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**Recommendation for a Regulatory
Framework for Bangladesh**

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The working documents were used as background materials for preparing the Sector Development Plan (SDP). The factual information and views expressed in the working documents are of the authors and does not necessarily of the Policy Support Unit or of the agencies that the authors belong to.

ASIAN DEVELOPMENT BANK

**TA 7001-BAN: Management Support for Dhaka Water Supply and
Sewerage Authority**

**RECOMMENDATION FOR A REGULATORY
FRAMEWORK
FOR BANGLADESH**

(Draft Report)

Submitted by

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RECOMMENDATION FOR A REGULATORY FRAMEWORK FOR BANGLADESH

1.0 INTRODUCTION

The ADTA 7001-BAN aims at improving and strengthening the management and operation of urban water supply and sanitation services. This includes assistance to the Local Government Division (LGD) and Dhaka Water Supply Sewerage Authority (DWASA) in preparing and implementing key policy reform measures prescribed in the policy matrix of the Project.

One of the policy reform measures in the policy matrix is "LGD will prepare a study on the most appropriate form of an independent water supply regulatory commission or regulator for Bangladesh and make recommendations to the Cabinet". The National Water Forum will establish a sub-committee specialized in the regulatory reform. This assignment is to help the LGD, in particular the sub-committee and Policy Support Unit of the LGD, in preparing the study and making recommendations to the Cabinet.

2.0 BANGLADESH WATER SECTOR

2.1 Bangladesh Administrative Divisions

The country is divided into six (6) Administrative Divisions: Dhaka, Chittagong, Khulna, Rajshahi, Barisal and Sylhet. The 6 divisions are subdivided into 64 Districts, while the Districts are subdivided into 470 Upazilas which are the lowest administrative tier of central government. The Upazilas are divided into 4,488 Unions and each Union is composed of nine (9) wards.

In the urban areas, there are two types of local governments: city corporations and municipalities. City corporations have been set in six (6) cities (divisional headquarters) and 298 municipalities in other urban areas.

In the rural areas, the elected Local Government Institution (LGIs) is at the union levels called the Union Parishad (UP).

2.2 Sector Overview¹

Bangladesh, with a population of about 140 million on a land area of 147,570 sq. km, is the most densely populated country in the world. Poverty and rapid population growth, combined with the tradition of drinking water from open ponds and poor sanitary habits, contributed to a high level of water-related morbidity and mortality up to the 60s. The GOB has since installed more than 1.2 million handpump tubewells in the rural areas and about six times more tubewells installed by individuals, NGOs and other agencies. Piped water supply systems have been installed in a limited number of Pourashavas where only the central part is served by the piped system.

The introduction of safe drinking water, through tubewells, higher sanitation coverage and improved primary health care, has reduced to half the mortality rate from diarrhoeal diseases in 1980 to 1997. But the country is now facing a new public health challenge of about one-quarter of total tubewells contaminated with arsenic.

¹ *Sector Development Programme*, Dhaka, Dec 2005

Sanitation programs have been implemented since the 70s, but success in improving coverage had been far less than that in the water sector.

The government has authorized the formation of semi-autonomous corporatized water utilities (WASAs) and these WASAs have already been formed in Dhaka, Chittagong and Khulna. The city governments and some Pourashavas have their own piped systems.

The Ministry of Local Government, Rural Development and Cooperatives (MLGRDC) is the line ministry concerned with :

- Local Government Division [LGD]: Overall monitoring and governance in relation to providing access to water and sanitation, policy and strategy formulation and regulation for the sector;
- Department of Public Health Engineering [DPHE]: Providing WSS services (technical assistance and infrastructure development) in rural and urban areas not served by WASAs;
- Local Government Engineering Department [LGED]: Provision of rural infrastructure and assistance to municipalities in implementing donor-supported projects;
- The Local Government Institutions (LGIs) are responsible for managing water and sanitation systems while the National Institute for Local Government (NILG) is tasked with capacity development of local government bodies including Pourashavas.

Urban WSS services are carried out by the WASAs, city corporations and Pourashava Water Sections. WASAs are responsible for the implementation of new WSS projects in their areas while DPHE implements new water systems and carries out major rehabilitation programs in Bangladesh. After completion of the works, DPHE hands over the WSS systems to the city corporations and Pourashavas for operation and maintenance.

Urban: The present urban water supply coverage is estimated to be 71% of which the coverage by piped water supply is only about 39% and the remaining 32% by handpump tubewells. The present WSS urban service delivery mechanism is inadequate to meet the present needs, not to mention the future demand.

In June 2005, the sanitation coverage was estimated to be 74% for both Pourashavas and city corporations.

The current institutional arrangements for water supply and sanitation services in the country are inefficient, poorly focused and generally not well coordinated to face the challenges in the sector.

2.3 Policy Context and Sector Reforms ²

The functioning of the water and sanitation sector in Bangladesh is mainly governed by the following national policies and strategies:

National Policy for Safe Water Supply & Sanitation (NPSWW), 1998

² Ibid

National Water Policy (NWP), 1998
National Water Management Plan (NWMP), 2004
National Policy for Arsenic Mitigation (NPAM), 2004
Sector Development Framework (SDF), 2004
National Sanitation Strategy, 2005
Pro-Poor Strategy for Water and Sanitation Sector, 2005
Poverty Reduction Strategy Paper (PRSP), 2005

The National WSS Policy of 1998 is the most significant policy for the sector. The Policy calls for decentralization and emphasizes the participation of users in the planning, development, operation and maintenance of WSS facilities through local governments and community-based organizations. It also gives specific coverage standards for the sector.³

The WSS Policy (1998) also states that urban water supply should be delivered at cost and that full cost recovery should be the ultimate aim. The Policy also stated that the DPHE will be responsible for the water supply and sanitation of the entire country, except for Dhaka and Chittagong.

The National Water Management Plan (2004) suggested setting up a Water Resources Act and a regulatory framework.

Many gaps in the above-mentioned policies and strategies were identified by the Policy Support Unit (PSU)⁴ and is now in the process of updating the Sector Development Program (SDP) which will include addressing the policy gaps and recommendations to translate the policies into tangible structures, activities and programs. A proposal to craft a Water Service Act has already been recommended and is worthwhile pursuing that recommendation.

2.4 Bangladesh Sector Challenges

a. Inability of Utilities to Expand and Supply Clean Water to Meet Rapidly Growing Demand.

Of the 309 urban towns in the country, only 102 have piped water supply systems. In most towns, the water supply is sourced from deep tube wells and, due to the high cost and instability of electricity, water pumps run for only 10–12 hours per day, resulting in an intermittent water supply of 2–9 hours at most per day. Rehabilitation and expansion of the existing systems, in parallel with investment in new systems in most towns and cities, are sorely needed.

As an example, Khulna WASA (KWASA) has only about 12,800⁵ active connections serving a city with 1.4 million population. Even assuming 8⁶ persons served per connection, KWASA is serving only 7.3 % of the city population. Dhaka WASA (DWASA) has about

³ Such as 50 persons served per tubewell

⁴ The Policy Support Unit (PSU) component is part of Danida's Water Supply and Sanitation Sector Program Support (WSSPS) Phase II. It contributes to the provision of policy and decision support to the Government of Bangladesh (GoB) in developing, implementing and monitoring a Sector Policy Development Program (SDP) towards poverty reduction through increased access to safe water supply, improved sanitation and hygiene behaviour.

⁵ Draft Report of Phillip Cases for ADB TA 7001, October 2009

⁶ Bangladesh household size ranges from 4.41 to 5.66 depending on family income levels. *The Chronically Poor in Rural Bangladesh*, Rahman, Matsui & Ikemoto. 2009

272,850 active connections⁷ covering a city with close to 12.6 million people. Assuming 15 people served per connection, DWASA serves only 32% of the city population through piped services. Chittagong WASA produces only 200 million litres of water a day against the demand for over 500 million litres.⁸

b. Poor Quality of Water Distribution Network.

Large non-revenue water (NRW) and inefficient work procedures exist in most of the Pourashavas and WASAs. Urban water supply conditions typically are characterized by sub-zone NRW usually as high as 50-60% of production. The majority of the distribution system is weak because of the intermittent water supply, leakage, and pollution from old and dilapidated sewerage pipes and storm drains. As a result, the incidence of waterborne diseases like diarrhea and typhoid is found among city dwellers⁹.

c. Water Quality Problems.

Tubewells had been in use in Bangladesh since the 40's to provide safe drinking water to the populace. Now there are several millions of them and recent technology has pointed out that the groundwater may be contaminated by arsenic. Some 35-85 million people could be exposed, on a daily basis, to elevated levels of *arsenic* in their drinking water, which will ultimately threaten their health and shorten their life expectancy¹⁰. A number of people have also been affected by other waterborne diseases like dysentery and pneumonia due to lack of pure drinking water in the flood-hit areas and the areas clogged with water.

*Surveys of the effects on the population's health have occurred concurrently with the previous studies of groundwater contamination. From December 1996 to January 1997, a three-week survey was conducted by the Dhaka Community Hospital and the School of Environmental Studies. The survey team visited 18 affected districts. Of the 1630 adults and children examined, 57.5% of them had skin lesions due to arsenic poisoning. In another study, approximately one-third of the 7364 patients examined had skin lesions due to arsenic.*¹¹

d. Financially Unsustainable Utilities

This is a result of low tariffs and inefficient or ineffective management systems. Low tariff levels, which exist in WASAs and most towns, are insufficient to recover even the O&M costs (applicable to water supply as well as sanitation). Poor collection efficiency of utilities makes them dependent on national government for financing. Most of the Pourashava water systems are using outdated accounting systems and the customer databases are not created or updated. Bills are prepared and distributed to the consumers manually and, moreover, are not prepared regularly. There is a lack of incentive to improve.

⁷ As of June 2009, DWASA records

⁸ *The Financial Express*, Dhaka, March 31, 2009

⁹ TAR: BAN 39405: *Technical Assistance to the People's Republic of Bangladesh for Preparing the Dhaka Water Supply Project*, ADB, Sept 2005

¹⁰ www.sos-arsenic.net

¹¹ *Contamination of Drinking-water by Arsenic in Bangladesh: A Public Health Emergency*, Allan H. Smith, Elena O. Lingas, & Mahfuzar Rahman; World Health Organization Bulletin, 2000,(78)

Many systems rely on development grants by the central government. In small urban water supply systems, imposing property taxes is a common practice to mobilize local resources. Again, according to the ADB Sector Report (2003) in a sample of 61 municipalities, the total average revenues (including tariffs and taxes) per municipality were US\$1,827 in 2000, far from recovering the operation and maintenance costs of US\$187,831.

e. Water Overexploitation

The level of consumption is presently not a function of price but of availability of supply. Provision for incentive to conserve water and penalty for over/misuse/illegal use are absent and there are no incentives or penalties for hygienic sanitation. Water shortages have become increasingly apparent because of the falling water tables resulting from unregulated extractions of groundwater. Dhaka's groundwater levels has fallen over 20 meters during the last decade¹².

f. Lack of Utility Autonomy

WASAs and local government institutions lack autonomy in many areas. Examples are the need to secure clearance from the central government to raise tariffs, create positions and appoint staff.

3.0 NEED FOR WATER REFORMS

Without reforms in the water sector, the future scenario for Bangladesh would be grim as follows:

a. **Continuous Decay of facilities with increasing unaccounted-for-water (UFW).** This will have the effect of increasing operational cost and deteriorating service levels.

b. **Increasing Financial Subsidies from GOB:** Since tariffs will have difficulty being adjusted due to the deteriorating service levels and resistance from decision makers, the gap between operating cost and revenues will widen. This will necessitate more and more subsidies from government which will be perceived as abetting system inefficiencies and perpetuating a culture of financial dependence.

c. **Source Inadequacy:** Given the country's growth rate, the increasing system UFW, rate of urbanization, arsenic contamination and degradation of existing sources, the existing sources may no longer be capable of supporting the needs (domestic, industrial, agricultural) of the country within the foreseeable future.

Almost all the waste from humans, industry, and millions of farm animals, along with tonnes of pesticides and fertilizers, make their way into Dhaka's surface water untreated, and a percentage of these wastes infiltrate to the groundwater. As a result, pollutant levels in the groundwater are increasing, and many sections of the rivers and canals in the city and surrounding areas, especially the Buriganga and Sitalakhya,

¹² World Bank, **South Asia Population: Urban Growth, a Challenge and an Opportunity**; Shanta Devarajan, Chief Economist for South Asia

are biologically dead during the dry season, spurring widespread public concern.¹³

d. **Geometric Increase in Capital Cost.** Additional sources of supply will either be deeper (for wells) or farther away from urban areas and, together with treatment requirements, replacement and expansion requirements of the transmission and distribution facilities, will increase the capital cost on a geometric increasing pattern. The only way that this can be funded is through loans/grants from development partners. However, without the necessary reforms, the developmental partners will be reluctant in providing the necessary funds. This is assuming that the GOB can afford the loan funds in the first place.

e. **Constrained Economic Development.** There are 2 reasons why economic development will be hampered given the state of the sector: (i) more government funds will be poured into the water sector for operational subsidies and debt service. These funds could be better used in other sectors which are not revenue producing, and (ii) given the huge government subsidies, the citizens will perceive water as a non-economic good and will necessitate more funding from the government, thereby perpetuating a vicious cycle. Deficiencies in water supply and sanitation services have resulted in higher costs for businesses, slower urban economic growth, and social unrest¹⁴.

f. **Non-participation of the Private Sector.** Critical institutional reforms and the active participation of the private sector are essential to ensure future investments. In Dhaka, water services suffer from, among others, underinvestment, overstaffing, low pay, and limited availability of equipment. To rectify these deficiencies, the Government has been trying to attract the private sector to the utility services. The participation of the private sector will not only relieve the burden of the GOB of securing all the funding requirements needed but will improve employment levels and introduce much needed efficiencies in the sector. Unfortunately, given the existing state of affairs, private sector participation¹⁵ in the water sector is unlikely to happen.

g. **Political Repercussions:** Given all of the above, no political regime can hope to stay in power for so long given the dissatisfaction in service levels and huge financing requirements to improve service levels.

Given the above-mentioned sector challenges, the reforms necessary would be in two areas: (i) institutional and organizational development of the utilities and (ii) adoption of a regulatory framework. These two are heavily intertwined. A regulatory framework cannot succeed without institutionally developed utilities and the sustainability of institutionally developed utilities will be hard pressed without an external regulator.

4.0 REFORMS & REGULATIONS IN BANGLADESH POWER SECTOR

After the independence of Bangladesh in 1971, Bangladesh Power Development Board (BPDB) was created to look after generation, transmission, distribution and sale of electricity throughout the country. Dhaka Electric Supply, headed by a Chief

¹³ World Bank, *Bangladesh Country Environmental Analysis*, March 2007

¹⁴ World Bank, *South Asia Population: Urban Growth, a Challenge and an Opportunity*; Shanta Devarajan, Chief Economist for South Asia

¹⁵ Wherein investments from the private sector are involved

Engineer under BPDB, used to control the electricity distribution and sales in Greater Dhaka District area up to September 1991.

The Bangladesh Power Development Board (BPDB), was the only utility (government-owned) responsible for generation, transmission and distribution of electricity throughout the country up to the late 70s. However, its performance up to the 90s fell short of expectations. High system losses (42%) in the sector, large amount of accounts receivables in excess of 6.5 months of billings and inadequate tariff had affected its financial viability and attractiveness for investment. Acute scarcity of resources further hindered financing the huge cost required for the development of the sector.

As power projects are capital intensive, developing adequate generation, transmission and distribution facilities to provide reliable and quality power supply to the population was a challenge for the Government. Therefore, to materialize GOB's vision, active participation of the private entrepreneurs and power sector reform and restructuring were done.

4.1 The Reform Process

70s

The power sector reforms started in the late '70s with the creation of the semi-autonomous Rural Electrification Board (REB) which was made responsible for distribution of power to the rural areas through electric cooperatives.

1991 – 1995

In the early nineties, unbundling of the power sector as a part of reforms started with the creation of the Dhaka Electric Supply Company (DESA) in 1991. This was done to lessen the administrative burden on BPDB's management by relieving it of the burden of managing about 50 percent of the energy distribution in the entire country.

With the economy performing very well during 1992-95, the demand for electricity grew substantially. Constrained by the paucity of its resources, the Government decided to allow private sector participation in the power sector. However, it was quickly realized that private capital, whether domestic or foreign, would not come into a sector, which was not financially viable and was not technically, organizationally and legally structured in a way conducive to attract it. Faced with a grim possibility of serious electricity shortages during the next few years and to enable the sector to be financially self-sustaining and also attract private capital, the cabinet approved in principle the inter-ministerial committee report named "Power Sector Reforms in Bangladesh (PSRB)", in September 1994. This committee made two (2) recommendations: i) to unbundle the sector according to functional lines and ii) to create the Energy Regulatory Commission (ERC). The Committee report was subsequently approved by GOB.

1995-1998

The National Energy Policy, prepared in 1995 and adopted in 1996, recommended vertical separation of the sector and establishment of the Energy Regulatory Commission (ERC).

As part of the unbundling process , the Power Grid Company of Bangladesh (PGCB) was created in 1996 to take over transmission business from BPDB which at that time was in both power generation and transmission.

The Dhaka Electric Supply Company¹⁶ (DESCO) was created in 1996 to take over a part of the Distribution Business of Dhaka City from DESA.

A Power Cell was created under the Ministry of Power, Energy & Mineral Resources in 1995 to facilitate power sector reforms and to promote private power development.

The Power Cell had been created by the government under the Power Division, Ministry of Power, Energy and Mineral Resources to carry forward the power sector reform activities of the government with funding support from World Bank. The Power Cell has the mandate to lead private power development, recommend power sector reforms & restructuring, conduct study on tariffs and formulate a regulatory framework for the sector. It assisted project sponsors to secure necessary consents and permits where such would be needed.¹⁷ The Power Cell is basically a government project¹⁸ headed by a Director General with three (3) Deputy Directors. It has 39 staff (including the directors) and will continue as a project up to December 2009.

2000-2007

The GOB issued its Vision and Policy Statement on Power Sector Reforms in February 2000.

Government reconstituted board of directors of corporatized entities for good governance. Government discontinued the practice of appointing Secretary, Power Division as chairman of the board and the companies formed board committees for Audit, Recruitment and Promotion, and procurement to ensure transparency and accountability in the corporatized entities.

Draft legislation for setting up the Energy Regulatory Commission and legal framework for sector restructuring was approved by the Cabinet and the Bangladesh Energy Regulatory Commission Act (enacted in 2003) led to the creation of the Bangladesh Energy Regulatory Commission (BERC) to regulate the Electricity, Gas and Petroleum sector.

4.2 Bangladesh Energy Regulatory Commission (BERC)

There are 13 functions of the BERC among which are: (i) to determine tariff and safety enhancement of electricity generation and transmission, marketing, supply, storage and distribution of energy; (ii) to issue, cancel, amend and determine conditions of licenses; (iii) to frame codes and standards and make enforcement of those compulsory; (iv) to ensure appropriate remedy for consumer disputes,

¹⁶ A public sector company, incorporated under the Companies Act 1994 as a subsidiary of DESA. However, shares of the company will be offered to the private sector, other power sector entities and the general public to make the DESCO's management more responsive to its consumers.

¹⁷ Private Sector Power Generation Policy of Bangladesh, MOEPMR, Revised 2004

¹⁸ No Executive Order or otherwise Memo was issued for creation of the Power Cell.

dishonest business practices or monopoly; and (v) ensure control of environmental standard of energy under existing laws.

The BERC is headed by 5 Commissioners who are appointed by the President for a term of three (3) years. The qualifications to be appointed as Member are given in the Act. BERC is manned by five (5) Directors (Electricity, Gas, Petroleum, Technical, Finance & Accounts, and eight (8) Deputy Directors. It is currently fully functional with a manpower complement of 58¹⁹ although recruitment is underway to increase it to 81.

BERC had been able to formulate licensing regulation in 2006 and the Electricity Transmission and Distribution Regulation in 2008.

4.3 Comments

While the recommendation to establish an ERC had been recognized since 1993, it was only in 2003 (or 11 years later) that the Act to create one was finally passed by Parliament. Factors which led to the creation of the BERC were: (i) poor sector performance, and (ii) need to incentivise and regulate the entries of several private players into the sector.

5.0 REGULATIONS IN BANGLADESH TELECOMMUNICATIONS SECTOR

5.1 Sector Overview

The telephone density in Bangladesh was about 0.39 per 100 people in 1996/97 which was far below the world average of 10 telephones per 100 people. This low density of telephone in Bangladesh was due primarily to inadequate investment in this sector in the past. In order to enhance the investment in the telecommunication sector, the government has been pursuing the policy of raising the public sector allocation on the one hand and attracting private sector investment by privatizing certain services, e.g. rural telecommunication, cellular mobile service, paging and radio trunking services, etc. on the other.

After the independence of Bangladesh in 1971, Bangladesh Telegraph and Telephone Department (BTTB) was set up under the Ministry of Posts and Telecommunications (MOPT) to run the telecommunications services in Bangladesh. This was converted into a corporate body named 'Telegraph and Telephone Board' by promulgation of Telegraph and Telephone Board Ordinance, 1975. In 1979, the Telegraph and Telephone Board was converted²⁰ to "Bangladesh Telegraph and Telephone Board" (BTTB) as a government board providing telecom services to the country.

When the performance of the BTTB fell short of its potential, reform initiatives were done starting during the 80s.

5.2 Reform Process

During the 80s: During this period, the MOPT was the policy making body of the Government of Bangladesh for telecommunications, as well as the sector regulator responsible for spectrum management, and regulation of BTTB and private sector

¹⁹ Including its commissioners

²⁰ Pursuant to Ordinance No. XII of 1979 promulgated on 24th February, 1979

rural and cellular operators. The value-added service providers such as VSAT and Internet Service Providers (ISPs) were also regulated by MOPT.

Although MOPT is the formal regulator of BTTB, it apparently did not have any power to regulate BTTB tariffs, which were supposed to be approved by the Ministry of Finance. Moreover, major spending decisions of BTTB, for expansion or maintenance of the network, had to be approved by the Planning Commission.

Nation-wide long distance telephone dialing system was first introduced in 1983 to link all the major cities of the country.

During the 90s: The performance of the Bangladesh telecommunications sector was still far short of its potential and remained a significant constraint to economic growth. The overall level of telephone density was one of the lowest in the world at about 0.3 lines per 100 people. This low level of teledensity reflected the failure of initiatives to attract the private investment needed for the sector as well as the poor performance of the dominant operator, BTTB, to meet customers' demand.

Gradual privatization of the sector started in 1992 when Bangladesh Rural Telecommunications Authority (BRTA) was licensed to provide telecommunications to 200 rural districts, followed by a second operator some time later. But these two companies had only limited success and poor levels of interconnection with the BTTB network. In 1997 the government of Bangladesh opened telecommunications services to competition by removing the telecommunications sector from the "Reserve List".

Sector issues during the 90s include (a) inadequate availability of telephone service in rural areas; and (b) low levels of private investment, mainly due to lack of appropriate policy and regulatory framework, lack of an adequate interconnection arrangement, distorted tariff structure and ineffective spectrum management.²¹

Although the telecommunication sector has been opened up by the government for private sector investment since 1979, there were no takers during the 80s. In 1993, a private company (HBTL) began commercial operations and became the first cellular operator in South Asia. (Since then four companies had been granted license for providing cellular telephone services.)

Early in 1997, competition to supplement the state-run national operator appeared in the form of two of the three newly licensed digital cellular services which became operational. However, the government did not permit cellular operators to install their own long distance infrastructure, and thus the new operators have no choice but to turn to the BTTB for interconnection to the public network. As additional private operators are licensed and the traffic increases, interconnection bottlenecks and traffic congestion are likely to worsen as all competitors which require long distance depend on BTTB to make adequate network investments

²¹ World Bank Report No. PID4749, Sept 1999

Ordinance No. XII, which created the BTTB, was amended in 1995, to create a Telecommunications Regulatory Board (TRB) also functioning under the MOPT. The Board, however, was not organized.

GOB approved the National Telecommunications Policy in 1998 which sets the government vision and objectives in the sector.

The Strategic Vision of the Government is to facilitate Universal Telephone Service throughout the country and where there is a demand, all those value added services such as cellular mobile telephone paging, data services, access to Internet (including electronic mail), voice mail and video conferencing – all at an affordable cost without compromising performance. To achieve the Vision, Government's role as a service provider will diminish as the private sector's role increases. The Government's objective will be to create a new policy environment to support this new scenario. Its ability to create policy, regulate and facilitate will be strengthened through a new Telecommunications Act which reflects the Government's new policies, objectives and strategies and the establishment of new institutions including a Telecommunication Regulatory Commission (TRC) which will become the guardian of the Act and fulfil its regulatory functions.²²

2000-2007

The Telecom National Policy set the stage for the enactment of the Bangladesh Telecommunication Act, 2001 which provided for an adequate regulatory framework. Through enactment of this legislation, the Government created the Bangladesh Telecommunications Regulatory Commission (BTRC), which resulted in the transfer of regulatory functions from MOPT to BTRC. BTRC started operation on January 31, 2002.

The Government announced its National Information and Communications Technology (ICT) Policy in September 2002, as it aspires to use ICTs as a key engine of economic growth. The policy calls for accelerated deregulation of and private participation in the telecommunications sector. The prime minister headed a high level national ICT task force which spearheaded the ICT development agenda.

Recognizing that BTTB's poor performance is a key hurdle in implementing its ICT policy, the GOB has taken the decision to restructure BTTB in order to dramatically improve sector performance and meet its ICT policy objectives. It established a high level task force, led by the MOPT, to examine the various options available for restructuring BTTB. The committee submitted its recommendation on BTTB restructuring to the Government on June 2003.

5.3 Bangladesh Telecommunication Regulatory Commission

BTRC is responsible for regulating the sector in keeping with both the Act and telecommunications policy as determined by MOPT. It is responsible for licensing operators and ensuring compliance with license terms and conditions, managing the radio spectrum, ensuring technical compatibility and effective interconnection

²² *Bangladesh National Telecommunication Policy*, Dhaka, 1998

between service providers, monitoring carrier quality of service, approving tariffs, and providing equipment-type approval.

5.4 Comments

It took GOB only four (4) years to form the BTRC from the time it was included in the National Telecom Policy in 1998 to the enactment of the Act in 1992. Three factors were the driving forces which caused the regulatory body to be formed in a shorter time (relative to the energy sector): i) the sector had the Prime Minister as its champion, ii) poor sector performance, and iii) low level of private sector investments.

6.0 WATER ECONOMIC REGULATORY EXPERIENCES IN OTHER COUNTRIES

There is no single ideal solution for an economic regulatory framework. Each country had to tailor fit a system which is suited within their cultural, political and legal context, i.e. a country with strong state governments will likely regulate from the state, while countries with a strong centralized government will regulate from a national perspective.

England, Philippines, Nepal and Malaysia have national regulators. Those with state regulators include the USA, Philippines and Australia.

Contract-based regulators can be found in almost all countries with privately owned utilities.

6.1 Philippines

Except for Metro Manila, the provision for water and sewerage facilities is the responsibility of the local government units (LGUs- Provincial, municipal and cities). LGUs have opted for various management models to provide these services, hence the water industry in the Philippines is composed of a mixture of LGU-run systems, water districts, cooperatives, rural water associations, other government-owned and controlled corporations and private water utilities. Many operate on a very small scale and inefficiencies exist in terms both of the quality and reliability of the water services provided, environmental effects and health and safety.

When LWUA was created in 1973 to improve the provincial urban water sector, the framers included both development assistance to and regulation of government-owned water districts²³. ***For about 15 years, the regulatory function played a minor role as LWUA devoted all its efforts and resources to corporatization and organizational development of these water districts.*** The regulatory aspects really came to the forefront during the 90s when there were already about 300 water districts which were institutionally developed.

The national regulator for private utilities, the National Water Resources Board, has the mandate for economic regulation since the late 70s. It has about 400 regulatees²⁴

²³ Water Districts are government-owned corporations which are created by the LGUS on a local option basis.

²⁴ Includes private water operators, resettlement areas, economic zones, rural water and sanitation associations, water cooperatives and subdivision associations and condominiums

and is having difficulties due to inadequate resources, both manpower and financial. ***It is now investigating the use of light handed regulation²⁵ to reduce its workload and of an incentive system to institutionally and operationally assist its regulatees.***

The LGUs act as the regulators of their own LGU-run systems. Self regulation seldom works as shown in the World Bank Water Utilities Data Book (2005), which compared the performance of 18 water districts, 10 LGUs, 9 cooperatives and 8 private operators. ***The report showed that the performance of water districts was slightly better than the performance of private operators, but both clearly outperformed LGUs in terms of access, continuity of supply, labor productivity, cost recovery and billing efficiency.***

6.2 Malaysia

Malaysia has recently enacted major reforms of the water sector including its regulatory framework. Previously water supply and sanitation services were provided by state government agencies which were also the de-facto regulators. By the early 1990s, many states had established corporatized water supply companies and in a few cases were partly or fully privatized.

However, the water supply companies suffered from problems due to low tariff levels, capital expenditure constraints, high and often unsupportable debt. The sector also suffered from a lack of coordination between stakeholders, and an ineffective regulatory structure and poor enforcement. These prompted reforms whereby control of the water supply businesses was transferred from state to federal government level. The intention is for financial assistance to be given through a government-owned company, PAAB. PAAB is a Water Asset Holding Company, which will acquire existing assets from the state water companies and build new water assets.

The government passed the Water Services Industry Act (Act 655) (WSIA) in 2006 dealing with water abstraction, treatment, distribution and supply to customers, and regulation. WSIA was created to allow the Federal Government to provide and regulate the treated water supply services and sewerage services which was formerly under the responsibility of the state authorities. It is also meant to ensure uniformity of the laws, policies for the proper control and regulation of water supply services and sewerage services throughout Peninsular Malaysia and the Federal Territories of Kuala Lumpur, Putrajaya and Labuan.

The National Water Services Commission (SPAN) was created in 2007 under the SPAN Act (Act 654). The Commission comprises 10 members who were appointed by the Minister of Energy, Water and Communications for a period of 2 years.

The WSIA requires all water industry players to be licensed to treat water, distribute it and own a facility. Concession holders are required to re-negotiate their agreements with the Commission within a specific time period. The WSI Act includes provisions on (i) Economic regulations (duties and obligations on licensees), (ii) Technical regulations, (iii) Social regulations (establishment of a consumers forum), and (iv) Consumer protection (including quality of service, mechanisms for resolutions, consumer complaints and tariff setting).

²⁵ Light handed regulation requires only the annual submission of documents with visitations every 3-5 years.

Currently SPAN's licensing provisions are being transitioned. Existing state licenses need to be registered with SPAN, but remain in force until they expire. To date SPAN's activities have focused on initial tasks such as the issuance of permits, appointment of qualified staff, the development of rules and guidelines and the processing of applications for authorization. SPAN is also assisting the Ministry in the renegotiation of privatized water concessions.

In summary, the government planned on corporatizing all state water authorities, taking over all assets and liabilities including debts of state-owned authorities, and providing funds to individual water companies and regulating all companies. The government created a regulator to address the issues of an ineffective regulatory structure and absence of long-term sustainability.

6.3 Nepal

Nepal had recently created a Water Supply Tariff Fixation Commission (WSTFC) in 2006 to regulate and approve tariffs of its utilities. WSTFC was established as the sector's economic regulator, which will review and approve water tariff adjustments as well as provide water service oversight to protect customers.²⁶ *The recent decisions of the WSTFC with regards to tariff adjustments have made possible loan funding from the ADB.*

Other institutional reforms in governance and ownership were: (i) restructuring the Kathmandu Valley operations of the Nepal Water Supply Corporation (NWSC) by creating two new entities, i.e., Kathmandu Valley Water Supply Management Board (KVWSMB)²⁷, and Kathmandu Upatyaka Khanepani Limited (KUKL); and ii) introduction of the private sector participation (PSP) modality for the management of KUKL via a performance-based management contract (PBMC).²⁸

6.4 Countries with State Regulators

Countries which have a strong record of strong and autonomous state governments have formed regulatory bodies at the State level. Such countries include the United States, Canada and Australia.²⁹ These state regulators cover both public and privately owned utilities. ***While these state regulators have been successful, it must be borne in mind that the individual states are to a great extent financially independent from the national government and the utilities being regulated are all matured in terms of institutional development.***

Canadian utilities in large municipalities³⁰ generally fall into three (3) types of business models—Municipal utility, Public corporations and Public-Private Participatory (P3) models. The P3s in Canada are currently regulated 'by contract'.

6.5 Countries with National Regulators

United Kingdom

²⁶ **ADB Progress Report on Tranche Release**; Loan No. 2058, November 2008

²⁷ KVWSMB was established as asset owner of the water system related to Kathmandu Valley operations, which will in turn be leased out to KUKL under an operating license.

²⁸ **ADB Progress Report on Tranche Release**; Loan No. 2058, November 2008

²⁹ One such example is the Essential Services Commission for the State of Victoria composed of 3 Commissioners who reports annually to the Parliament.

³⁰ Such as Vancouver, Winnipeg, Toronto, Ottawa, Montreal, Calgary, etc.

The Office of Water Services (OFWAT) in the UK covers both England and Wales. OFWAT was created in 1989 as part of an overall sector reform and privatization program that included the divestiture of water assets to 10 regional water supply and wastewater companies. It now regulates 24 private water companies (the 10 regional companies plus 14 smaller companies).

Sri Lanka

The Public Utilities Commission of Sri Lanka (PUCSL) was established by the Act No 35 of 2002 as a multi-sector regulator to regulate certain physical infrastructure industries in the country. It came into operation in mid 2003 with the appointment of the first group of Commissioners and its Director General. Initially, the PUCSL Act provided for regulation of the Electricity and Water Service industries. Later in March 2006, Petroleum industry was also added to the list of industries to be regulated by the PUCSL.

To operationalize regulation for each sector, an Industry Act for that sector must be passed by Parliament. With the enactment of Sri Lanka Electricity Act No. 20 of 2009, PUCSL became the economic, safety and technical regulator of the Electricity industry. With a view of ensuring adequate investment, greater availability, efficient supply, and improved quality of services in the electricity industry, PUCSL regulates generation, transmission, distribution, supply and use of Electricity in Sri Lanka.

The water sector has not yet been under the aegis of the PUCSL because a Water Industry Act has not yet been approved by Parliament. Another setback is that the SL Supreme Court has recently declared that the Water Sector Reform Bill of 2002 is unconstitutional on the basis that the water is a devolved responsibility in which the central government had no right to legislate with the concurrence of the provinces.

The Water Services Reform Bill was initially prepared to support a national policy for (i) the regulation and monitoring of water services provision, (ii) regulation of the tariff for water services, (iii) specifying the standards for water quality, (iv) consumer protection requirements in the water services, and (v) facilitation and promotion of private sector participation in the water services industry in Sri Lanka. Although the Bill was approved by the Cabinet in mid-2003, it was tabled for approval by the Parliament until it was subsequently challenged in the Supreme Court.

Notwithstanding the recent Supreme Court decision, Sri Lanka's only utility, the National Water, Sanitation and Drainage Board (NWSDB) together with its upstream Ministry (Ministry of Water Supply and Drainage) has decided to proceed with institutional and regulatory reforms even within the utility itself. The NWSDB will be converting each of its six (6) Regional Support Centers into business centers with the central office assuming the role of a de-facto regulator over its business centers.

The NWSDB had grown extensively in size since its creation in 1974 and management has recognized that its current size and excessively centralized management approach have led to several inefficiencies which it hopes to improve with the current reform initiatives.

6.6 Countries with No Separate Economic Regulators

Many countries choose to regulate their utilities by government bodies which are also involved in policy-making and/or operations. Such are South Asian countries like India and Pakistan.

Southeast Asian countries include Singapore, Thailand and Viet Nam in which regulations are done by government bodies with policy making and operational functions. **Singapore**, suffering from inadequate water resources within its boundaries, values its water resources as a life-or-death asset. Its sole utility, Public Utilities Board, is so institutionally and organizationally developed that it needs no independent regulator to sustain its performance.

Water supply and distribution systems in **Thailand** are mostly covered by three state-owned enterprises. The Metropolitan Waterworks Authority (MWA) produces and distributes tap water for urban areas, while the Provincial Waterworks Authority (PWA) treats and distributes tap water for rural areas. The Waste Water Management Organization (WWMO) treats waste water. There are also municipal and private water companies.

After the 1997 crisis, the Thai government recognized the need to enhance sector performance and competition to increase the competitiveness of the Thai industries. It also wanted to promote transparency and accountability. A series of regulatory reforms of state-owned enterprises (SOEs) and other policy reforms have already been initiated, beginning with the cabinet approval of a Master Plan for State Enterprise Sector Reform in 1998.

A number of privatization and restructuring options for the water sector are suggested in the Master Plan. Two options for the Metropolitan Water Authority (MWA) are: (i) to horizontally separate into two companies which grant concessions to private operators in some activities, and (ii) to corporatize MWA and find strategic partners to operate and manage through management contracts. For the Provincial Water Authority (PWA), it was proposed that after horizontal unbundling, PWA act as a contract manager overseeing concession arrangements for different regions.

Regulation: This model of private sector participation will be balanced by an independent regulator established to provide oversight of the water industry. In particular, this regulator will provide certainty to private sector participants with regard to the interpretation of contracts or concession agreements and ensure customer safeguards in the areas of tariffs, quality of service and dispute resolution³¹. However, reforms in the water have lagged behind.

India

India's utilities are publicly owned and generally have no separate economic regulator from the central or state governments. However, operating inefficiencies have caused one state to form a regulatory Commission with another following suit.

Not just power but water too is set to become a regulated commodity in Gujarat, with the state planning to set up a water regulatory commission shortly. With this move, the government hopes to minimize the mismanagement of its water resources as well as rationalize costs

³¹ **Master Plan for State Enterprise Sector Reform**, Thailand, 1998

Gujarat is set to become the second state in India, after neighbouring Maharashtra, to have a regulatory body for its water sector. The Gujarat state government has readied a draft Bill on a water regulatory commission to ensure planned growth in the sector, promote water conservation and rationalize water supply tariffs and transport subsidy policies. Increased privatization of water resources in the state is also a likely outcome of the Bill.

Officials claim the regulatory framework will bring clarity to the roles of various government bodies involved in water distribution, boost private sector investment, improve productivity and efficiency in the sector, and also address the cost aspects. Aiming at an economic costing of water, the Bill includes municipal bodies and industrial users in its ambit. "As things stand today, there is an overlap of functions, the concept of user charges is missing, and there is no check on exploitation of water resources. The commission will be an umbrella body dealing with such issues," a top official said.³²

7.0 PRE-CONDITIONS TO MAKE REGULATION WORK

7.1 Is there a Need for Regulation

Obviously the first question to ask. If a country has enough resources and there is only a single utility which performs on a world class level, there will be no need.

But if a country has limited financial resources, and with several types of utilities (government, private, community-based) with most of them operating inefficiently and/or financially unable to recover costs, then regulation is a must.

The development of a clear regulatory framework goes hand in hand with the development of the private sector participation (PSP) options. If the government is really serious in allowing private capital to flow into the sector, the attractiveness of PSP approaches is dependent on whether viable, credible and effective regulatory arrangements can be established.

A regulatory framework is necessary to monitor and control the provision of public services, whether they are private or public. The main objective of regulation is to achieve fairness among stakeholders, principally the customers and the service provider. The absence of a clear regulatory system and non-enforcement of existing regulations are two main causes of unreliable service. Specifically, regulatory systems are designed for the following purposes:

- i. to ensure compliance with standards of acceptable service;
- ii. to protect the customers from possible unfair practices by the service provider;
- iii. to create a business environment which promotes commercial viability; and
- iv. to protect the environment.

³² Source: Express Newline, September 13, 2006 (<http://innfochangeindia.org>)

Economic regulation is primarily involved in setting tariffs and enforcing service levels associated with the tariff levels. A service provider should be allowed to provide the consumers with a quality of service that meets certain standards commensurate with the tariff that it is allowed to charge. In all countries, adjustments of water tariffs are unpopular decisions which most politicians are loathe to make or endorse. **A regulator would be the most effective shield that politicians can use to shield themselves from adverse public opinion and at the same time improve the financial viability and performance of the country's utilities.**

7.2 Necessary Ingredients to Make Regulation Effective

Problems in the water sector are really issues of:

Governance: This refers to how utilities are managed/directed. A list of good governance principles includes: protection of public health and safety; environmental protection; accountability for stewardship and performance; transparency; public participation; efficiency; and effectiveness. It also includes the recruitment of the right people, the employment of appropriate management systems, and the compensation scheme which can lead to better performance.

Resources: These include the availability of financial and technical requirements.

Ownership: What are the priorities of the owners? If government is the owner, then this will inevitably include short-term focus such as low tariffs (=subsidies) and dumping ground of political proteges and power sharing (=limited utility autonomy).

It must be noted in the above experiences of other countries, reforms in governance, resources and ownership precede or go together with regulatory reforms.

Only the Dhaka City Corporation has adopted the double entry and accrual system of accounting. Reporting for state-owned enterprises (SOEs) is delayed, not transparent, and not in accordance with International Accounting Standards.³³ A World Bank report mentions that of all the chartered accountants in Bangladesh only about 2% work in the public sector.³⁴

Regulation cannot succeed if the utilities do not have the authority, resources and necessary commercial and financial systems to improve its operations. Hence, utilities are corporatized and organizationally developed before a regulator is established. It is also noted that a proper regulatory framework must be in place before private investors can be enticed to invest in the sector.

The following experiences of many regulatory agencies and countries are likewise noteworthy:

a. *Not too many regulatees which need frequent performance validation.* Many countries with regulatory bodies have only a few regulatees. Nepal, Thailand, Sri Lanka, Malaysia, Australia, UK, and USA regulators have no more than 30 utilities each to regulate. The Philippines has more than 2,000 utilities, hence it has several

³³ **Public Sector Accounting and Auditing**; Country report, World Bank, 2005

³⁴ World Bank Country Study; **Bangladesh: Financial Accountability for Good Governance**, 2002

regulatory bodies but is looking at light handed regulation and amalgamation of utilities to reduce regulatory workload.

b. *Regulatory Bodies must have some “workable” independence.* It is mandatory for regulatory bodies and government water utilities, even if corporate, to abide by government policies and strategic directions. In almost all cases, these agencies are made subservient to political short-term decisions or alliances such that the utility and service delivery are compromised. The main reason for creation of an independent regulatory body is precisely to insulate the sector from political interventions. If this regulatory body were to be subservient to political decisions *at all times*, then there is little value for its existence.

c. *Must have authority to implement its rules/decisions.* The regulator should ideally be able to exercise quasi-judicial powers to review and approve tariffs and settle legal conflicts. It should have the regulatory powers and tools to enforce service and institutional performance standards. With sufficient coordination with other agencies, the regulator would be able to enforce environmental (and water resources conservation) measures. Authority must include the right to cancel licenses to operate and impose fines. If it has no such provisions, then no one will follow it.

d. *Must have trained and experienced staff.* Many regulatory bodies have been supported by ODAs during their initial period of operation by consultants for training or “handholding” purposes.

8.0 MATCHING SECTOR CONDITIONS WITH REQUIRED REGULATORY PRE-CONDITIONS

This section compares the contents of Section 7.0 Pre-Conditions for Regulations to Work with existing Bangladesh sector conditions.

a. *Not too many regulatees which needs frequent performance validation*

Aside from the 3 WASAs plus 3 other major cities, Bangladesh has 130 Pourashavas (out of 308) which have piped systems. These already total 136 systems and not counting the rest of the pourashavas which will need piped systems in the future. If we include the rural piped systems, the number of piped systems could total more than a thousand. Clearly, this will overload any regulator. Management amalgamation of small systems could provide economies of scale and reduce regulatory workload.

b. *Regulation cannot succeed if the utilities do not have the authority (or autonomy), resources and the necessary commercial and financial systems to improve its operations.*

It is useless to go into utility regulation if the utilities do not have the necessary authority to improve its operations. It must also have the proper commercial and financial systems to be able to generate accurate and timely data needed for reportorial requirements. In Bangladesh, the WASAs and city corporations are not really that autonomous and their commercial and financial systems need a lot of reforms. If this situation exists in the corporatized bodies, the situation in the Pourashavas systems will be much worse.

Conclusions

Creating a regulatory body at this stage would be premature. What the government should do is concentrate on implementing institutional and operational reforms on the different WASAs and Pourashava utilities. What is needed is a body that will study various reform options on utility performance and take the lead role in implementing same. Creation of a unit similar to the Power Cell to be reform-oriented and be a de-facto regulatory unit would be better suited to the existing sector conditions.

However, a regulatory mindset must already be introduced at this point in time. The mindset is to get the people to accept the need for regulation and to bridge the transition before an actual regulatory body would be in place. This would not be too hard given the the existence of the Energy and Telecommunication Regulatory Commissions.

Given the existence of the Power and Telecom Regulatory Commissions, the regulatory framework would be based on the creation of a Water Regulatory Commission (WRC) in the future. Regulatory Commissions have already been accepted in Bangladesh and these existing Commissions have both independence and authority requirements to do their jobs successfully.

9.0 RECOMMENDATIONS

A. The creation of the Water Regulatory Board should be done in two (2) stages:

1. The first stage would be the creation of a Water Cell (similar to the Power Cell) within the Ministry of Local Government, Cooperatives which will have the functions of leading the reform initiatives for utilities as well as pave the way for the creation of a Water Regulatory Commission (WRC).
2. The second stage would involve the creation of the Water Regulatory Commission. The second stage could be done after 3-5 years when sector conditions are already fit for a WRC.

The Water Cell functions would be in 3 areas:

Institutional/Organizational Reforms

- i) Pursue institutional and organizational reforms to make the different utilities institutionally and operationally developed. These reforms include drafting of a common chart of accounts and commercial practices systems in order to have standardized reporting systems. The commercial systems shall include financial reporting, billing and collection, inventory, procurement and cash management, among others.
- ii) Pursue legislative reforms to make WASAs really autonomous bodies. This may include amending certain provisions of the WASA Act or making templates for WASA by-laws.
- iii) Conduct studies leading to rationalization of utility subsidies for both opex and capex requirements. The present system of providing subsidies does not differentiate between efficient and non-efficient utilities. Subsidies must take into consideration not only the utility's needs but their performance level as well, otherwise the perpetuation of inefficiencies becomes a reality.

- iv) Prepare studies which could help make the utilities financially viable such as regionalization or management amalgamation, outsourcing of certain functions and even the right tubewell design.
- v) Draft WRC bill and work for its passage in Parliament.

Regulatory Role

- vi) Prepare reporting requirements from the different utilities and benchmark performance levels. This will enable the government to determine existing performance levels, compare utility performance relative to others and over time and determine realistic performance standards.
- vii) Select appropriate key performance indicators (KPIs) which will be reflected in the the reportorial requirements of the utilities and determine performance standards. A list of possible KPIs are given in **Annex A**.
- viii) Monitor performance of utilities. Utility reports should be subject to field validation or audits.
- ix) Recommend a national Tariff Methodology and review tariffs of utilities.
- x) Prepare templates for Business Plans to be done by utilities indicating the proposed service levels with technical and financial plans contemplated for the Business Plan period. Such plans shall form the basis for monitoring their performance as well as tariff requirements.

Private Sector Participation (PSP) Preparation

- xi) Conduct performance evaluation of existing private sector contracts.
- xii) Prepare appropriate PSP modalities and prepare template contracts for each modality to assist PSP proponents.

Given the above functions, the Water Cell can be headed by a Director General with three (3) Directors with each one handling *Regulatory Affairs*, *Institutional Development* and *Administrative and Financial*. Initially, 3-4 professional staff under each director would suffice.

B. While the GOB should finance the salaries of the officers and staff of the Water Cell, ADB should support the creation and operation of the Water Cell through a TA for consultants and office and field equipment for about three (3) years.

C. The Water Cell should coordinate closely with the Policy Support Unit of the Ministry to ensure coordinated policy action and with the National Institute for Local Government (NILG) which is tasked with capacity development of local government bodies including Pourashavas.

ANNEX A

LIST OF POSSIBLE KEY PERFORMANCE INDICATORS

A. SERVICE LEVELS

% Population served	Operating Hours
Average Pressure	Monthly Household Consumption
Connections Growth Rate	

B. OPERATIONAL EFFICIENCY

Metered Service Connections	Direct Cost/Cum Produced
Non-Revenue Water	Indirect Cost/Cum Produced
Unaccounted-for-Water	Total Cost/Cum Produced
% Samples Passing Bacti Tests	Treatment Cost/Cum Produced
Active Service Connections	

C. COLLECTION EFFORT

Average Collection Period	Collection Efficiency
On time Payment	Collection Ratio

D. PROFITABILITY

Net Income/Operating Revenue	Debt Service Ratio
Net Income/Net Utility Plant in Service	Return on Fixed Assets
Interest Expense/Operating Revenue	Net Income/Total Assets

E. COST CONTROL

Operating Ratio	Direct Cost/Cum Billed
Administrative Expense/Operating Expense	Indirect Cost/Cum Billed

F. FINANCIAL POSITION

Total Debt/Total Assets	Current Ratio
Loans Payable/Total Assets	Debt Equity Ratio

G. PERSONNEL MANAGEMENT

Employee/1000 connections	
Average Payroll/Employee/month	
Employee Benefits/Payroll	
Average Payroll/Operating Expense	