

*CHAPTER 02 - ORGANIZATION OVERVIEW*



**2.1 Introduction to DWASA**

Dhaka Water Supply and Sewerage Authority (WASA) is a service oriented autonomous commercial organization in the Public Sector, entrusted with the responsibility of providing water supply, sewerage disposal (wastewater), and storm water drainage service to the urban dwellers of Dhaka City. It covers more than 360 sq. km service area with more than 20 million people with a production capacity of 2650 million liters water per day (MLD). Dhaka WASA was established in the year 1963 as an independent organization and currently which is running under the WASA ACT 1996. The First Water Treatment Plant in Dhaka City Established in 1874 - Chadnighat –WTP.

**2.1.1 Background of Dhaka WASA:**

Dhaka mega city was established in 1600 during the reign of Mughols. The city is formed covering the river of Buriganga . The then internal canals and rivers of Dhaka were – Begunbari canal, Shegunbagicha canal, Kalyanpur canal, Dholaikhal canal, Deb-Dholai khal , Buriganga River, Turag, Balu, and Shitolokkha River. These rivers were the basic water storage, water way and means of storing rain water.

Basically, pure drinking water supply in Dhaka city started in 1874 by establishing Chadnighat Water Filtering Plant under patronization of Nawab Khaja Abdul Gani. It was in small scale. Later the water supply and sewerage service in Dhaka started in large scale. After the division in 1947 government established Department of Public Health and Engineering (DPHE) to ensure water, sanitation and rehabilitation service in town and rural areas.

In 1963, Dhaka WASA was established as a unique organization for water supply and sewerage of Dhaka city. Then the activities of Department of Public Health and Engineering (DPHE) transferred to Dhaka WASA. In 1989, the storm water reservation function of DPHE with all its human resource transferred to Dhaka WASA. Since 1 July, 1990 the function of water supply and sewerage of Narayangonj city transferred to Dhaka WASA. Presently the Dhaka WASA is performing key responsibilities of water supply, sewerage water disposal of Dhaka metropolitan city. At present Dhaka WASA is rightly operating as a service oriented and commercial organization.

**2.1.2 Legal Framework:**

Under the order No. 19 of the East Pakistan Ordinance No. XIX of 1963 Dhaka WASA was established to ensure water supply and sewerage in Dhaka city. Later in 1996, Dhaka WASA Act (Act No. 6 of 1996, 17 August 1996) was promulgated to formulate and implement the rule of corporate management.

**2.1.3 Dhaka WASA Organization Mandate:**

To ensure Water Supply, Treatment and Disposal of Wastewater (sewage) and Storm Water Drainage.

As an autonomous body Dhaka WASA started its journey with the mandate to effect (EP Ordinance NO. XIX, 1963)

1. Supply of water
2. Disposal of sewage
3. Storm water drainage and
4. Solid waste management

The organization however, continued to provide services spanning water supply, treatment and disposal of sewage since inception.

**2.1.4 Water Sources:**

Surface Water -Bangladesh is a country with full of rivers, canals and other water storages. All these are sources of water. Some of them can be identified as the major water sources and are used to collect water for Dhaka city. Major River System and Water Sources in Dhaka City:

1. Padma
2. Meghna
3. Buriganga
4. Shitolokkha

Ground Water – Water present beneath earth’s surface aquifer is pulled up to surface and then distributed to customers.

**2.2 Organizational Profile:**

**2.2.1 Organizational Structure**

Dhaka WASA is under the supervision of - Ministry of Local Government, Rural Development and Co-operatives, Local Government Division of that ministry of the People's Republic of Bangladesh.

The organizational structure of Dhaka WASA was changed according to the WASA Act 1996. As mentioned in the Act, Dhaka WASA Board consists of 13 members, headed by the Chairman. The Board is formed by representatives from different professional organizations and Government officials. According to the organizational structure of 2007, total number of approved posts and present employees are as follows:

**2.2.2 Manpower at a glance**

|  |  |  |  |
| --- | --- | --- | --- |
| Class | Approved Posts | Existing Posts | Vacant Posts |
| First | 309 | 221 | 88 |
| Second | 331 | 260 | 71 |
| Third | 1917 | 1079 | 838 |
| Fourth | 2111 | 1340 | 771 |
| Total | 4668 | 2900 | 1768 |

Though it shows above that there exist some vacant posts, however in near future it would not be required as Dhaka WASA is going to digitize all of its activities and also shifting its focus to surface water source which will significantly reduce manpower.

There is a board to govern over the important matters of DWASA consisting 13 representative members with Chairman as their head. After that the main officials of DWASA are -

Managing Director (CEO), Deputy Managing Director (Admin), Director (Finance), Director (Development), Director (Technical), Chief Engineer (Operation & Maintenance), Commercial Manager, Additional Chief Engineer (Research, Planning & Development), Chief Revenue Officer, Chief Accounts Officer, Superintending engineers (as circle heads) and Executive Engineers (as divisional heads) etc.

Managing director is the CEO and Head Of Procuring Entity (HOPE) of Dhaka WASA, he looks after and takes vital decisions about day to day activities at DWASA. Employees are appointed and guided by “Service Rule 1990” except MD and DMD. Board has no executive power while the MD is the executive head and is directly recruited from market through advertisement for 3 years. Service rule is amended in 2010 as “Dhaka WASA Employees Service Regulation 2010”. There are provisions of ACR, personal life, punishment and welfare of the employees.

The organizational structure of Dhaka WASA is divided into four wings along with the Office of the Chief Executive (Managing Director), and they are Administration, Finance, Operation & Maintenance, and Research, Planning, & Development.

**2.3 Area of Jurisdiction:**

Till June, 1989, the jurisdiction of Dhaka WASA was limited only to Dhaka metropolitan area. Later on, Dhaka WASA had the responsibility for supplying water and operating sewerage system of Narayanganj city in early 1990. At present, mega city Dhaka and Narayanganj are identified as Dhaka WASA service area. For easy operation, maintenance and providing better public service, Dhaka WASA service areas have been divided into 11 geographical zones. Among those, 10 zones are within Dhaka city and one in Narayanganj city. Technical operation, maintenance and collection of revenue bills, and other related activities are managed by the zonal offices. Currently operation of Narayanganj area is being handed over to Narayanganj city-corporation. Also, decision has been taken to include all the extended areas of Dhaka South City-Corporation and Dhaka North City-Corporation into the service area of DWASA.

**Dhaka WASA New Demand Areas Forecast**

|  |  |  |
| --- | --- | --- |
| **Year** | **Population (Million)** | **Area (Sqkm)** |
| **2025** | 21.6 | 1000 |

**2.4 Responsibilities of Dhaka WASA:**

Improving the standard of living of city people by developing safe and pure drinking water supply, sanitation and drainage system is the main objective of Dhaka WASA. The present main duties of Dhaka WASA are –

❑ Construction, operation, development and maintenance of necessary infrastructure (deep tube well, water treatment plant) for supplying safe water to residential, industrial and commercial customers.

❑ Construction, development and maintenance of sewage treatment and sewerage system.

**2.5 Mission & Vision:**

**2.5.1 Vision**

To be the 'Best Water Utility' in the Public Sector of South Asia-Ensuring an environment-friendly, sustainable and pro-people water supply management system.

**2.5.2 Mission**

1. To reduce the dependency on ground water.
2. To implement the projects effectively and speedily.
3. To practice a corporate culture in its management and operation.
4. To ensure a high level of transparency and accountability in all its service and activities.
5. To improve the efficiency and reduce operating cost.
6. To constantly seek way to serve our customers.

**2.6 Activities at DWASA:**

All the activities of DWASA are focused to provide clean water to the customers and collect revenue to sustain the water production and distribution network. DWASA also have the responsible for collection of household waste-water through pipe lines and take that waste water to a the sewerage treatment plant and let the harmless treated water to the environment.

Dhaka WASA, as a service oriented autonomous commercial organization in public sector, is functioning through 4 wings. For better operation, maintenance, and customer care, the total service area of Dhaka WASA is divided into 11 geographic zones, which includes 10 in Dhaka City and 1 in Narayangang town. There are also 11 revenue zones too.

**Water Production:**

During the period 2020-2021, Dhaka WASA has achieved the capacity of daily production of 2650 million-liter water per day (MLD) by using 887 deep tube wells and 4 Water Treatment Plants including Saidabad Water Treatment Plant Phase- 1 & II. The surplus water production capacity is a milestone in the history of Dhaka WASA.

**Water Supply System:**

Mostly, water supply system of Dhaka WASA is dependent on ground water. Around 78 per cent water comes from underground sources and the rest 22 per cent from surface water. Ground water is abstracted by using a total of 887 deep tube wells. Surface water is supplied by treating water of the river Shitalakshya and Buriganga through 4 Water Treatment Plants. Dhaka WASA supplies water to the mega city of Dhaka city and Narayanganj area. At present over 20 million people live in Dhaka and Narayanganj and this will increase many times by the year 2050.

It is notable that ground water level is declining by 2-3 meters per year due to continuous abstraction of water. For this reason, Dhaka WASA with the support & cordial cooperation of the present government, has pointed out the importance of reducing dependency on ground water by supplying water from surface water body as an alternative and sustainable source of water. For that purpose Dhaka WASA is moving towards environment-friendly, sustainable and pro-people water supply management system. Several water treatment plants projects have already been taken with a view to increasing dependency on surface water up to 70 percent.

To fulfill this target, Saidabad Water Treatment Plant, Phase-Ill is under implementation, which will supply a total of 450 million liters water per day in the city. Furthermore, two additional large Water Treatment Plants at Gandharbpur and Padma (Josholdia WTP) Water Treatment Plant, (Phase-I)

have been taken. In Gandharbapur, it is planned to treat water from the river Meghna, which will produce 500 million liter of water per day. The Padma Water Treatment Plant is being built at Josholdia near the bank of the great river Padma from where 450-million-liter treated water will be supplied for Dhaka city dwellers

Dhaka WASA has 410 (including 42 mobile generators) diesel-driven generators which help maintaining the extraction of ground water during the Interruption of power supplies. Particularly during the summer season water demand as well as the electricity rise to its peak. At that period water supply system in Dhaka city is kept under normal condition by extracting water with the help of these generators. Dhaka WASA has taken initiatives for purchasing two hundred new generators which is under process. Moreover, if there is any water crisis anywhere in the city, Dhaka WASA instantly supplies water by using 43 water carrier trucks and 44 tractor trolleys.

**Sewerage System:**

An effective sewerage system is a must for a healthy city. The sewerage system of Dhaka city was initiated in 1923.For a better and well-planned sewerage system in Dhaka city, a sewerage Master Plan has been undertaken and at least four sewage treatment plants will be constructed around the capital city. One of them is Dasherkandhi Sewage Treatment Plant, which is already under implementation and the rest are (in Uttara, Mirpur, Rayerbazar) will be implemented one by one in the future.

Summary of the existing Sewerage System is as follows:

Number of Sewage Treatment Plant - 1

Number of Sewage Lift Station - 26

Sewer Line - 934 km

Number of Sewer Connection - 88,980

**2.7 Turn Around Dhaka WASA Program:**

**2.7.1 Achievements of DWASA under "Turn Around Program’’:**

In 2009, under the Leadership of Hon'ble Prime Minister Sheikh Hasina, the whole Water Supply Policy has been turned into Environment Friendly, Sustainable and pro-people water management system. In achieving this change management policy' DWASA set its vision and mission and declared an action plan called Dhaka WASA Turn-around Program. The achievement of Turn-around Program, so far, are briefly as follows:

Dhaka WASA is currently capable of producing 265 crores litres of water daily as against the daily demand of 250-255 crore liters. The revenue income of DWASA has been increased up to more than 1.5 billion taka from 16 billion taka in year 2020-2021 Implementing mega projects both in water supply and sewerage sector.

The operating cost has been reduced from 0.90 to 0.62. Introducing modern technology in water supply management, named District Metered area (DMA) by which system loss or (NRW) is reduced from 40% to 5%.

Bringing low income Community (LIC) or slum dwellers under safe & legal water supply network

Introduced 100 percent online billing system including payment through SMS as well.

**2.7.2 Strategic Planning for Future:**

# Converting surface Water Supply Source to 70% from existing 22% for sustain-ability.

# Establishing District Metered Area (DMA) for keeping Non Revenue Water (NRW) below 10% and ensuring 24/7 pressurized & portable Water supply.

# 100% legal water supply to Low Income Customer (LIC) area by Dec 2021 for ensuring pro-people water management.

# Establishing 100% Sewerage System for protecting Environment.

**2.7.3 Dhaka WASA Organizational Milestone:**

Introduced ' Digital WASA Green WASA' culture to inspire green practice in everyday work.

**2.8 Dhaka WASA at a glance:**

**Water Supply Infrastructure**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Unit | 2017-2018 | 2018-2019 | 2019-2022 | 2020-2021 |
| Deep Tube Well | Nr | 795 | 827 | 887 | 896 |
| Water Treatment Plant | Nr | 4 | 4 | 4 | 5 |
| Water Production/Day | MLD | 2450 | 2500 | 2550 | 2560 |
| Water Line | Km | 3600 | 3720 | 2550 | 2560 |
| Water Connection | Nr | 371766 | 379686 | 390642 | 392400 |
| Overhead Tank | Nr | 38 | 38 | 38 | 38 |
| Street Hydrant | Nr | 1643 | 1643 | 1643 | 1643 |

**Sewerage Infrastructure**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Unit | 2017-2018 | 2018-2019 | 2019-2022 | 2020-2021 |
| Sewer Line | Km | 930 | 934 | 934 | 934 |
| Sewer Lift Station | Nr | 26 | 26 | 26 | 26 |
| Sewage Treatment Plant | Nr | 1 | 1 | 1 | 1 |

**Water and Sewerage Billing and Collection (In Million Taka)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2017-2018  (In Lack Taka) | 2018-2019  (In Lack Taka) | 2019-2020  (In Lack Taka) | 2020-2021  (In Lack Taka) |
| Billing | 105285.95 | 1191110.47 | 13062 | 13679.20 |
| Collection | 100055.82 | 117942.50 | 13067 | 12813.06 |
| Bill Receivable (Dues) | 44711.09 | 45881.06 | 4584 | 7661.46 |
| Equivalent Dues Billing (Monthly) | 5.46 | 4.96 | 4.46 | 5.46 |

**Water Tariff**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Category | 01/7/2019  To  31/10/2017 | 01/11/2017  To  31/07/2018 | 01/8/2018  To  30/06/2019 | 01/7/2019  To  30/06/2020 | 01/7/2020  To  30/06/2021 |
| Domestic | 8.49 | 10.00 | 10.50 | 11.02 | 14.46 |
| Commercial | 28.28 | 32.00 | 33.60 | 35.28 | 40.00 |
| Industrial | 28.28 | 32.00 | 33.60 | 35.28 | 40.00 |
| Community | 8.49 | 10.00 | 10.50 | 11.02 | 14.46 |
| Government | 28.28 | 32.00 | 33.60 | 35.28 | 40.00 |

**Development Project**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 |
| Water Supply | **5** | **5** | **7** | **6** |
| Sewerage | **1** | **1** | **1** | **2** |
| Drainage | **1** | **2** | **2** | **2** |
| Technical Assistance Project | **2** | **2** | **1** | **1** |
| Total | **9** | **10** | **11** | **11** |

Demand and Supply of Water by Dhaka WASA

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | Population (In million -  approximately) | Water Demand (Million Liter) | Water Supply Capacity  (Million Liter) | Shortage (Million Liter) | No. of Deep Tube  wells |
| 1963 | 0.8s | 150 | 130 | 20 | 30 |
|  |  |  |  |  |  |
| 1970 | 1.46 | 260 | 180 | 80 | 47 |
| 1980 | 3.03 | sso | 300 | 250 | 87 |
| 1990 | 5.56 | 1000 | 510 | 490 | 216 |
| 1996 | 7.ss | 1300 | 810 | 490 | 216 |
| 1997 | 8.0 | 1350 | 870 | 480 | 225 |
| 1998 | 8.s | 1400 | 930 | 470 | 237 |
| 1999 | 9.0 | 1440 | 1070 | 370 | 277 |
| 2000 | g.s | 1500 | 1130 | 370 | 308 |
| 2001 | 10.0 | 1600 | 1220 | 380 | 336 |
| 2002 | 10.50 | 1680 | 1300 | 380 | 379 |
| 2003 | 11.02 | 1760 | 1360 | 400 | 391 |
| 2004 | 11.56 | 1850 | 1400 | 450 | 402 |
| 2005 | 12.15 | 1940 | 1460 | 480 | 418 |
| 2006 | 12.65 | 1900 | 1540 | 460 | 441 |
| 2007 | 13.15 | 1980 | 1660 | 320 | 465 |
| 2008 | 13.65 | 2050 | 1760 | 290 | 490 |
| 2009 | 14.15 | 2120 | 1880 | 240 | 518 |
| 2010 | 14.50 | 2180 | 1990 | 190 | 560 |
| 2011 | 15.00 | 2240 | 2150 | 90 | 599 |
| 2012 | 15.00 | 2240 | 2180 | 60 | 615 |
| 2013 | 15.00 | 2250 | 2420 | - | 644 |
| 2014 | 15.00 | 2250 | 2420 |  | 672 |
| 2015 | 15.80 | 2250-2300 | 2420 | - | 702 |
| 2016 | 16.00 | 2400 | 2450 |  | 795 |
| 2017 | 17.00 | 2450 | 2500 | - | 827 |
| 2018 | 20.00 | 2500 | 2550 |  | 887 |
| 2019 | 20.10 | 2500 | 2600 | - | 886 |
| 2021 | 20.10 | 2520 | 2740 |  | 923 |

**2.9 Why DWASA Should Implement Automation:**

All over the world, organizations have realized the value of automation. This refers to a strategy that allows computers and machines to do tasks to streamline workflow. Some reasons Dhaka WASA Should Automate Business Process:

2.8.1 Reduce Costs

To reduce labor cost, DWASA should turn to automation. Since machines and computers can do complex tasks quickly, DWASA can skip hiring additional staff for simple needs.

### 2.8.2 Save Time

Time equals money. This is why all companies should treat time like gold. Sometimes staff spends countless hours doing simple tasks. This not only decreases their morale, but it also makes them feel overworked. Having a machine perform tasks for employees will allow them to spend their time doing more important jobs.

### 2.8.3 Better Customer Service

In today’s digital age, customers do not tolerate bad customer service. Revenue will start to slip if customers cannot reach service providers easily. To sachieve this, DWASA can turn to automated e-mail services, message chat-bots . This will allow to look after customers effectively without lifting a finger.

### 2.8.4 Enhanced Workflow

By automating business processes, DWASA can execute operational activities efficiently. Since machines will take care of monotonous tasks, your employees can focus on main business processes and ways to generate more revenue. Connecting all automated processes will also shorten workflow by eliminating unnecessary steps. By realigning tasks, you can optimize the flow of your production, service, and flow of information.

### 2.8.5 Satisfied Employees

Nobody likes to do repetitive tasks all through their career. Having an automated workflow will liberate staff from doing so. In turn, it would make them happier and more satisfied since the machine will be doing all the boring tasks. If employees are happy, they will become more productive.

### 2.8.6 Situational Awareness

Automating business process will enable DWASA to access information in just one click. It will also be easier for you to track and monitor processes. If everything is connected, you can access relevant information immediately.

### 2.8.7 Better Quality

Customers expect you to deliver consistent quality products and customer service. Automating your business will ensure that every action is the same. This would result in reliable and high-quality products.

Automation also promotes consistency. This way, all customers will experience the same level of service from your company. With no increase in production cost and time, you can focus more on improving products or services.

### 2.8.8 Improved Insight

Integrating analytics is one of the most effective strategies to get to know your customers. Knowing more about your customers’ behavior will allow you to identify which campaigns yield the best results. Through this, you will know what your customers like and dislike. Data analytics also promotes better decision making.

### 2.8.9 Embrace New Technology

Many people are hesitant about integrating new technology into public sector. However, making way for a work culture that welcomes technological change will be better for public service in the long run. The world is constantly changing, if we do not keep up, our public utilities will suffer.

2.8.10 Reduce System-loss and Unethical Practices

With automation we can achieve real time data gathering. Instant data can be turned into useful information by automated processing, which is easy to be analyzed by DWASA management. Management then can take decision to change processes that causes ineffective and inefficient works to reduce system loss (Any loss of water, electricity, machinery, materials or manpower at Water production facilities and distribution network system).

Feedback from customers, vendors, employees and other stakeholders can be passed easily, frequently and anonymously. That feedback information can be used to take measures to prevent unethical practices.

2.8.11 Improve Span of control

The span of control is the number of subordinates a supervisor manages within a structural organization. Introducing automated business process concepts has a considerable impact on the span of control. Improved Span of control can reduce cost.