

*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.

**2.2 Organizational Profile**

Organizational Structure

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 approvedposts and present employees are as follows:

**Manpower**

|  |  |  |  |
| --- | --- | --- | --- |
| 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 digitise all of its

activities and also shifting its focus to surface water source which will signifi-

cantly reduce manpowers.

**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.

**2.4 Responsibilities of Dhaka WASA:**

❑ 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 Business Processes of DWASA:**

A business process, business method or business function is a collection of related, structured activities or tasks by people or equipment in which a specific sequence produces a service or product (serves a particular business goal) for a particular customer or customers.

A business process may often be visualized (modeled) as a flowchart of a sequence of activities with interleaving decision points.

Overview

A business process begins with a mission objective (an external event) and ends with achievement of the business objective of providing a result that provides customer value. Additionally, a process may be divided into sub-processes (process decomposition), the particular inner functions of the process. Business processes may also have a process owner, a responsible party for ensuring the process runs smoothly from start to finish.

Broadly speaking, business processes can be organized into three types, according to von Rosing et al.:[6]

Operational processes, which constitute the core business and create the primary value stream, e.g., taking orders from customers, opening an account, and manufacturing a component

Management processes, the processes that oversee operational processes, including corporate governance, budgetary oversight, and employee oversight

Supporting processes, which support the core operational processes, e.g., accounting, recruitment, call center, technical support, and safety training.

A slightly different approach to these three types is offered by Kirchmer: [2]

Operational processes, which focus on properly executing the operational tasks of an entity; this is where personnel "get the things done"

Management processes, which ensure that the operational processes are conducted appropriately; this is where managers "ensure efficient and effective work processes"

Governance processes, which ensure the entity is operating in full compliance with necessary legal regulations, guidelines, and shareholder expectations; this is where executives ensure the "rules and guidelines for business success" are followed

A complex business process may be decomposed into several sub-processes, which have their own attributes but also contribute to achieving the overall goal of the business. The analysis of business processes typically includes the mapping or modeling of processes and sub-processes down to activity/task level.

While decomposing processes into process types and categories can be useful, care must be taken in doing so as there may be crossover. In the end, all processes are part of a largely unified outcome, one of "customer value creation."[6] This goal is expedited with business process management, which aims to analyze, improve, and enact business processes.[2]

Other definitions

Davenport (1993)[11] defines a (business) process as:

”a structured, measured set of activities designed to produce a specific output for a particular customer or market. It implies a strong emphasis on how work is done within an organization, in contrast to a product focus’s emphasis on what. A process is thus a specific ordering of work activities across time and space, with a beginning and an end, and clearly defined inputs and outputs: a structure for action. ... Taking a process approach implies adopting the customer’s point of view. Processes are the structure by which an organization does what is necessary to produce value for its customers.”

This definition contains certain characteristics a process must possess. These characteristics are achieved by a focus on the business logic of the process (how work is done), instead of taking a product perspective (what is done). Following Davenport's definition of a process we can conclude that a process must have clearly defined boundaries, input and output, that it consists of smaller parts, activities, which are ordered in time and space, that there must be a receiver of the process outcome- a customer - and that the transformation taking place within the process must add customer value.

**Hammer & Champy’s (1993)[12] definition can be considered as a subset of Davenport’s. They define a process as:**

**”Business Process is a collection of activities that takes one or more kinds of input and creates an output that is of value to the customer.”**

Rummler & Brache (1995) [13] use a definition that clearly encompasses a focus on the organization’s external customers, when stating that

”a business process is a series of steps designed to produce a product or service. Most processes (...) are cross-functional, spanning the ‘white space’ between the boxes on the organization chart. Some processes result in a product or service that is received by an organization's external customer. We call these primary processes. Other processes produce products that are invisible to the external customer but essential to the effective management of the business. We call these support processes.”

The above definition distinguishes two types of processes, primary and support processes, depending on whether a process is directly involved in the creation of customer value, or concerned with the organization’s internal activities. In this sense, Rummler and Brache's definition follows Porter's value chain model, which also builds on a division of primary and secondary activities. According to Rummler and Brache, a typical characteristic of a successful process-based organization is the absence of secondary activities in the primary value flow that is created in the customer oriented primary processes. The characteristic of processes as spanning the white space on the organization chart indicates that processes are embedded in some form of organizational structure. Also, a process can be cross-functional, i.e. it ranges over several business functions.

Summarizing the four definitions above, we can compile the following list of characteristics for a business process:

Definability: It must have clearly defined boundaries, input and output.

Order: It must consist of activities that are ordered according to their position in time and space (a sequence).

Customer: There must be a recipient of the process' outcome, a customer.

Value-adding: The transformation taking place within the process must add value to the recipient, either upstream or downstream.

Embeddedness: A process cannot exist in itself, it must be embedded in an organizational structure.

Cross-functionality: A process regularly can, but not necessarily must, span several functions.

Frequently, identifying a process owner, (i.e., the person responsible for the continuous improvement of the process) is considered as a prerequisite. Sometimes the process owner is the same person who is performing the process.

Related concepts

Workflow

Workflow is the procedural movement of information, material, and tasks from one participant to another.[15] Workflow includes the procedures, people and tools involved in each step of a business process. A single workflow may either be sequential, with each step contingent upon completion of the previous one, or parallel, with multiple steps occurring simultaneously. Multiple combinations of single workflows may be connected to achieve a resulting overall process. [15]

Business process re-engineering

Main article: Business process re-engineering

Business process re-engineering (BPR) was originally conceptualized by Hammer and Davenport as a means to improve organizational effectiveness and productivity. It can involve starting from a "blank slate" and completely recreating major business processes, or involve comparing the "as-is" process and the "to-be" process and mapping the path for change from one to the other.[16] Often BPR will involve the use of information technology to secure significant performance improvement. The term unfortunately became associated with corporate "downsizing" in the mid-1990s. [17]

Business process management (BPM)

Though the term has been used contextually to mixed effect, "business process management" (BPM) can generally be defined as a discipline involving a combination of a wide variety of business activity flows (e.g., business process automation, modeling, and optimization) that strives to support the goals of an enterprise within and beyond multiple boundaries, involving many people, from employees to customers and external partners.[18] A major part of BPM's enterprise support involves the continuous evaluation of existing processes and the identification of ways to improve upon it, resulting in a cycle of overall organizational improvement.

Knowledge management

Knowledge management is the definition of the knowledge that employees and systems use to perform their functions and maintaining it in a format that can be accessed by others. The Duhon and the Gartner Group have defined it as "a discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving, and sharing all of an enterprise's information assets. These assets may include databases, documents, policies, procedures, and previously un-captured expertise and experience in individual workers." [19]

Information technology as an enabler for business process management

Advances in information technology over the years, have changed business processes within and between business enterprises. In the 1960s, operating systems had limited functionality, and any workflow management systems that were in use were tailor-made for the specific organization. The 1970s-1980s saw the development of data-driven approaches, as data storage and retrieval technologies improved. Data modeling rather than process modeling was the starting point for building an information system. Business processes had to adapt to information technology because process modeling was neglected. The shift towards process-oriented management occurred in the 1990s. Enterprise resource planning software with workflow management components such as SAP, Baan, PeopleSoft, Oracle and JD Edwards emerged, as did business process management systems (BPMS) later.[24]

The world of e-business created a need to automate business processes across organizations, which in turn raised the need for standardized protocols and web services composition languages that can be understood across the industry. The Business Process Modeling Notation (BPMN) and Business Motivation Model (BMM) are widely used standards for business modeling.[2][3][4] The Business Modeling and Integration Domain Task Force (BMI DTF) is a consortium of vendors and user companies that continues to work together to develop standards and specifications to promote collaboration and integration of people, systems, processes and information within and across enterprises.[25]

The most recent trends in BPM are influenced by the emergence of cloud technology, the prevalence of social media, mobile technology, and the development of analytical techniques. Cloud-based technologies allow companies to purchase resources quickly and as required independent of their location. Social media, websites and smart phones are the newest channels through which organizations reach and support their customers. The abundance of customer data collected through these channels as well as through call center interactions, emails, voice calls, and customer surveys has led to a huge growth in data analytics which in turn is utilized for performance management and improving the ways in which the company services its customers.[26]

Importance of the process chain

Business processes comprise a set of sequential sub-processes or tasks with alternative paths, depending on certain conditions as applicable, performed to achieve a given objective or produce given outputs. Each process has one or more needed inputs. The inputs and outputs may be received from, or sent to other business processes, other organizational units, or internal or external stakeholders. [1]

Business processes are designed to be operated by one or more business functional units, and emphasize the importance of the “process chain” rather than the individual units.

In general, the various tasks of a business process can be performed in one of two ways: [1]

Manually by means of business data processing systems such as ERP systems

Typically, some process tasks will be manual, while some will be computer-based, and these tasks may be sequenced in many ways. In other words, the data and information that are being handled through the process may pass through manual or computer tasks in any given order.

Policies, processes and procedures

The above improvement areas are equally applicable to policies, processes, detailed procedures (sub-processes/tasks) and work instructions. There is a cascading effect of improvements made at a higher level on those made at a lower level. [27]

For example, if a recommendation to replace a given policy with a better one is made with proper justification and accepted in principle by business process owners, then corresponding changes in the consequent processes and procedures will follow naturally in order to enable implementation of the policies.

**Reporting as an essential base for execution**

Business processes must include up-to-date and accurate reports to ensure effective action.[28] An example of this is the availability of purchase order status reports for supplier delivery follow-up as described in the section on effectiveness above. There are numerous examples of this in every possible business process.

Business process owners and operatives should realize that process improvement often occurs with introduction of appropriate transaction, operational, highlight, exception or M.I.S. reports, provided these are consciously used for day-to-day or periodical decision-making. With this understanding would hopefully come the willingness to invest time and other resources in business process improvement by introduction of useful and relevant reporting systems.

**2.7 Turn Around Dhaka WASA Program:**

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.

**2.7.1 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.

**2.7.2 Future 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 Automate:**

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. Those 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.