Ltd., Bongo Dredgers Ltd., SS Dredgers & Engineers Co. Ltd., Reza Construction Ltd., and Pacific Marine Ltd. In spite of the presence of such key players in the private sector dredging market, the private sector has yet not been able to provide sufficient dredging services for national projects because international tender for such projects have been floated requesting bidders with 10 years' qualification in government dredging projects and a bidding rate of BDT120 per cubic metre. Such qualification requirements have made it difficult for the local private companies operating in the dredging market to bid for government projects. SS Dredgers & Engineers Co. Ltd., a strong player in the dredging market, informs that there has been hardly any fund or activity for dredging in the past six years. The private sector sold off their cutter suction dredgers 20" and 24" made by IHC Holland to India and Malaysia in 2007-2008 due to lack of dredging jobs.

The BIWTA being the principle authority to execute dredging jobs has dredged 3.4 million cubic meters in 2009-10, when the majority of the work was done by the private sector since the BIWTA dredgers were not efficient enough. Bangladesh Water Development Board (BWDB) has also not been able to operate efficiently since out of the 15 dredgers (each measuring 18") only five to seven are operational.

In a letter recently addressed to the Prime Minister, the private Cutter Suction Dredger Owner's Association of Bangladesh requested for tenders with suitable sized dredging packages which will allow local dredging companies to qualify for bids and carry out dredging activities throughout the year, and increase the existing dredging rate per cubic meter as offered by different public organizations. Large initial investments in purchasing dredgers (BDT30 crore, equivalent to € 3.2 million, per dredger) and a high interest rate (13%) make financing of dredging operations costly for the private sector. In the letter to the PM requests were made for lower interest rate and reduction in duty and taxes (by announcing dredging as a separate industrial sector) for the purchase and procurement of more dredgers.

2.2.2 Shipbuilding

Bangladesh is a maritime nation with 166,000^2 km area of sea and about 90% of all foreign trade is moved by sea transportation. There are some 200 shipbuilding and repairing yards in various locations in the country. Much of these shipbuilding yards are engaged in building and repairing small inland and costal vessels up to 3,500 DWT.

The private sector has emerged as the major player in the industry. There are dozens of shipyards in Dhaka, Narayanganj, Barisal, and Khulna districts, where small size ships are built. In Dhaka, over twenty large and six small shipyards are located on the southern bank of river Buriganga. Some 4,568 inland small-sized vessels are registered with the Department of Shipping, half of which range less than 30 meters. While precise number of operating vessels is hard to determine information from shipyards informs that some 400 to 600 ships are built/rebuilt each year, i.e. a total of 2,000 to 2,400 ships over the last five years.

The private shipping industry has gradually stepped into the international market and gearing up to manufacture modern international vessels. Ananda Shipyard already exported the first ocean going ships in 2008 to Denmark. Ananda Shipyards and two other shipyards Western Marine Shipyards Limited in Chittagong and HighSpeed Shipbuilders at Narayanganj have succeeded in attracting international shipping orders:

Over 60% of the components required to manufacture a ship in Bangladesh is imported. Imports of components are even higher (90%) when ships are manufactured and destined for exports. The existing local component and services suppliers are not yet able to produce quality products required for classed vessels. It should be mentioned here that recently a Bangladeshi company “Sea Resources Group” has set up joint venture operations with two Danish companies to manufacture fish net, trawl doors and hydraulic equipment.

Table 2-2 Current Order Book of the Shipbuilding Companies in Bangladesh

	No of Vessel		Value of contract ($M)
Ananda Shipyard and Slipways	28	2013	348
Western Marine	12	2013	130
High Speed Shipbuilding	3	NA	50
Total Order Value	43		528

2.2.3 Inland Water Transport and Container Terminal

Inland waterways in Bangladesh cover some 11% of its total surface area. With some 700 rivers and tributaries and 24,000 km long network Bangladesh has one of the largest inland waterways networks in the world. A developed Inland Water Transportation (IWT) could substantially contribute to economic growth, bring rural households within reach of easy transportation facilities, and play a strong role in the transport sector of the country. Despite it being such an asset very little has been done to develop and maintain IWT. Over the past two decades IWT cargo traffic has stagnated, passenger traffic has decreased at 1.3% per year, and the waterways network has dwindled to some 6,000 km.

Studies reveal that IWT is a less expensive mode of transport compared to rail and road[5]. Considering the facts of low land-man ratio and scarcity of land for further expansion of road networks in the country, IWT will gain importance. The Dhaka-Chittagong economic corridor contains 32% of population, generates 50% of GDP, and about 85% of the country’s international trade through the Chittagong Port. A report by the Asian Development Bank (ADB) also stated that Bangladesh could raise its GDP by 1% and foreign trade by 20% if the inland water transport logistics systems are made efficient and competitive.

A report based on the discussions of Transport and Communications in the fifth session of Bangladesh Development Forum Meeting 2010 (dated 15 -16 February) mentioned that BIWTC currently operates 35 ferries in different routes, and ocean shipping performs 80% of the export-import trade. The report identified that the IWT sub-sector suffers from (i) siltation problem in inland waterways, (ii) day & night navigational problems of waterways, (iii) shortage of passenger & cargo handling facilities including transit sheds at river ports, (iv) presence of manual loading/unloading of cargo at river ports, (v) underdeveloped rural launch landing stations, inadequate number of river and ocean going water crafts, etc.

[5] Revival of Inland Water Transport: Options and Strategies (November 2007), World Bank

Inland ports have been inadequate and in poor condition, while rural landing facilities - pontoons and jetties - are scarce compared to the needs. The private sector plays a dominant role in the country boat sector and passenger and freight services on the main river ways, but the public sector has a virtual monopoly for ferry services. There is ample scope for private sector participation in providing ferry services.

In the year 2000, a National Shipping Policy was adopted to introduce reform and private sector participation (PSP) in development of ports and inland waterways. The projected container traffic flow at Chittagong Port is expected to cross two million TEUs mark at the year-end 2014, with a growth rate of 11% in average per year since 2004. The planned CTG Deep Sea Port in the year 2020-22 will bring in additional capacity and will consequently pave the way for increased transportation of containers by inland river ways. Moreover, in the Forum discussants also mentioned that the upcoming inland container terminal projects - the Dhaka ICT at Pangaon (116,000 TEU), Rupayan Ports and Logistics ICT at Dhamgarh (156,000 TEU), and Summit Alliance ICT at Muktarpur (100,000 TEU) will add up to 372,000 TEUs catering for 27% of the available capacity (1,299,000 TEUs) in 2012. The CTG Port Container Terminals in 2008 functioned at 60% capacity level. With the inclusion of New Mooring Container Terminal in service in 2011 and planned Karnaphuli Container Terminal and Patenga Container Terminal in service by 2016-17, Chittagong Port Authority is poised to handle the additional containers resulting from the demand of the country's expanding economy.

The following challenges for IWT are identified:

- channeling of the existing waterways through massive dredging and procurement of dredgers;
- construction of deep sea port to streamline international trade;
- improvement of day and night navigation for water crafts by providing navigational aids; and
- construction of inland container river ports for transportation of containers by waterways to/from sea ports etc.

With the identification of the aforementioned challenges, the Development Forum Meeting suggested to:

1. Establish of Deep Sea Port at Sonadia, Chittagong
2. Undertake capital dredging on Inland Waterways (total target 327.6 million cubic meters
3. Procure 17 dredgers, crane boats, Tug Boats, House Boats with the accessories
4. Develop and modernize Inland River Ports with infrastructure facilities
5. Prepare Port Master Plan Study
6. Establish Maritime Navigation and GMDSS Communication System
7. Place more navigational aids to the river routes for smooth day-night plying of watercrafts

Development of waterways in and around Dhaka city has already been undertaken and 30 km of dredging in Buriganga and Turag and construction of landing facilities at 10 places have already been completed. The remaining works targeting 40 km dredging in Turag and Balu rivers, and construction of landing facilities at three places including development of Tongi river port are in progress, and is planned for completion by June 2012.

2.2.4 Urban and Rural Drinking Water

Without taking into account the presence of arsenic, 99% of the urban population and 97% of the rural population actually had access to an improved source of water supply according to the Demographic and Health Survey of 2004 but percentage coverage reduces to 74% due to presence of arsenic in ground water. In urban areas coverage is broken down as: 31% piped & 68% tube wells & in rural areas 0.6% piped, 96% tube wells, 1% dug wells, and more than 2% ponds, lakes and rivers.

Source of water

Sources of drinking water supply rely mainly on ground water. In rural areas, more than 97% of the population relies on ground water. Ground water is being depleted in many areas and contamination with arsenic is a problem as well as excessive dissolved iron, salinity in coastal areas, rock/stony layers in hilly areas. Urban water supply also depends on ground water source. In Dhaka 82% of the water supply in abstracted from ground water. Surface waters are polluted by agriculture, industrial, domestic, and municipal sources. The use of surface water for drinking purposes requires clarification and disinfection by elaborate and expensive treatment processes.

Water Supply Technology

Water supply technology used in rural water supply are: shallow tube well, deep set pump tube wells, deep tube wells, dug wells, pond sand filters, rain water harvesting, arsenic removal technology & iron removal technology. Normal hand pump, Tara pump & Tara dev pump are generally used for tube wells. In urban water supply, water treatment plants, Iron removal plants, direct pumping from production tube wells with chlorination are used.

Tariffs and Cost recovery:

The National Water Management Plan (NWMP) provides for the gradual increase of water tariffs to fully recover the costs of service. But the water tariff is low, average tariff in Dhaka WASA was US $ 0.08 per cubic meter in May 2007. The water connection fees were between US $ 29 and US $ 60 according to size of the pipe connection. The cost recovery in other urban area is very poor. According to ADB in a sample of 61 pourashvas, the total average revenues (including tariffs and taxes) per pourashava were US $ 1827 in the year 2000 against operation & maintenances cost of US $ 187, 831. The average urban water tariff in 2007 was USD 0.12 per cubic meter.

2.2.5 Sewerage

In 2003 the sanitation coverage was 53% in the pourashavas and 70% in the city corporations. By June 2005 these figures apparently increased to about 74% for both pourashavas and city corporations. Conventional sewer systems are absent in all urban areas except Dhaka where 20% of the population is served by sewer network while the rest use septic tanks, pit latrines, unhygienic latrines, or none at all.
The main technologies & suitable for rural sanitation in Bangladesh are:

- Home-made pit latrine without water seal
- Water sealed single pit latrines
- Water sealed twin pit latrines
- Community latrine/school latrine
- Septic tank provision

Till mid- 2005 about 10.5 million latrines were installed. The rural sanitation coverage increased from 29% to 57% during 2003-2005.

Investment & Finances

The Government’s development investment in water supply & sanitation ranged between US $ 50 million and US $ 101 million during 1994-2001. The average investment is US $ 0.55 per capita. According to an evaluation by the Danish Ministry of Foreign Affairs 30% of the rural water supply & sanitation is financed by the Government, 34% comes from bilateral and multilateral donors, 4% from International & Local NGOs. The Users contribute the remaining 32%.

2.2.6 Agricultural Water

The sub-sectors of agriculture with direct relevance to the water sector themes studied in this market scan are: (a) Seeds and (b) Irrigation.

Saline Resistant Seeds

Every year, Bangladesh suffers from floods that often threaten to destroy crops across vast areas. Over 1.2 million hectares of land are low laying flood prone areas within the country. The Bangladesh Rice Research Institute (BRRI) in collaboration with the International Rice Research Institute (IRRI) has developed a variety that is able to withstand germination for 15 days under water compared to 3 days for non flood resistant types. Increasing salinity of coastal land is also a growing concern, a phenomenon that is exacerbated when a cyclone hits the country. Each year from November to May, a white film of salt envelops over paddy fields in the 1,120km-long, mostly unprotected coastal belt in the south. Upwards of one million hectares of land are seriously affected by salinity, according to some estimates. BRRI has recently developed a saline resistant rice variety which has nearly 3-4 times the resistance to salinity compared to non resistant varieties.

The development of the Bangladesh seed sector is deterred by several constraints. For instance, the sector has only a few high quality seed companies compared to large numbers of small and poor-quality seed companies. This leads to adulteration of the seeds at different stages. Weak marketing and distribution networks, inadequate knowledge on quality seed production (HYV & Hybrid), absence of proper R&D and quality control systems and a shortage of skilled and qualified human resources hinder the growth of the sector. Farmers' lack of awareness of the greater yield and environmentally resistance qualities of seeds makes market penetration of quality seeds difficult. Additionally, there is lack of lab facilities in Bangladesh that can provide internationally recognised Orange Certification for locally developed seed manufacturers. The private firms are also at a disadvantage as government subsidies makes it difficult to compete with Bangladesh Agriculture Development Corporation, even after producing seeds that are as good or even better in terms of quality.

According to the Ministry of Agriculture, the total requirement of seeds in 2008-09 was 1.17 million tons of which only 20% was supplied by commercial ventures by both public and private entities while the rest 80% are farmers' retained seeds. The government has around 60% of the commercial seeds business compared to the private sector. The private sector is comprised of multinational corporations as well as local companies, with more than 100 companies involved and over 5,000 registered seed dealers operating across the country. The biggest private companies in the market are Getco, Lal Teer, and Syngenta. Among the local companies, only Lal Teer produces seeds locally while the other private companies import from India, Pakistan and China.

To facilitate local seed production, the Government provides financial incentives in the form of Government backed loans for research and development and a 5% incentive on agricultural produce. The seed producing companies are also eligible for funds from the Equity and Entrepreneurship Fund provided by the Investment Corporation of Bangladesh. Under this fund's terms and conditions, a project worth at least BDT 2 million may receive 49 percent financial aid if it invests the remainder from its own funds.

Irrigation Management

With the vast majority of the population of Bangladesh dependent on agriculture, irrigation of farmlands forms an integral part of the primary industry. Currently out of 8.42 million hectares of cultivable land, 65% is irrigated. Agriculture uses more than 70% of all the fresh water extracted in Bangladesh.

Farmers generally use manual labour or diesel powered pumps to divert the water from various water bodies to their farmlands. Diesel pumps can often require expensive diesel fuel and regular maintenance to run. Rahimafrooz Renewable Energy Limited, a company that sells solar panels, recently started a pilot program aimed to alleviate the operational costs regarding the diesel powered irrigation schemes. Instead of diesel, its irrigations scheme is powered by solar panels. With a cooperative consisting of 83 farmers, this irrigation scheme has successfully run on renewable energy without the need for diesel-powered pumps. They are now piloting five more of these solar powered irrigation programs in the Northwestern region of Bangladesh.

The Bangladesh Bank facilitates in the financing of renewable energy schemes with a BDT 2,000m fund that banks can avail at a 5% interest rate. Banks on-lend for projects at 8-9% interest, which is lower than the 13% they normally charge.

2.2.7 Tourism

Water-Based Tourism

Only in recent times, the government has discovered the potential of the industry and has started taking necessary steps to promote it globally. Bangladesh Parjatan Corporation, an autonomous public organization reporting to the Ministry of Civil Aviation & Tourism is the lone public sector tourism organization. Private sector plays a significant role in this market segment.

The contribution of the Travel and Tourism sector to Gross Domestic Product (GDP) of Bangladesh is 3.9% (BDT266b or US$3,786m) in FY 2009-10. This includes all the related (indirect) industries like transportation, lodging, entertainment etc. However, the direct industry GDP is BDT 113b or USD 1,613m, equivalent to 1.7% of the total GDP. By 2020, expected contribution of tourism industry to the GDP can rise to 4.1% amounting to BDT788b or US$8,782m.

A little less than 100,000 people are employed in the industry, representing 1.3% of the total employed workforce of the country. Employment is expected to rise to 3,114,000, i.e. 3.2% of total employment by 2020. Export earnings from international visitors and tourism goods are expected to generate 0.5% (BDT 6b or US$86m) of total exports in 2010. Within 2020, it is forecasted to grow (nominal terms) up to BDT 21b or US$ 228.5mn (0.5%). Apart from inbound tourists, due to a growing middle-income population with higher disposable income, domestic tourism is also increasing with strong and sustained average growth rates of about 25% per annum over the past three years.

Despite being a riverine country, little has been done to develop the water-based tourism in Bangladesh. Cruiser service towards selected destinations is the only facility available under the water-based tourism category. The existing routes these cruisers use to provide service starts from Dhaka to the Sundarbans; Khulna to the Sundarbans; Teknaf to St. Martin's; and Cox's Bazaar to Inani.

There are about 12 cruisers in the country for water-based tourism purpose only. Majority of these cruisers are 107 ft in length and 21 ft in breadth. However, launches from Sadarghat, Dhaka also head toward Khulna that serves as tour cruiser occasionally on case basis. Local tourists also use diesel driven trawlers to explore the Sundarbans. Few travel

& tour operators also offer daylong river cruise services in traditional boats like Dinghy, Bazipuri, Kosha, Shampan and Mayur Pankhi.

2.2.8 Flood Protection and Drainage

The three river systems of Ganges, the Brahmaputra and the Meghna and their tributaries together cover a drainage basin of about 1.72 million sq km and 7% of this vast basin lie within Bangladesh. The combined annual discharge passing through the system into the Bay of Bengal reached up to 1,174 billion cubic meters. The three river systems including Chittagong Region River Systems drain an area of some 1.5 million sq. km. During the wet season the rivers of Bangladesh flow to their maximum level at about 140,000 cumsec, and during the dry period, the flow diminishes to 7000 cumsec. Because of its low-lying topography, at least 20% of the area of the country is flooded in a normal year.

In 1993, the total area of wetland was 3,140,000 hectare of which 1,545,000 hectare were cultivated and 1,383,000 hectare were drained through surface drains. The flood-protected area in 1990 was estimated at 420,000 hectare.

The growth potential of the urban sector in Bangladesh is severely undermined by frequent flooding. Most urban centers suffer from erosion and destruction of physical infrastructure caused by river flooding and water logging. Flooding is a perennial problem and the urban areas are more prone to economic and human losses due to high density of population and industrial sites. Lack of flood protection and inadequate drainage facilities lead to water logging and overflowing of latrines and cause wide spread environmental degradation and deplorable unsanitary living conditions.

Major drainage problems are:

1. Siltation, encroachment of outer drainage channels that are unable to accommodate runoff from the urban areas.
2. The absence of properly constructed outfalls.
3. The absence of adequate connections between tertiary, secondary and primary drains that restricts the ability of the overall system to discharge flood water.
4. Under designing of drainage channels.
5. Poor state of repair of drains and poor design of drains
6. Indiscriminate dumping of solid waste into or adjacent to the drains.
7. Obstructions caused by utility networks and unlawful construction.
8. Lack of maintenance of drains; inadequate maintenance funds, lack of equipment to excavate and clean major drainage channels, inadequate maintenance manpower.

Due to inadequate drainage systems and poor maintenance, flooding occurs in most of the cities and towns in Bangladesh, particularly during monsoon. This flooding affects the economy and the social sustainability of the cities and towns, such as:

- Damage to property and house hold assets.
- Loss of income when flooding prevents & restricts business from opening
- Loss of income due to inability to go to the work
- Increased health risks from water related diseases due to the increase in standing water which can remain for several days
- Degrading living conditions.
- Premature deterioration of roads

Municipalities, City Corporations, Water & Sewerage Authorities are responsible for the implementation & maintenance of urban drainage systems. Scope of work under urban drainage comprises of rectangular reinforced concrete drains, piped drain, lined drain & open unlined drain outfalls.

The GoB, ADB, WB and Municipal Development Fund finances all drainage works in the country. Local Government Engineering Department (LGED) under Ministry of Local Government, Rural Development & Cooperatives (MLGRDC) has carried out drainage improvements as well as a number of pourashavas under ADB loan in Secondary Towns Integrated Flood Protection Project and Urban Governance and Infrastructure Project. Dhaka and Chittagong WASA are currently implementing storm water Drainage System under World Bank loan. ADB is planning to finance Khulna city’s flood control & drainage improvements in 2011.

3. Role and Capacity of the Bangladesh Public Sector

3.1 Current Institutional Set Up for the Water Sector

Despite huge challenges, the water sector in Bangladesh represents significant opportunities. The government clearly places a strong focus on this sector in its Poverty Reduction Strategy and Policy and also the Annual Development Plans (ADP). While the water sector has been significantly supported by funding agencies, the public sector within the water market plays a dominant role in overall planning, design, and implementation of programs and projects in most water market segments. In majority of the cases, the agencies within the public sector act as the regulatory body and ensure the management and operation of relevant activities.

Direct public sector involvement include water resource management and planning, water and sanitation supply, flood protection and drainage, coastal zone management, and through its policy and regulatory roles impact other areas such as shipbuilding, inland water transport, tourism, wastewater and water treatment where increasingly private sector engagement is seen.

With such extensive direct and indirect involvement in the water chain operations and a lack of policy and guidelines to engage or partner with the private sector over the years many public institutions have been established. These institutions through their departments and agencies discharge the functions and activities for water management and operation in the country.

The Ministry of Water Resources (MWR) through the BWDB makes major investments in the water sector. The MLGRDC through LGED and the Ministry of Agriculture (MoA) through BADC also spend a considerable amount of funds in water related activities and investments. Besides, other water related ministries have their own investment programs. Apart from the MWR, altogether some 35 central government organisations, affiliated with 9 different ministries have been identified with functions relevant to the water sector. The National Water Resources Council presides over all these institutions in matters of water policy and legislation.

Several of the agencies e.g. BWDB, BIWTA, DOE and WASA are autonomous and semi-autonomous bodies. They are principally responsible for the execution and implementation of projects/programs in their market segments.

An overview of the different institutions involved in the water sector is provided in Table 3.1 below.

Table 3-1 Water Sector Related Institutions and Their Functions

Organisation	Function
Planning Commission	• Processing and approval of all development projects • Establish multi-sector investment priorities • Recommend allocation of resources
National Water Resources Council (NWRC)	• Approval of national water policies
Water Resources Planning Organisation (WARPO)	• Macro level water resource planning • Maintenance of water resources database • Preparation of reports on major water programs • Preparation of national policies for water resources
River Research Institute (RRI)	• Surface water (scale and physical) modelling • River training studies

Organisation	Function
Joint River Commission (JRC)	• Monitor and manage cross-boundary rivers on basis of bi-lateral agreements
Institute for Water Modelling (IWM)	• Mathematical river modelling • Flood management modelling • Irrigation system modelling • National and regional modelling • Environmental modelling (e.g. modelling for arsenic contamination)
Centre for Environmental Geographical Information System (CEGIS)	• GIS and remote sensing activities for the sector
Bangladesh Water Development Board (BWDB)	• Planning and implementation for the development of rivers, flood control, drainage surface irrigation and draught proven. • Prevention of salinity intrusion and desertification • De-siltation of channel for navigation, fisheries, forestry, wild life development and improvement of the environment • Collection of ground and surface water data • Flood fore-casting and warning • River surveys • Establishment of Water Management Organisations and capacity building. • Town protection schemes
Local Government Engineering Department (LGED)	• Planning, designing and implementation of rural infrastructure development projects. • Thana/Union drainage and embankment planning, irrigation planning, land and water use planning. • Small scale water resources schemes • Canal digging programs • Some of the secondary roads
Roads and Highways Department (R&HD)	• Establishment and maintenance of highways, feeder, approach and link roads; including the construction of bridges
Public Health Engineering (PHE)Department	• Rural and urban water supply and sanitation
Department of Agricultural Extension (DAE)	• Information dissemination on agricultural technology including water and land-use
Bangladesh Agricultural Development Corporation (BADC)	• Operation of low lift pumps and tubewells • Harnessing of hill streams • Salinity control, distribution of water for irrigation
Inland Water Transport Authority (IWTA)	• River conservancy work, including river training for navigation purposes • Disseminating navigational and meteorological information, including river charts

Organisation	Function
	• Hydrographic survey • Programming for dredging and revival of dead or dying rivers, channels, canals, etc. • Develop, maintain and operate inland river ports • Develop rural water transport
Department of Fisheries (DoF)	• Develop inland and offshore fisheries • Development of rules and regulations for utilization of fisheries resources. • Planning for fish cultivation
Department of Environment (DoE)	• Monitoring pollution level of rivers, underground and drinking water • Collection and analysis of data concerning environment • Assist in preparation of EIP for different agencies
Municipal Corporations/Municipality	• Providing sanitation services • Manage underground sewerage systems • Supply water for public and private purpose • Undertake schemes for provision, storage and distribution of water • Regulate, control and inspect all private sources of water in the urban area • Sanction new wells • Sanction water pumps and other sources of drinking water in the urban area. • Provide a system of public drains undertake drainage schemes and manage public water courses in the urban area.
Water and Sewerage Authority (WASA) (Dhaka and Chittagong)	• Construct, improve and operate water supply and sewerage works as well as other facilities to improve environmental sanitation in the city

In order to assess the institutional roles, policies, programs and engagement with the private sector one-to-one interviews with officials of relevant organizations were carried out. Additionally several studies and documents relating to individual institutions were consulted as well as discussions were held with senior officials of relevant donor organizations. The list of organizations contacted by Mott MacDonald team is provided in Annex 2.

A summary of the public sector's role, engagement with private sector, current scenario of Public Private Partnerships (PPP) programs, governance issues and regulatory responsibilities is outlined below.
Water Resources

The principal public organisations, under the MWR, are the WARPO, BWDB, River Research Institute, Institute of Water Modelling (IWM), Centre for Environmental Geographical Information Systems (CEGIS) and Joint River Commission. IWM and CEIGS are research institutes and operate as a Trust engaged in various consultancy assignments in order to ensure commercial sustainability.

BWDB is responsible for implementing the National Water Policy in relation to rivers, aquifers, estuaries, and coastal areas. It is responsible for water resource infrastructure projects, as well as policies and consulting with stakeholders on issues related to water resource management. WARPO is supposed to evolve national policies and plans for water resources, ensuring optimum utilization among various users such as agriculture, fisheries, navigation, public health, industry etc., as well as to consolidate data on water collected by various agencies.

Drinking Water

Statutory responsibility for water and sanitation are vested in the Department of Public Health and Engineering (DPHE) within the MLGRDC for all rural and urban areas except for Dhaka, Chittagong and Khulna where it is the responsibility of the WASA. The DPHE has been responsible for planning, designing, and implementing WSS services in rural areas, upazila and pourahsavas. The union WATSAN Committee that includes community leaders and DPHE representatives has responsibility for promoting hygiene education, environmental sanitation and approve the distribution of tube wells. Pourashava water supply is maintained by pourashava and is empowered to charge tariffs to cover maintenance cost of water supply.

In addition to government institutions, non-governmental organizations (NGOs) and the private sector are involved in water services but private sector participation in this sector remains limited to small business such as supply of hand pumps, pipes and tube well materials. Implementation of water sector infrastructure works is carried out by private contractors. There are multitude types of contracts for private sector operations of water and sanitation system such as: Services Contracts, Management Contracts, Lease Contracts, etc.

Inland Water Ways

The Ministry of Shipping has the overall responsibility of the sector. It operates with a department (Department of Shipping) and two quasi-autonomous bodies BIWTA and BIWTC. The Department of Shipping is responsible for safety, the provision of the regulatory framework for the sector. Through the Inland Ship Safety Administration it is also responsible for the definition and enforcement of ship safety rules and for registering vessels.

BIWTA manages the development, maintenance and operation of inland water transport and inland waterways throughout the country. The responsibility includes provisions of (i) dredging services, (ii) pilots and navigational aids, (iii) hydrographic services, (iv) management of inland ports and landing facilities, (v) regulations of transport operations, and (vi) approval of the design of vessels plying in the inland waterways of Bangladesh. BIWTC provides passenger and freight shipping services.

Environment

DoE is responsible for a wide range of environmental issues, inclusive of the pollution control of water resources, including industrial discharge; and the Ministry of Aviation and Tourism is of interest to this analysis in its capacity as regulator of water tourism issues. To a lesser extent, the Ministry of Civil Aviation and Tourism has relevance to our non-consumption water sector analysis, and has thus been included in the study.

3.2 Analysis of Public Agency Roles and Capacity

3.2.1 Institutional Scenario

The public sector has a long legacy within the water sector setting up policies and strategies but also undertaking all major infrastructure works for operation and maintenance. A large number of departments and agencies supporting 10 different ministries have shared responsibility for such an extensive engagement of the public sector. There has been also a noticeable shift towards modern approaches such as decentralization of planning and introduction of community based participation that has increased accessibility and participation of local communities, farmers, and others. Despite various challenges, the sector has had its share of success in terms of its role in addressing issues relating to cyclones and disaster, water and sanitation, and tackling emergency issues. However, after four decades of engagement questions remain as to how effectively and resourcefully public sector has managed Bangladesh's abundant water resources.

Most agencies and departments have underperformed and that is testified by the fact that water quality has degraded, excessive extraction of ground water has caused water tables to fall at an alarming rate, rivers are polluted, water and sanitation facilities remain poor and limited, poor drainage causing heavy flooding in major cities, poor quality of works and low technology. The underperformance of the public sector has been exacerbated by a lack of vision and intention to engage the private sector in water supply and use its management and financing ability in different market segments. The scope of this study does not allow a comprehensive assessment/audit of individual organizations operating in the water sector (as outlined in Section 3.1 above). Others have already carried out several studies and none could claim a good performance by the organization under study. Governance within the organizations has reached a critical stage where most donors are reluctant to finance projects executed by those entities. Studies of performance and governance of BWDB, IWTA, WASA, all indicate underperformance, weak governance, irregularities in operational practices, complete reliance on treasury for funds, low disbursements caused by long delays in project implementation, etc. Public service and administrative structures have also contributed to these conditions. While it is a long-term strategy to change structures and operations of public sector organizations, if that is at all possible, without engaging the private sector as partners for water resource management and operation there remains very little choice to address immediately the deteriorated environment of the water sector.

Below we discuss some of the critical issues relating to public sector institutional performance.

- **Lack of Coordination**: While each agency's roles are strongly interconnected, they are ineffective in coordinating activities leading to a failure in project implementation, addressing needs of the market segment and operation of the agencies.
- **Lack of an integrated approach:** While each project is subject to a Development Project Proposal prepared by the agency implementing the project and used by the Planning Commission to take a decision on the proposed GOB financing, there is no comprehensive analysis of the financing requirements necessary to achieve the objectives of the projects and ensure the sustainability of the investments. Neither there is an analysis of the project's suitability within existing plans and strategies. Projects are designed and executed based on ad hoc decisions without any relevance to existing policy and programs. Substantial investments are made on ad hoc basis without the preparation of appropriate sector strategy or investment program.
- **Capacity:** The challenges in terms of capacity come in the form of lack of manpower or manpower with appropriate training, lack of technology, database, and institutional strategy. In some cases, this has led donors to add clauses to loans stating that additional staff will need to be employed prior to the provision of the loan (e.g. JICA, requesting 100 additional staff members be employed in DPHE as part of technical assistance and training in Dhaka Central Laboratory). However, recruitment of suitably qualified staff, particularly in rapidly growing new fields (e.g. water quality management, database management and information management specialists) remains difficult, with many posts left unfilled.
- **Strategies and ad hoc operations:** The public sector agencies and ministries concerned operate under master plans, strategic action plans, national policies chiefly NWP, and NWMP and other frameworks for operation. While these do provide a clear and effective framework for projects and operation, they are not followed by the public sector.
- **Fund Allocation and disbursement:** Historically, fund allocation and disbursement has been extremely centralized and sporadic within the public sector. The ministry of finance allocates funds to each relevant agency for discharge, and this is done through a complex and lengthy procedure. Often it is reported that the funds are insufficient resulting in the agency's inability to meet investment and O&M costs. For example, DPHE and DWASA both noted strongly that the allocation of funds were insufficient compared to the scale of their work. Service charges for water consumption are low and inadequate to cover even O&M costs.
- **Project selection:** Project based work dominates the water sector significantly and public sector is heavily involved in the planning, selection and implementation of these projects. As noted earlier, while the frameworks and action plans are a good basis for selection of projects, projects within the public sector domain are mostly selected in an ad hoc manner, much of it being based on political biases.

3.2.2 Governance

Corruption and transparency

The issue of corruption and transparency is a significant challenge faced within the water sector for a long time. Significant corruption exists in project selection, procurement and overall management of projects, as noted earlier. Additionally, service delivery is mired with corruption. A number of approaches have been undertaken to address this ever-increasing challenges. Changes to procurement regulations have somewhat improved transparency in the water sector; along with LGED and two others, BWDB has started to publish its procurement performance data on the Central Procurement Technical Unit's website on a pilot basis. Yet monitoring remains highly difficult, particularly within the construction and infrastructure sectors. It is noted that there is a strong need for an independent regulatory body that will enforce all agencies concern to comply and increase transparency. Although the NWMP stated the creation of independent regulatory bodies in order to ensure compliance with appropriate standards as well as cost-effective service provision, no such agency has been created till date.

Government to Business (G2B) Relationship in the Water Market

Private Sector Participation (PSP) in the water sector has been limited. Until recently this has been true even for non-consumption segment of the water market such as river transport, port, wastewater, and tourism. Although community organization and participation at the local level with engagement of the NGOs has increased awareness for O&M of small-scale schemes and infrastructural facilities (irrigation, tube wells and hand pumps, latrines, etc.), public sector remain the principal party in formulating, designing, managing, and maintaining the country's water resources, its supply, and use. This extensive and direct involvement has led to underperformance resulting in a poor condition of the total water resources of Bangladesh, as has been explained above in Sections 3.1.1 and 3.1.2. Reasons for a low participation of the private sector are several.

- Vested interests of the public sector agencies in order to maintain its authority, and staff numbers.
- A weak policy on service charges that is not set at levels to recover O&M costs.
- A lack of confidence and trust between the public and private sector making it difficult to jointly pursue challenges of and solutions for the water sector and attracting private sector management and investment;
- While donors and multilateral organizations stress the need for PSP when designing and implementing projects those requirements remain a secondary concern and lack specific approaches for PSP.
- Contracts and types of arrangement: In order to build infrastructure facilities (embankments, sluices, cyclone shelters, roads, water supply and sanitation system, etc.) the public organizations engages private sector in contracting works and services, mostly restricted to small-scale contracts awarded to small and medium size firms, principal criteria being low cost proposals. The result of this has been low quality of construction technology and maintenance works. There has been little knowledge and skills established within the private sector contractors as most are operating at a low margin and have poor management skills. Where large-scale schemes exist, for example in case of BWDB and BIWTA, contracts are fixed terms and there is a tendency to break the overall value into smaller parts. The contractors recruited are mostly a few preferred ones. Overall, public agencies in this sector have the reputation for displaying corruption in the procurement process making it more difficult for creation of an enabling environment for private sector participation.
- Lack of confidence and Trust between the public and private sectors: Private sector is viewed as profit seekers and not abiding rules and regulations. Without the possibility of developing a joint working relationship, trust and confidence between the two parties remain low. There is no formal and informal forum for dialogues between the two parties. The Bangladesh Better Business Forum, which was operational in 2007 and 2008, had a Committee on Infrastructure (includes water sector) providing opportunities to hold discussions between public and private sector and develop action plans. Unfortunately, the BBBF has not operated since 2009.

3.2.3 Public Private Partnership

Until recently Bangladesh did not have in place a PPP Policy and Strategy. The GoB put in place Policy and Strategy for Public Private Partnership, 2010 in August of 2010. Without a PPP law or pertinent regulation that underpins any envisaged PPP it still is not sure how much of investment in infrastructure, particularly in the water sector could be attracted. Also the country's Water Policy does not mention the potential role of private parties in financing or operating water infrastructure. But it is assumed that the PPP Policy allows financing and operation of water infrastructure. PPP framework and models exist for the following:

- BEPZA has signed PPP contracts with private operators for Central Effluent Treatment Plants in Export Processing Zones (EPZ) although BEPZA's special legal status allows it to design a PPP framework that is realistic.
- A substantial number of PPP's in power generation exist in what is called an Independent Power Producer.
- A PPP in Water and Sanitation in Chittagong will come into effect shortly with a local private operator and Chittagong WASA as public party.

In addition to these examples we also list the following investment guarantees:

- Bangladesh has Foreign Private Investment Act (1980), which secures all foreign investment in Bangladesh.
- Bangladeshi investment can be insured by OPIC's (Overseas Private Investment Corporation, USA) which also could provide project finance.
- Bangladesh is a member of the Multilateral Investment Guarantee Agency (MIGA) in case of a contract breach, dispute or litigation.
- BOG accepts the Arbitration Facility of the International Centre for the Settlement of Investment Dispute.

The PPP policy 2010 includes the following market segments relevant to the water sector where PPP would be entertained: (i) Water supply and distribution; (ii) Sewerage and drainage; (iii) Effluent treatment plants; (iv) Port development, including inland container terminal, inland container depot and other services; (v) Dredging of rivers, canals, wetlands, lakes and other related facilities; (vi) Deep sea port development; (vii) Environmental, industrial and solid waste management; (viii) Tourism; (ix) Economic zone.

Recent trends with GoB budget planning to include PPP project prospects and the newly established PPP policy are positive signs for PSP in the infrastructure sector of the economy and specifically in the water sector. The country may take a while to realize sound PPP projects, but a growing realization has come that without private sector engagement in infrastructure sector the state alone will not be able to finance, manage and operate the much needed facilities of the country. There still remains a culture of non-engagement of the private sector and distrust by the public sector as stated in Section 3.1.3 as has been observed during the execution of this study. None of the public water bodies interviewed were engaged, or had any future plans of being engaged, with the private sector in a formal forum or dialogues to discuss potential PPP options.

4. Bangladesh Private Sector in the Water Market

4.1 An Overview of the Private Sector in Bangladesh

Bangladesh economy has been growing at an average rate of 6% in the last decade. Growth of the manufacturing and services sectors is increasingly altering the structure of the economy. This growth has been driven by the private sector with continued robust performance of exports in the face of a global economic crisis, particularly textile and apparel sector and remittances. The economy is gradually diversifying with strong growth results. Most promising growth is taking place in:

- Pharmaceuticals industry with Bangladeshi drug manufacturers slowly entering export markets;
- Jute industry is in the verge of revival with jute products gaining significant global market share;
- Shipping industry is poised to enter global market for small and medium sized classed vessels;
- Agro-processing industry is growing under a strong domestic and regional demand;
- Light engineering sector is entering the export market and several international automobile and machine manufacturers are ready to outsource manufacturing of spares and products in Bangladesh.

Over the past few decades government has taken several reform measures to ensure appropriate regulatory and incentive regimes in the textile and apparel, pharmaceuticals, shipping, and also financial sectors, as well as ensuring stronger participation of the private sector in the economy. Compared to a decade ago the private sector in Bangladesh is now more robust and several business houses have become key players in the economy with significant investments, diversified portfolio, and employing a significant number of workers.

With sustained growth and increased private sector development in the country the scarcity of certain resources is putting strains on the economy's further growth. Some of these major constraints on growth are:

- Electricity supply falling short of growing demand spurred by economic growth;
- Lack of availability of serviced land and land in general with high cost of procurement and purchase of land;
- Shortage of skilled labor and low productivity of labor;
- Transportation and road connectivity is increasingly an issue restricting rapid cargo transportation and efficiency of cargo handling.

4.2 Private Sector Involvement in the Water Market

Although private sector has been a key player in Bangladesh's achievement of sustained economic growth its involvement in the water sector has been limited. The water policy emphasizes private involvement in the water sector, but defines it in terms of providing specific services in carrying out public institution's mandates. Involving beneficiary groups and local community organizations in order to carry out O&M is included as a provision of the policy, as well as public water schemes that could be operated by the private sector through leasing, concession, or management contracts. The Water Policy does not mention the potential role of the private parties in financing or operating water infrastructure. A lack of clear policy and investment program by the government on PSP in the water markets is the principal reason for limited involvement of the private companies.

4.3 Market Research and Findings

Mott MacDonald carried out a survey of private sector companies operating in the water sector. The survey did not cover service providers such as consultancy companies. From the list of some 120 companies engaged in different market segment in the water sector 68 companies were sampled and contacted for the survey of which 34 companies responded and were finally interviewed. A summary of private sector involvement, market position, and barriers to doing business in each segment of the water market is outlined in the typology presented in Figure 2.1. Findings from the market research are highlighted in the following sections.

4.3.1 Market Segments and Market Offers

1 PSP is observed in several areas of the water sector providing services, works, and goods and supplies. Within the traditional water sector such as water resource and costal zone management (CZM), drinking water and sanitation

(DSS), private businesses provide services and works, mainly consultancy, that fulfil public sector institution's mandates and responsibilities.

2 Public sector controls, manages, operates and maintains the water resources sector. Over the years, at local level community participation in O&M of water resources have been attempted involving local community and farmer groups. Funding and resources for these activities comes from GoB with support from donor and multilateral agencies. Without a clear policy framework for PSP in water resource management there has been limited engagement of the private sector in management and operation of water resources, CZM, and WSS.

3 BWDB is the principal party contracting out services and works relating to water resources and CZM to private entities, while WASA contracts out all DSS works. In terms of development of small schemes and infrastructure at local level BWDB shares responsibility and coordinates activities with LGED. Local consultancy firms in partnership with international consultancy firms are engaged in design, construction supervision, management, planning, and monitoring activities under technical assistance programs.

4 A multitude of local small and medium size companies are engaged in works contracts, low cost being the principal criteria for engaging firms. These firms undertake construction work with simple and low technology, recruiting day laborers, and have very little in-house capacity. As an example of the framework for works contracts, interviews with six private contractors engaged by DWASA and undertaking construction of water and sewerage pipelines and drainage indicates the following process:

   a DWASA prepares a TOR that defines the scope of work and other technical specifications and invites competitive bid offers.
   b The successful contractor submits the rate offers against the physical quantities of works stated in the TOR.
   c Payment is made monthly on a simple unit price basis and on the basis of the Bill of Quantities.
   d After getting the work order the principal contractor distributes works to a multitude of subcontractors at district level at a lower price.

5 Private investments are increasingly moving towards non-consumption chain of the water sector such as shipbuilding, river port and transportation, dredging, industrial waste treatment, water-based tourism, etc. Commercial prospects and increased growth in those markets are bringing private sector activity and interests with the ability to provide better technology, management, and financing. A lack of clear government policy for PSP and support facilities in many of those market segments is thwarting higher level of investments.

6 Shipbuilding is growing and is poised to become a mature industry. The industry has a comparative advantage in terms of low labor cost (compared to China, India, Vietnam), but needs to ensure comparable productivity levels by maintaining quality, sourcing components locally, and raising skills levels. There are interests from investors and shipyards to partner with foreign shipyards in order to ensure transfer of technology, improve management, and skills levels. Demands for high-grade passenger vessels, ferry and coastal services, river cruises, etc should increase if government can enforce better standards for inland vessel operations.

7 Two large business groups in Bangladesh are currently constructing inland cargo terminals with investments in each terminal ranging from US $100 to 90 million. Development and improvement of IWT requires an integrated program for water management since extraction of water from rivers and siltation will continue to impact IWT. The sector has great potential both economically and socially. There is an urgent need to investigate and decide on the routes and types of network and the type of services that are economically and socially feasible.

8 Channeling of existing waterways through dredging is one of the most significant challenges of IWT and for keeping the rivers 'alive'. Dredging of rivers peaked in 2000 and declined radically having completely stopped in 2006. The current incumbent government is once again showing much interest in dredging activities. Without any market for dredging many dredgers have been sold out to Indian dredging companies by private operators. Now with substantial investment in purchasing dredgers competitiveness is an issue, more so since the Chinese dredging companies are entering the market with substantial government support and subsidization. Western marine a shipyard has entered into a joint venture agreement with a Dutch firm to manufacture dredgers. Details of it are not available. But it appears to be the most commercially sound approach to take since dredging should remain a stable market in Bangladesh.

9 Inadequate knowledge on product/service development and tourism facilities, lack of access to skilled work force, poor tourism awareness and marketing are a few of the major factors hindering the growth of water based tourism in the country. Tourism is a growing industry with domestic tourists increasing by 25% in the past three years. With the introduction of jet skies, dune buggy and speedboats in Cox's Bazaar beach, a new area of business has evolved in the water-tourism sector. Tourists and locals are being accustomed with these types of product and spending around USD 7 to 10 minutes usage. Companies with products like sailboards, surf cats, paddleboats or aqua bikes, rowboats, jet skies and power dinghy crafts can introduce their products in this booming market. Investment opportunities for on-site management and businesses also exist for such products.

4.3.2 Governance

The majority of the private sector businesses interviewed stated that weak governance hampers competitiveness, business development and growth. Weak governance is not confined to the water sector as it pervades all public sector operations. However, coupled with a lack of support for PSP in the water sector weak governance has distanced the private sector from playing a potentially significant role. The following governance issues needs highlighting:

1. **Projects are selected based on political decisions and do not follow existing plans and programs.** Sector agencies like BWDB and other organizations/departments of the government and the local bodies are expected to prepare micro level planning in conformity with the NWMP and approved government guidelines and implement the plan accordingly. However, project selection is ad hoc, politically motivated, and bears little resemblance to sector development strategy, planning and programming. Without clear market opportunities private sector engagement and investments remain weak.
2. **Faulty procurement practices and irregularities in tendering process by public sector agencies continue on a large scale.**
   a. Selection of contractors and contract award is slow and at times takes 9 to 12 months from bid submissions date with frequent cancellations and rebids;
   b. Low bid requirement provides incentives to poor quality;
   c. Corruption is pervasive resulting in poorly organized firms/contractors to bid and poor execution of projects

   It is to be noted that these practices and irregularities distances professional private sector firms, local and international, from doing business with the public agencies. When asked about the top three obstacles to doing business private sector respondents engaged in the water sector identify corruption as one of the significant issue among the first ranked obstacles to doing business. The above issues are also a reason for many international firms, previously doing business in Bangladesh, to fold their operations and not show interest in bidding for tenders. Some of the few international firms operating in Bangladesh also refrain from bidding for tenders executed by the public agencies.
3. **Weak institutions resulting in regulatory uncertainty, the proliferation of red tape and administrative complexity causes informal private sector business practices and distances professional/formal business groups to engage in business with the public agencies.** Enforcement and supervision of regulatory regime is weak allowing corrupt practices by the private sector.
4. **There is no forum for private sector to engage in dialogue/discussions with the public sector where information could be exchanged, contributions and funding commitments for water resource and use could be planned, issues and complaints of each party could be heard.** In view of the fact that information regarding projects, programs are hard to obtain or available a forum and dialogue could play a key role in building better business relationships between public agencies and the private sector.
5. **Enforcing contracts is a major issue for local private sector operators and lengthy court proceedings keeps businesses distanced from taking formal juridical services in case of disputes.**
6. **Private sector organizations are not represented in the water sector.** Some 62 percent of the surveyed companies in the water sector stated they are not member of any business associations. Inability of existing chambers and business organizations (BO) to provide any tangible benefits is stated as a principal reason why firms are not members of any BOs. Although there are trade organizations in some of the market segments such as Association of Export Oriented Shipbuilding Industries of Bangladesh, The Cutter Suction Dredger Owner's Associations, lack of representation in a business chamber/association prevents private sector to lobby, hold dialogue, and pursue common business interests with the public agencies. The engineering consultancy firms in Bangladesh have not formed a network organization, such as NL Ingenieurs (ONRI) in the Netherlands. Formation of such an organization could bring more consolidation, professionalism, and initiate more competitive strategies for projects and technical assistance in the water sector.

4.3.3 Business Environment and Investment Climate Constraints

Bangladesh has slightly moved up in country ranking in terms of ease of doing business for starting companies[6]. However, the actual situation remains vastly different with red tape, administrative complexities, and bureaucratic hassles making business operations costly and difficult. There are several examples of investors waiting one or more years to get appropriate licenses to start construction and commercial operations.

When asked about the obstacles faced by private businesses in the water sector the following significant issues were noted: (i) Corruption, (ii) High tax rates, (iii) Lack of skilled labor, (iv) Access to finance; (v) Lack of appropriate

[6] Doing Business 2011, Making a Difference for Entrepreneurs, World Bank

transport infrastructure; (vi) Customs and regulations. The investment climate still remains unsatisfactory and lack of infrastructural facilities and utility is the principal reason for an unfavourable investment climate. Some of the major investment climate problem issues are as follows[7]:

- **The provisioning of infrastructure facilities is inadequate and poor facilities are substantially constraining growth.** Companies rely on their own facilities that increase the initial investment for the investors as well as the operational cost of the business. Majority of industries view infrastructure services provided by the public sector as inadequate. For instance in a recent survey carried out by Mott MacDonald of some 750 industries in the Dhaka region, 42% of respondents using solid waste disposal services, 54% of the industries consuming water from public sources and 53% of the industries using sewerage network view these services to be inadequate.
- **Lack of transportation facility with inadequate road network and inefficient rail system, hamper goods and materials movement and to meet timely delivery schedules**. Improvements in transport network and connectivity is estimated to bring not only effective cargo and passenger movements but also link rural areas to markets.
- **Unavailability of serviced land and more generally lack of access to land is a severe constraint/barrier to business growth.** The Bangladesh Special Economic Zone Bill 2010 has been passed by the parliament in July 2010 and should address this issue. The Bill allows setting up economic zones by the private sector under PPP model.

4.4 Foreign investment and its challenges

Nominal growth in FY2009-10 for public and private investment was 10.3 per cent and 12.7 per cent, respectively. Private investment has maintained a double-digit growth in nominal terms over last two decades (e.g. on an average 13.1 per cent in FY2001-05 and 14.3 per cent in FY2005-2006). Private investment's share in GDP is about 19 per cent, accounting for about 80 per cent of total investment in the country. Low levels of private investment (BDT 136,285 crore or 19.7 per cent of GDP in FY2009-10) were mainly due to absence of a favorable investment environment rather than availability of funds.

Despite the dip in investment, World Bank has projected a 6.1-6.3% growth in GDP for the current fiscal year (2010-2011), provided that there is sufficient recovery in investment and exports[8] . Previous trends in foreign direct investment in Bangladesh illustrated a flow of $666 million in 2007, which rose significantly in 2008 to $1,086 million. As of June 2009, inflows of foreign direct investment recorded to $358 million. According to the Board of Investment (BoI), total private investment (both local and foreign) increased by 125% in 2005-06, and shrunk to 27% and 21% in 2006-07 and 2007-08 respectively. In fiscal year 2009-10 gross FDI declined by 51% with an inflow of US $447 million.[9]

Bangladesh has attracted 89 new foreign and joint venture investment projects in the service, engineering, clothing and agricultural sectors, amounting to $590 million in 2009-10. FDI flow to EPZs was able to demonstrate high growth, (24.9 per cent in July-March, FY2009-10) most likely because of assured power and utility facilities and better infrastructure. Total investments in the eight EPZs amounts to US $1,710.

4.4.1 Incentives to Foreign Companies

Private investment from overseas sources is welcome in all areas of the economy in Bangladesh with the exception of four reserved sectors related to national security and defence. Such investments can be made either independently or through joint venture on mutually beneficial terms and conditions. The following incentives for foreign companies exist:

- EPZs in Bangladesh provide a diversified and flexible package of investment options in terms of meeting quality standards at competitive cost, one-stop services offered by BEPZA catering to the investment and operational needs of investors. The fDi magazine in its first global ranking of Economic Zones has awarded Chittagong EPZ the title of global free zone of the future 2010-11 ranking it 3rd in Best Cost Effectiveness and 4th in Best Economic Potential out of 700 Economic Zones in the world.
- For foreign direct investment, there is no limitation pertaining to foreign equity participation, i.e. 100 percent foreign equity is allowed.

[7] Many of these issues are also highlighted in the report to second investment climate assessment carried out by the World Bank. Harnessing Competitiveness for Stronger Inclusive Growth – Bangladesh Second Investment Climate Assessment, Bangladesh Development Series, World Bank 2008.

[8] Bangladesh State of Economy published in November 2010, World Bank

[9] State of the Bangladesh Economy in FY 2009-10, Center for Policy Dialogue

- Non-resident institutional or individual investors can make portfolio investments in stock exchanges.
- Foreign investors or companies may obtain full working loans from local banks, and the terms of such loans will be determined on the basis of bank-client relationship.
- A foreign technician employed in foreign companies will not be subjected to personal tax for up to 3 (three) years, and beyond that period his/ her personal income tax payment will be governed by the existence or non-existence of agreement on avoidance of double taxation with his/her country of citizenship.
- Full repatriation of capital invested from foreign sources will be allowed. Similarly, profits and dividend accruing to foreign investment may be transferred in full.
- If foreign investors reinvest their repatriated dividends or retained earnings, those will be treated as new investment. Foreigners employed in Bangladesh are entitled to remit up to 50 percent of their salary and will enjoy facilities for full repatriation of their savings and retirement benefits. Foreign entrepreneurs are, therefore, entitled to the same facilities as domestic entrepreneurs with respect to tax holiday, payment of royalty, technical know-how fees etc.
- The process of issuing work permits to foreign experts on the recommendation of investing foreign companies or joint ventures operates without any hindrance or restriction. Multiple entry visas are issued to prospective foreign investors for three years. Foreign experts are issued multiple entry visas for the whole tenure of their assignments.
- In case of Legal protection, the policy framework for foreign investment in Bangladesh is based on 'The Foreign Private Investment (Promotion & Protection) Act. 1980'. The Act ensures legal protection to foreign investment in Bangladesh against nationalization and expropriation. It also guarantees non-discriminatory treatment between foreign and local investment, and repatriation of proceeds from sales of shares and profit.
- Bangladesh is a signatory to MIGA (Multilateral Investment Guarantee Agency), OPIC (Overseas Private Investment Corporation) of USA, ICSID (International Centre for Settlement of Investment Disputes) and a member of the WIPO (World Intellectual Property Organization) permanent committee on development co-operation related to industrial property.
- Bangladesh has international agreements for avoidance of double taxation and investment treaties for promotion and protection of investment with several countries, including the Netherlands.

4.4.2 Challenges For Foreign Companies

- Factors such as effective tax measures and supporting business environment that includes improved infrastructure, adequate availability of energy and political stability are important considerations in terms of attracting investment. The existing energy crunch, continual disruptions of Chittagong port, increase in inflation and maintenance of industrial harmony are the biggest challenges for investing in Bangladesh.
- Completing and obtaining approval of documentation required for starting up business in Bangladesh can be a complex process because of bureaucratic and administrative hassles. However, for a joint venture partnership with a Bangladeshi firm those processes are simpler and could be taken care by the latter. As has been voiced by most surveyed Dutch businesses forming a partnership and/or having a local office/agent is key to entering the market. For example registration for a JV by IHC with Western Marine Shipyard took only two weeks.
- Identification and acquisition of land is a major task, as well as costs of land. Because of limited infrastructural and utility facilities preference is to set up operation within one of the EPZs. Since operations in the EPZs are restricted to industries exporting from Bangladesh these locations may not be appropriate for operations within the water sector.
- Country has power shortages and transport network is still rudimentary. However, these issues are dealt by having own facilities within the project site. The GoB is addressing the power problem but it would take another two to three years to bring situation under reasonable control.

5. Dutch Private Sector in the Water Market

5.1 Overview of the Dutch Private Sector

In order to obtain an overview of the Dutch private sector involvement in the water sector, their market offers, strengths and competitiveness, and perception of doing business in Bangladesh, Mott MacDonald undertook a survey of companies in the Netherlands. Face-to-face and telephone interviews were carried out with the following parties[10]: (i) Atradius; Export Credit Insurance (ii) EVD; PSI Project Office (iii) NABU, (iv) BDCC, (v) Maritime suppliers

On the basis of the Terms of Reference, a questionnaire was developed consisting of three parts. The first part, Characterised the company or Business, a second part identified its Internationalization Position, and the third part considered a set of issues related to the opportunities and challenges of the water sector in Bangladesh. As few companies have actual experience in Bangladesh, an attempt was made to engage also other companies and capture their views, with the risk of making the questionnaire more complex. In total 240 companies has been surveyed and 31 companies replied, or 13%. Possible causes of the low response could be (i) companies involved in specific market segment not have found the broad definition of the water sector suitable, (ii) opportunities in Bangladesh are insufficiently known and that may have limited interests, (iii) low internationalization rate among firms, (iv) the use of general contact for emailing questionnaire may have not reached the appropriate persons.

5.2 Market Offers

The respondents belong to one of three market offer types, namely: Services (51%), Works (10%), and Goods (39%)[11]. All water sub-sectors are represented in the sample and on average respondents are active in 5 of the water sub-sectors listed below. The Services group is on average active in an even wider range of sub-sectors (8). The main links or overlaps can be found in the consumption areas of water use sub-sectors.

- Water based tourism
- Fisheries
- (Hydro) Energy/Oil and Gas
- Water harvesting
- Rural drinking water
- Urban drinking water
- Drainage
- Sewerage
- Agricultural water
- Industrial water
- River and sea port
- Wastewater
- Ground water
- Surface water

While the number of respondents is small and may not be statistically significant figure 6.2 in Annex 3 provides some insight of the water sub-sector/market offer combinations. Two thirds of the respondents are SMEs, with half of those having fewer than 10 employees. Somewhat less than one third of the companies are LSE, with almost half of those having more than 2,500 employed. The Goods group is mainly represented by SMES, while the Works group has the highest percentage LSE.

Almost all respondents are internationally active and nearly half of these obtain more than 50% of their turnover internationally, while less than one fifth get less than 10% of their turnover abroad. While Europe appears to be the primary market, interests in the Asian market are high as secondary market, and more specifically in the South Asia market. This is particularly true for the Works group, while the Goods group seem generally present in regions somewhat closer to the home market. Slightly more than 80% of the companies are present in one of the delta countries of Indonesia, Vietnam, Bangladesh, Egypt and Mozambique. More than 40% of respondents are active in one of the former four. Cross-presence in these countries is high, but lowest in Mozambique. Figure 6.3 in Annex 3 indicates the type of market offer made by Dutch companies in the five delta countries.

[10] In organizing meetings and preparing database of companies for the survey Netherlands Water Partnership (NWP) assisted the Mott MacDonald team, which is much appreciated.

[11] 10% of the companies indicate that they belong to two or even all three market offer types. They have been included in what they indicate to be their main market offer.

More than half of the surveyed companies are currently transacting and considering carrying out business in Bangladesh. This is a result of the focus of the questionnaire. Generally it would however appear that a large number of Dutch companies in the water sector do not operate in South Asia and more specifically in Bangladesh. This indeed begs the question why they do not and what strategy could be followed in order to enhance South Asia/Bangladesh market access to Dutch water sector private companies. These issues are discussed in the following sections and also in Chapter 6.

5.3 Strengths and Weaknesses of Market Offers

When asked about their perceived strength, companies indicated superior technology, top end know how, and proven products and services as key strengths of their operations in international markets. These strengths indicate high-end markets where quality is sought after. What companies consider strengths in the water market vary from the type of market offers made. For services offers, for instance consultancy companies, having local contacts is a significant strength compared to other types of market offers. Besides the above, the Works group considers local contacts and the ability to finance as strengths, while the Services group considers the Dutch public sector support as a key strength.

Table 5.1 below summarizes the strengths and perhaps indicates weaknesses of Dutch private sector operating in the water market. Figure 6.4 in Annex 3 alternately and graphically indicates the strengths of each market offers

Table 5-1 Perceived Strengths of Dutch Private Sector in Water Market

Perceived Strengths	Offering services	Offering Works	Offering goods
Technological advantage	H	H	H
Top-end knowhow	H	H	H
Product proven in mature market	H	H	H
Market knowhow	M	L	H
Local contacts	M	H	L
Possessing an internationalization function in the company	H	L	M
Dutch public sector support	H	L	H
Ability to finance project	L	H	M
Local company presence	M	L	M
Presenting a price competitive offer	M	L	M

H= High; M= Medium; L=Low

5.4 Perception of Doing Business in Bangladesh

1 A large majority of companies, i.e. 80% of the surveyed firms transacting in Bangladesh, are fairly satisfied with the way their operations are going on in Bangladesh.

2 Currently some one third of the companies operating in Bangladesh do so directly from the Netherlands without any local representation. Possibly, the majority service companies engaged in project implementation financed by a donor. All others use one of different forms of local presence, as local contact and representation is important for doing business in Bangladesh.

3 Where a local office is set up and operated by a Dutch company or other foreign companies the results are very satisfactory. However, much of this would depend on perceived market opportunities, management organizations, and a strategic goal for long-term investment.

4 When asked what are the top barriers to doing business in Bangladesh companies with existing business operations and providing services products stated the following as significant obstacles: 1) Poor local management skills, 2) Obtaining market information and equally third Low labour productivity, Red tape, supervising activities from the Netherlands and overcoming cultural differences. Companies seem to express their awareness of local weaknesses and that strong local presence is important.[12]

[12] Four of these 6 barriers belong to the internal category, one to market access and maybe more surprisingly only one to the business environment.

5 The goods and supplies companies on the other hand see significant barriers in the business environment such as banking operations, organizing trade finance, profit repatriation, payment collections, fiscal structure, all financial aspects and lower down business environment aspects such as security risks and administrative hassle and corruption. These and other investment climate constraints were mentioned in section 4.3.3.

6 When entering to do business perceptions about the Bangladesh market are remarkably different. All top barriers belong to the business environment category, with red tape and corruption leading all the rankings across the market offers. Those companies still considering to entering the market in Bangladesh have similar views, placing a heavy emphasis on Business Environment barriers. This is discussed in more detail in Section 4.3.2 and 4.3.3. Bangladesh's image as a corrupt, complex administrative and bureaucratic structure, uncertain rules and policies, are reflected in most responses. Corruption is rampant and within that environment it is difficult to do business. Specifically the services sector such as consultancy firms with previous stronghold in the Bangladesh market is unable to carry out any activities because of the irregular procurement practices of the public sector agencies. The following perceptions stand out:
   - Arbitrary application of rules and regulations (transparency – corruption)
   - Lengthy or unnecessary and complicated rules and procedures (red tape)
   - High costs of customs administration
   - Political stability and security issues

7 Several perceived barriers appear to result from a lack of knowledge and familiarity with Bangladesh's rules and business environment such as export/import procedures and documentation, unfavourable tax laws and regulations, and cultural differences. It would correlate with the strong awareness of the importance of local presence and contacts. (see preferred way of operating – point 2 and 3 above). The above perceptions are held also by those companies operating in South Asia and contemplating/planning to enter the Bangladesh market. Some perceptions such as poor and deteriorating economic conditions, lack of knowledge of market and information is perhaps due to the inability of the Bangladesh Investment Board (BoI) to promote Bangladesh as an attractive investment destination. Those companies knowing Bangladesh market and operating in it appears to be reasonably satisfied. The difficulties of getting market information, understand the rules and regulations, etc. could be addressed by BoI and/or the Dutch Embassy.

8 Service as well as Goods companies see the main market opportunities in the River & Sea Transport sub-sector (for all three market offers) as well as the Urban Drinking water, Surface water, Drainage and Sewerage sub-sectors.

9 In line with the overall satisfaction of doing business in Bangladesh, none of the companies perceive a negative overall risk/reward ratio.

5.5 Strategies for Engaging in Bangladesh Water Market

Private sector companies operating internationally have the view that market opportunities exist in Bangladesh. This view is further strengthened with the perception that the overall risk-reward ratio is not negative. Although a majority perceive the risk-reward ratio to be neutral slightly less than one third believe it is positive. In terms of market opportunities as perceived by Dutch private sector the following conclusions can be drawn:

- Opportunities in river and sea transport are highly perceived by those already engaged in the country in contrast to those not yet engaged but considering;
- Urban drinking water, wastewater, and agricultural water have opportunities for goods/supplies market offer;
- Surface water, urban drinking water, drainage and sewerage markets offer good opportunities according to services companies;
- Those companies operating in other countries in South Asia and not in Bangladesh perceive market opportunities to exist in surface and ground water followed by rural drinking water and agricultural water;
- Market opportunities perceived by the Dutch companies in the above sub-sectors rank high. But other sectors/sub-sectors are also considered to have opportunities and they are: (i) Water based tourism; (ii) Water harvesting, (iii) Fisheries; (iv) Industrial water

In addition, market entry strategies to engage in the Bangladesh water sector were assessed amongst respondents:

1 As **Market Entry strategy** all market offer groups show a preference in the **Preparation Phase** for the 'Monitoring and submission of proposals to international tenders'. Goods/Supplies companies use methods more particular to

trade, namely 'Distributing product information' and participating in 'Trade missions' and 'Local events, fairs, matchmaking'. Both Service and Goods companies consider engaging professional local market expertise.

2 In the actual market entry phase companies feel the need for local presence. For goods and supplies firms having a local presence by establishing a joint venture and entering into contracting/subcontracting arrangements is stated. Similarly Services firms require local agents, establishing partnerships, alliance or consortium with local firms, or a joint venture with international firms. Both groups equally view establishing a local office is critical to actual market penetration.

3 While goods and supplies firms would offer existing products/services as sold globally/other emerging markets, services firms do feel the need to adapt their market offer to local preferences.

4 The strategy for engaging in Bangladesh market also requires risk mitigation measures. Somewhat predictably the preferred measures correlate with the type of market offer. Goods/Supplies companies make use of Letters of Credit and bank guarantees from accredited banks, as well as Export credit insurances, while services firms would wish to use ICC or Dutch jurisdiction governed contracts, and will turn to involving other Dutch or international parties to check the risks, to limiting contract values on simply will decide to doing business only if financed off-shore by international financial institutions.

5 With respect to Awareness and Use of available support instruments services firms are primarily aware of the ORIO, PSI and PvW instruments and have used these as well. They appear least aware of the Prepare2Start, InnoWator, CPA and Package4Growth products and none have applied for those. These last three instruments, InnoWator, CPA and Package4Growth, are also the least known amongst the Goods group. They are most familiar with 2g@there and the EKV instrument. They only made use of the latter and ORIO. Surprisingly they seem largely unaware of the PSI and PvW instruments. Despite the number of respondents being small, the lack of awareness of the existing support instruments amongst both market offer groups should be a cause for concern, and even more so that apparently little use of the instruments is made off.

6 On the origin of the main competition, Services firms perceive this to be truly international while for Goods companies it is either European or Regional. For all groups 'Proven Products in mature markets' are the primary basis of **competitor strength,** while Goods companies see competitor challenges also in terms of 'Price' and 'Local Contacts'.

7 Several perceived barriers appears to be because of a lack of knowledge and familiarity with Bangladesh's rules and business environment such as export/import procedures and documentation, unfavourable tax laws and regulations, and cultural differences. The above perceptions are held also by those companies operating in South Asia and contemplating/planning to enter the Bangladesh market. Some perceptions such as poor and deteriorating economic conditions, lack of knowledge of market and information is perhaps due to the inability of the Bangladesh Investment Board to promote Bangladesh as a attractive investment destination.

5.6 Supporting Private Sector Engagement

The low survey response probably gives an indication of the general lack of interest in the Bangladesh market. The primary determinants appear to be market offer and company size.

To all companies, Bangladesh is an unknown market that deserves an effort. Companies wishing to enter the market have a different view of barriers to those already present and all are very aware that local presence or contacts can help to overcome these. For those already have operated in Bangladesh and are currently engaged risk mitigation measures are not applied too strictly, risk -rewards ratios are seen as positive and operations are rated satisfactorily. Larger companies with a service or works market generally overcome this more easily than SMEs delivering in goods. In contrast with e.g. the Textile sector companies, in the water sector companies are mainly exporting to these regions, rather than importing. The latter they primarily do from the countries neighbouring the home market[13]. The exception is the Maritime sector with both shipbuilding and maritime supplier sub-sectors, as a result of the shifting world centre of the shipbuilding industry.

Service and Works groups intending to do business in Bangladesh are largely dependent on public or international funding (IFI) and bidding for works, services they face the unfair tendering processes practiced in Bangladesh as outlined in Chapter 3. Goods companies on the other hand work are engaged with the private sector and success depends largely on the strength of the private sector partner in Bangladesh. Financial aspects are their main operational concern and not transparency.

[13] See also recent Berenschot Study on 13 market sectors, 2009

Our findings from discussions with Dutch public and private sector organizations such as NABU, BDCC, EVD, Maritime suppliers confirmed the above points. NL-Ingenieurs, as representative of the Services group, appeared almost to have given up on Bangladesh, while NABU for the Works group while recognising the opportunities in Bangladesh focused almost exclusively on procurement transparency. Members of organizations with a Goods market offer confirmed that opportunities do exist, especially in the Maritime sector, and that originally perceived problems appear less than envisaged.

Some of the key issues to consider are:

1. The procurement transparency for the service and works groups. This issue is although placed in a much wider framework than the market in Bangladesh. It rather concerns the total Water Mondiaal approach and even calls upon a wider and deeper public sector involvement. Such issues include:
   - World wide the challenge is to transfer know how and to link this to practical realisations in terms of very much needed water based infrastructure.
   - Pursuing also climate adaptation, not only mitigation, as the Netherlands plays a role in climate change funding.
   - Finding ways to improve the success rate of Dutch companies in large-scale projects with multilateral funding in view of ‘dissipated bilateral instruments’.
   - A move to a ‘value for money’ approach.
   - Facilitating local PPP frameworks as increasing demands are place on contractors.
   - A very broad public-private dialogue to facilitate this.
2. Getting to know the country and establishing local contacts are the primary issues for the Goods sector. They have a different market interaction and due to their size would benefit from more general internationalisation support measures. While unaware of present support measures to some extent, the Goods group appears not to be able to make optimal use the existing support instruments, for instance
   - The CPA instrument is considered very useful, as are the organisation of trade missions whereby the subsidy as such is seen less important.
   - For the shipbuilders PSI is considered of limited use due to project size, but is should be of more interest to maritime suppliers.
   - While Scheepsbouw Nederland would like to move as a cluster, even with the shipyards, port developers etc. it appears very difficult to align geographic priorities and interests. In addition, an instrument like 2g@there might have too short a project duration.

As such instruments are constrained in terms of direct government support rules, other countries pursue also other avenues of image and goodwill creation for private sector positioning purposes.

6. Opportunities in the Water Market

6.1 Opportunities for the Dutch Private Sector

Chapters 2, 3, and 4 sets out the current environment, future market prospects, the role of the public sector in managing the water resources, and the role of the Bangladeshi private sector in different markets of the water sector. There is an increased engagement of the private sector in various water markets, although public sector institution's planning, programming, and direct involvement in operations of many markets will continue. Reforming or changes in operations of public sector agencies cannot be expected to happen in the short to medium term. But increased PSP in the water sector will at least provide opportunities for growing competition between private sector and operations of public agencies/departments. It also provides opportunities for creation of benchmarks, efficiency improvements, and introduction of better technology in the sector. Supporting the private sector of Bangladesh would be a key element in ensuring the appropriate supply and use of water resources of Bangladesh. This support needs to be extended and expanded from previous contracting for works framework into directly engaging private sector in production, management, operation, and maintenance of water markets. The gradual entry of foreign players in the market provides further boost to PSP in the sector.

Under the above circumstances and from our findings on the perception of Dutch private sector (Chapter 5) in carrying out business in Bangladesh a convincing argument is made on good prospects for B2B development. Section 6.3 outlines what and in which market segments feasible business opportunities exists. The analysis in Section 6.3 draws from a synthesis of market and product development/growth prospects, significant role of the Bangladeshi private sector and perceived interests of Dutch private sector in engaging in specific markets.

B2G activities are limited because of the current operational modalities of the public sector as outlined in Chapter 3. This however does not leave out case-by-case opportunities particularly engagement of Dutch private sector under PPP models. Specific opportunities for PPP are not available within the public sector organizations.

6.2 Challenges of Enabling Environment

Attracting PSP, both local and foreign, in the sector will require that appropriate investment climate and enabling environment be put in place. The long tradition of public sector involvement has created much distortions and inefficiency in the market and without also addressing those distortions PSP engagement in the water markets would remain sub-optimal. Below we discuss what in our understanding are some of the critical enabling environment and governance issues that should be addressed/improved, perhaps through G2G engagement.

6.2.1 Sector Strategy and Policy for PSP

The recent PPP Policy and Strategy is a solid step in ensuring PSP in the sector. For the first time a clear indication have been provided by the GoB in engaging private sector in a wide range of markets of the water sector. However, without appropriate action program and integrated approach to planning and investments framed with a timeline mere policy and strategy would not be able to attract private sector financing and operations. There is a need to directly involve in consultations with the private sector in preparing sector strategy and mid-term investment programming that provides indication on market size, trends, and viability of investments. Micro-projects may serve the immediate needs of the government agencies but clearly does not address critical issues and long-term sustainability goals, as is reflected with over three decades of Dutch support to the water resources sector.
Recommendations for improvement

- Assistance provided to prepare integrated sector strategy and investment programs with due consultations and participation of the private sector. These strategies are essential for IWT, Drainage, and Wastewater sectors
- Assistance provided to prepare PPP guidelines and transaction advisory services for projects related to the water sector.

6.2.2 Deregulating Service Charges

Service charges in Bangladesh for drinking water, solid waste disposal, irrigation, passenger and ferry services are low and they do not cover costs of O&M. Without the minimum requirement that tariffs cover at least operation and maintenance it would be difficult to attract private sector in the water sector. Tariffs currently are controlled by the state and they should be deregulated or controlled only with an upper ceiling. A study on tariffs in different water markets and cost of operations could be carried out in order to reach a full understanding on this issue and to provide appropriate guidance with regard to service charges.

6.2.3 Procurement and Tendering

One of the key governance issues hindering international and professional private sector groups to enter the water sector is unfair procurement and tendering process. While attempts are made by donors (WB, ADB) to support GoB in preparing procurement rules and regulations that follow international practice, on the ground practices within public institutions remain unchanged. It cannot be expected that corruption and/or irregularities with procurement/tendering will change for better in the near future. The following options should be explored:

1. Engage third party monitoring such as an independent body/organization from the Netherlands (and EKN staff) to audit procurement process of all projects financed by the Netherlands government;
2. Organize procurement by ensuring independent bodies/organizations from the Netherlands and EKN staff are members of the procurement evaluation committee, in addition to Bangladeshi counterparts, for those projects financed by the Netherlands government;
3. EKN organizes procurement for projects financed by the Netherlands government with no participation of Bangladeshi public sector counterparts.

6.2.4 Public Private Sector Dialogue

In order to ensure greater PSP and a better enabling environment in the water sector it is important that a forum for dialogue and discussions between the public and private sector is established. We understand that the creation and operation of the forum may not rest with EKN, but a presumption is made that if the Netherlands government is going to engage as the prime donor supporting the water sector it could lead other financing agencies to convince the GoB on the need and usefulness for such a forum. It would be beneficial to have this forum only focused on the water sector and not developed around a general public private forum, whose establishment at this stage may be more complex and difficult. EKN should support the secretariat of such a forum and assist in its organization and deliverables.

6.3 Typology of Business Opportunities

Table 6.1 shows the business opportunities for different market segments of the water sector. The following observations are made on the table:

- Business opportunities identified based on discussions with the private sector in Bangladesh and indicated interests by Dutch private sector. These opportunities are in consumption and non-consumption water markets where B2B engagement and government outsourced work by Dutch private sector are feasible.
- Opportunities in the areas of water resource management, climate change adaptation, and coastal zone management have not been included and they will be dealt with in the final report. These opportunities will be mainly government-outsourced works.
- Most business opportunities identified are of short to medium term nature. It is important to develop facilities for B2B engagement within a short period in order to take advantage of some of these opportunities. Rupayan group for example is wishing to partner with foreign companies (Germany, Holland, Denmark) for development of a shipyard and inland container terminal in the next few months.
- The table indicates direct B2B and B2G outsourced work opportunities for Dutch private sector. Most B2G outsourced work are in reforming/building capacity of public institutions, as well as in preparing long-term integrated strategy and investment programs. The rationale for these activities are not only the development of an integrated approach by considering different water markets (for example integrating IWT strategy with water management strategy), but creating a market with stable investment opportunities in order to allow private sector to play a key role in the development of the market.

Table 6-1 Typology of Business Opportunities in the Water Sector

Market Segment	Types of Business Opportunities: Short and medium term < 3 years	Types of Business Opportunities: Long-term > 3 years	Product Type	Business Source	Brief Description
Dredging	Production of vessels for dredging		Goods and supplies (international)	B2B	Several shipbuilding companies are interested in the manufacturing of vessels for dredging. One Dutch company is already involved with Western Marine. Opportunities exist for JV/partnership with others.
	Training and capacity building for dredging		Services (international/ regional)	B2B G-outsourced (BIWTA)	Training and capacity building for dredging work for private companies and public sector agencies (BIWTA, BWDB) in order to bring activity at par with international standards, including environmental compliance
	Preparing Master Plan and long-term Investment Program		Services (international and local)	G-outsourced	Although planning is now underway to prepare a Dredging Master Plan there is opportunity to support this program and ensure an appropriate long-term investment program is prepared with PSP.
Shipbuilding	JV/Partnership with Bangladeshi shipyards		Goods and supplies (international)	B2B	Two shipyards have shown direct interests to form partnership with Dutch shipyards (Rupayan Group and Khan Brothers). Immediate steps can be taken to explore opportunity and EKN role could be key in achieving a successful deal.
	1. JV/partnership for ship design		Goods and supplies/Service (international)	B2B	All shipyards indicated low capacity in ship designing and are interested in obtaining support from international ship builders/designers in order to increase local capacity.
Inland Water Transportation	1. Inland Container Terminal – Turnkey operations		Goods and supplies/Service (international)	B2B	Two private ICT is planned and may need partnership to design, construct, manage and operate ICT until local private sector is capable to take over.
	2. Inland Container Terminal – Construction supervision		Services/Works (regional/local)	B2B	Private firms building ICT lacks expertise in marine and hydrology technology/expertise and is seeking international help for supervision of construction work which could be mostly carried out by local expertise.
	3. Preparation and adoption of a sector strategy		Services (international and local)	G-outsourced	Adoption of a network development and dredging strategy in order to provide mid-term vision that should include investment programming and PSP (The above dredging study could be combined in such a study)

Market Segment	Types of Business Opportunities: Short and medium term < 3 years	Types of Business Opportunities: Long-term > 3 years	Product Type	Business Source	Brief Description
		4. Reforming the sector	Services (international and local)	G-outsourced	The IWT sector needs to address several issues such as (i) institutional efficiency, (ii) tariffs and pricing; (iii) governance, (iv) regulations and monitoring of safety and environment. These issues will increasingly impact the sustainability of the sector.
Wastewater	1. Central Effluent Treatment Plants under BOT model		Goods and supplies/Services (international)	G-Outsourced/ B2B	Several industrial clusters still require to build CETP and innovative solutions are necessary for construction, management and operation. If economic zone activities increase as planned CETP market will get a boost.
Urban Drinking Water Supply	1. Construction, management and operation of Water Treatment Plant		Goods and supplies/services (international)	G-outsourced	The first construction, management and operation of WTP by a Danish firm should set the pace for increased foreign engagement in the sector. Long-term market should be good for WTP in large towns
		2. Reforming WASA	Services (international)	G-outsourced	Outsourcing of WASA operations with PSP is currently limited to revenue collection, but increased PSP is a key to reforming institutions and increase capacity for better access and efficiency in the sector.
Rural Drinking Water Supply		1. JV/partnership for Small-scale water treatment plants	Goods and supplies/services (international/local)	B2B	Treatment of ground and surface water is becoming necessary to supply water to rural households. However, affordability and willingness-to-pay issues may restrict commercial viability.
Water Harvesting		1. Research and studies on potentials for water harvesting	Services	G-outsourced	Some research and study of groundwater harvesting has been carried out but further research and conclusions are required. Potential for rainwater harvesting is high and studies with pilot programs at a larger scale could be carried out (compared to the Plan International/Coca Cola program)
Water-Based Tourism	1. JV/Partnership for river cruise and water sports		Goods and supplies/services	B2B	Tour operators indicate interests for partnership with foreign firms to take advantage of foreign markets, increase standards of services, developing products, and business

6.4 Facilitating Dutch Companies Business Opportunities in Bangladesh

A synthesis of findings from assessment of Dutch private sector perceived business opportunities, their key strengths, perceptions about doing business and market opportunities in Bangladesh water sector where private sector plays a key role has been carried out above. Some general and also specific feasible business opportunities are outlined in the Table 6.1. It is also suggested that further reform of several markets and operations of public sector organizations could pave the way for greater expansion of those markets creating sustained business opportunities. This report identifies support for policy and investment programming, fair tendering/procurement practices, setting tariff rates to cover operation and maintenance costs by deregulating current service charges, and assisting the GoB in holding private and public sector dialogue on the water sector. The above are part of G2G framework and should be seen as essential elements for sustaining water sector development and market expansion with opportunities for increased PSP.

It is important to facilitate and assist Dutch private sector companies in actual market entry to Bangladesh. The following support services are seen as critical:

Supporting companies providing goods/supplies for the water sector

- Prepare specific market information briefs and leaflets by defining strengths and weaknesses of the market, specific and focused opportunities, growth potentials, and key players in the market.
- Facilitate acquaintance with Bangladesh in order to overcome negative perceptions, provide general information on country operations, security, and logistics through
  - Own instruments such as CPA, trade mission support, 2g@there, etc.;
  - Supporting Bangladesh Investment Board with investment promotion materials such as strategy, publication, studies on the specific water market;
  - Use of local companies to broker matchmaking, carrying out due diligence, etc.
  - Awareness creation in the Netherlands with associations/EVD country or sector days.
- Support market entry through the
  - provision of in-country support to make initial contact;
  - improvement of entry barrier perceptions that are mostly financial in nature by partnering with a few commercial banks
  - creation of image/goodwill without overstepping direct government support rules
- Support operations through
  - Clarity and improvements in the banking sector, general business environment;
  - Gather, coordinate, network and exchange information on various sector/markets, for example shipbuilding from shipbuilding centers in the South Asian region via EKNs;
  - Supporting projects to help improve value chains in some sub-sectors such as for maritime suppliers, water-based tourism, water pump technology, etc;
- Other support services could be to
  - Link and present valuable experiences of locally involved Dutch businesses;
  - Supporting export promotion framework, specific sector associations, studies and dialogues, and
  - Engage in broader but water sector related capacity building.

Supporting Companies providing services and works

- Providing support on national and international policy domains outlined in Section 5.6 from a wider Dutch National Policy perspective by entering into extensive public private dialogue;
- Assisting in the preparation of studies on for example port development that would strengthen and expand Dutch business opportunities for maritime business, climate adaptation measures, etc.
- Assisting in development of PPP rules and regulations and capacity building in PPP transactions;
- Co-financing efforts for large-scale projects to better position Dutch expertise and companies.