In the know with H2O
WASA - 50 Years & Beyond

4th National Secondary Schools’ Quiz Competition 2015 on the theme “WASA - 50 Years & Beyond”

SUMMARY STUDENT STUDY GUIDE
For use in preparation for the Qualification Phase ONLY
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Background

The Water and Sewerage Authority was formed by Act 16 of 1965 and enacted on September 1st, 1965. The Act brought together several agencies, which were formerly charged with the responsibility of providing water and sewerage facilities to the citizens of Trinidad and Tobago. The Authority’s 2015 quiz competition will therefore form a significant part of its 50 Anniversary Celebrations.

WASA’s 5th Annual National Secondary Schools’ Quiz Competition “In the Know with H2O: WASA 50 years and beyond”, will be used to educate our young people and the nation at large, on some of the many strides made by the Authority since its inception. The competition will also highlight WASA’s future plans relative to achieving 24/7 service delivery to all customers and implementation of a corporatization framework.

In preparation for the quiz competition, this Study Guide is intended to provide a foundation for students in relation to the following five (5) topic areas, which will form the basis for the competition:

- History of the water sector
- History of the wastewater sector
- Social, economic and leadership impacts
- Plans toward 24/7
- Implementing a Corporatization Framework

It is expected that this quiz competition and the information shared will help to change public attitude and behavior related to WASA, water and wastewater service delivery, as well as the protection and preservation of our water resources for the present and future generations.
Section 1

History of the Water Sector
History of the Water Sector

Developments in the Water Sector
Early Water Supply Systems 1853 – 1965

Prior to 1853, there was no large scale organised water supply system in the country. Far removed from the advances of science and technology, people usually dammed rivers with boulders to form a catchment or placed bamboo rods in springs to serve as outlets from which drinking water was collected.

In 1853 the Maraval Waterworks, the earliest large scale organised water system in Trinidad and Tobago, was established. It comprised of an intake on the Maraval River, an open storage reservoir and a cast iron outlet main to supply St. Clair and adjacent areas of Port of Spain.

By 1890, due to its growing population, the existing water supply to Port of Spain was no longer adequate and a decision was taken to improve the supply using wells located at the northern end of the Diego Martin Valley.

Commissioned in 1903, the River Estate Waterworks was developed to provide water for the western area of Port of Spain. Its source of water was the two wells identified for development in 1890, at the northern end of the Diego Martin Valley. The pumping station was operated by the City Council Authorities up to 1952, then exchanged for two wells operated by the Water Branch of the Works and Hydraulics Department. Three deep boreholes were then drilled by the Water Department. Up to 1969 two of the three boreholes, together with the original dug wells were pumped. However, the old pumping station was demolished in 1969 and the shallow dug wells abandoned and a new station constructed.

By 1920, water supplies were being expanded in Port of Spain and developed further afield. Some of the main works in the 1920’s were:

• The development of the Cocorite source with a number of artesian wells at the southern end of the Diego Martin Valley to further increase supplies to Port of Spain.
• The development of the Quare River supply (which would later become the Hollis dam) with roughing filters to serve Sangre Grande
• The development of supplies to Princes Town from the Ategual, Morichal and Guaracara springs
• The development of a supply system from Tobago’s Hillsborough East River, which included slow sand filters to serve Scarborough and the south-western portion of the island.

By 1926, Scarborough and the south-western peninsular of Tobago were being provided with pipe borne water from the Hillsborough East River. Apart from the convenience, the development of local water supplies in both Trinidad and Tobago meant a reduction of costs in collection, transmission and distribution.

Development of the country’s waterworks continued in the 1930’s with the construction of the first island-wide water scheme: The Central Water Supply Scheme. This scheme included the development of the Hollis dam, the placement of various service reservoirs and the laying of significant stretches of pipelines.
in several parts of the country. All these developments depend on the significant supply from the Hollis dam.

**The Quare Water Supply Project: Construction of the Hollis Reservoir**

The Quare Water Supply Project (named Hollis after the then Governor Sir Claude Hollis) continues to be a major source of water to this day. Construction of an earth dam across the Quare river valley began in 1933 and the entire scheme including the treatment plant, trunk mains and service reservoirs was completed in 1939. Until the Valsayn and Navet Waterworks were commissioned, the Hollis supply dominated the scene with its supply serving areas in the northern, central and southern areas of Trinidad.

**World War II and New Technology**

With the onset of World War II, the United States established military bases in Trinidad, and for the first time ever, deep water wells were drilled at the Port of Spain and Chaguaramas Wharves, Carlsen Field and Waller Field – all near points of consumption, enhancing local water supplies. Following this exposure to deep-well drilling technology, an extensive well drilling programme began from 1944 onwards.

During the war, it was important to keep water supplies and storage reservoirs secure, and if possible, hidden. The large Fort Reid reservoir in Aripo was one such reservoir, which is in operation up to today, supplying areas in Aripo, Santa Rosa Heights, Tumpuna and parts of Arima.

During a two decade period (1945-1965), a number of wells were drilled in the Queen’s Park Savannah, El Socorro, Diego Martin, Wallerfield and Carlsen Field areas – all which significantly contributed to increased water production.

During the period 1965 to 1975 water production increased from 45 m.g.d to 65 m.g.d because of several improvement projects that came on stream including the construction of the Navet Waterworks which commenced in 1957. The Navet Waterworks Scheme was developed to serve Rio Claro, Princes Town, Moruga, Gasparillo, San Fernando and surrounding areas. Further works would take place to allow increased distribution in these areas, and to extend the supply to Barrackpore, Penal, La Romain and La Brea.

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**The Birth of WASA – September 1st 1965**

The Water and Sewerage Authority (WASA) was established by an Act of Parliament or Act 16 in 1965 to manage the water and sewerage sector of Trinidad and Tobago. It came into effect on September 1st 1965. The Act brought together several agencies:

- The Central Water Distribution Authority
- The Port of Spain City Council
- The San Fernando Borough Council
- The Arima Borough Council
- The County Councils
- The Water Division of the Ministry of Public Utilities
- The Sanitation Division of the Ministry of Public Utilities
Upgrade of the Navet Water Treatment Plant that led to increased production of water from 6 m.g.d in 1966 to 19 m.g.d in 1975.

In Tobago, two (2) new waterworks were built: the Courland and Richmond Waterworks. These added a total of 3 m.g.d. to the daily production.

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In 1966, the Maraval Waterworks was refurbished to supply an additional 4,540 cubic metres (1 million gallons) of water per day.

Tobago’s Richmond Waterworks, was commissioned in 1967. It comprised the following construction works:

- Dug wells near to the banks of the Great Dog River;
- An iron-removal treatment plant and high lift pumping station;
- A distribution system, including a service reservoir at Zion Hill.

In 1971, a portion of a $15 million loan geared to finance water development in Trinidad and Tobago, was given to WASA to carry out a study on the utilisation of the natural resources of the Caroni River Basin. The results of the Caroni Basin study would play a significant role in promoting the establishment of the Caroni Water Treatment Plant, which in turn, has played a valuable role in supporting industrial development at Point Lisas.

Courland Waterworks was officially commissioned on 3rd June 1975, by Shamshuddin Mohammed, the then Minister of Public Utilities. Located close to Plymouth and Arnos Vale, Courland was designed to serve these communities, along with Black Rock, Mt. Irvine, Scarborough and Crown Point Airport.

Cabinet approved $451.8 million for major water development projects in Trinidad and Tobago in 1975. Over the period 1975-1985, the water production in Trinidad and Tobago more than doubled, from 65 m.g.d. to 140 m.g.d. as a result of major water development projects by the Government of Trinidad and Tobago.

1985 to 1995, the production of water continued to increase steadily, but at a slower pace compared to the previous decades. Nevertheless several rural communities were provided with pipe borne water as a result of the following projects:

- The commissioning of the Sans Souci Water Treatment Plant in 1986.
- The completion of the Pt. Fortin and St. Patrick’s Water Supply Projects in 1991 and 1994 respectively.
- Hillsborough West Water Treatment Plant in Tobago was commissioned in 1991 and upgraded further in 2001 to produce 1.2 m.g.d.
- Rehabilitation of Courland Waterworks in Tobago in 1994.
In 1996, WASA raised $1.5 billion on the local market to fund developmental works. Major projects embarked upon included:

- The South Water Project which focused on improving the transmission and distribution of water, particularly in the southern regions of the country and included the upgrade of the water treatment plant at Caroni
- The North Water Project which focused on the rehabilitation of water facilities, mainly in northern areas of the country
- The Tobago Water Project that focused on the development of new ground water sources on our sister isle.

Within the first two months of the year 1997, WASA through its Short-Term Supply Rehabilitation Project was able to improve the water supply infrastructure of some twelve areas throughout the country. Over 4500 leaks were repaired and construction work commenced on the River Sabine Water Treatment Plant to supply over 1200 households with a potable supply.

In 1998 former Minister of Public Utilities, Ganga Singh, disclosed a proposal to provide a more efficient water supply to the country, especially the southern areas. These projects constituted part of the efforts to provide water for all by 2000. Some of the main elements of the proposal included:

- A major water project at Point Lisas ($450M)
- South Water Works ($95M)
- Rehabilitation of the Caroni and Navet Water Treatment Plants and transmission system, along with the Navet Low Dam ($97 M).

In 2000 the Caroni Water Treatment Plant upgrade was completed, increasing total daily production from 60 to 75 m.g.d. This year also saw water production commence from six wells as part of the Tobago Water Project. These wells added 2 m.g.d. to Tobago’s distribution system and were the highest producing wells ever drilled on the island.

The $120 million Desalination Plant at Point Lisas was put into service in 2002 delivering 22 million gallons of water a day. The Desalination Company of Trinidad and Tobago (DESALCOTT) announced in 2004, that it will increase its level of production to meet the growing demands of water by energy plants on the Point Lisas Industrial Estate and to improve supply to thousands of WASA’s customers.

In April 2002, the Authority commenced projects financed under the Government’s National Social Development Programme (NSDP) and Public Sector Investment Programme (PSIP) which included:

- The construction of booster stations to improve the water supply to elevated areas
• The installation of new pipelines to replace old encrusted pipelines, faulty valves and other appurtenances

• Placement of communal tanks

• A leak repair programme. In its continuing efforts to provide a reliable supply of water to its customers, WASA installed 24 flow meters in the north and south of Trinidad, and in Tobago, to determine the amount of potable water being lost due to leaks and burst mains.

Though earlier in 2003 the Authority was forced to ration supplies of water, nearing year’s end, many citizens were still able to receive an early Christmas gift through improved and first time supplies of pipe borne water. This was possible through the successful completion of projects under the National Social Development Programme (NSDP) and the Public Sector Investment Programme (PSIP).

On December 14, 2004, a new booster station at Signal Hill in Tobago was officially commissioned. The completion and commissioning of this project marked yet another milestone of WASA’s commitment to improving the quality of life for citizens in both Trinidad and the sister isle.

In 2007 the development of a Water and Wastewater Master Plan was underway. Some of the main objectives were:

• Providing a 24/7 water supply for over 90% of the population
• Centralized wastewater for over 75% of the population
• Being an Economically Sustainable Organization that meets Customer Satisfaction

Governance Manual and e-voice was launched on the 26th August 2009. The Governance Manual would provide a framework by which the Authority would be governed, controlled and directed, whilst e-voice, an anonymous web-based reporting system, gives the organization’s stakeholders the opportunity to report matters of concern and submit suggestions with the assurance of confidentiality.

Integrated Water Resources Management (IWRM) Stakeholder Group was launched in November 2009 with the purpose being “To integrate the coordinated development of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.” Various stakeholder agencies participate in this including governmental agencies, NGO’s and CBO’s.

The original Navet trunk main was installed between 1958 and 1962. It had now reached a stage where it became very porous and heavily leaking and was badly affecting daily productions. Approvals were granted to have it replaced as this was seen as critical in WASA’s dry season plans. The project commenced in August 2010 and was completed in May 2011. 28 kilometres of transmission lines replaced.

Launched in the month of July 2013, the Adopt-A-River Programme (AARP) focuses on building awareness to issues affecting the health of local watersheds and to facilitate the participation of public and private sector entities in sustainable and holistic projects aimed at improving the status of rivers and watersheds throughout Trinidad and Tobago.
SECTION 2

History of the Wastewater Sector
History of the Wastewater Sector

Wastewater is understood as any water that has been adversely affected in quality due to anthropogenic (human) influence. It comprises liquid waste discharged by domestic residences, commercial properties, industry and agricultural fields. This wastewater consists of a wide range of potential contaminants of varying concentrations.

WASA is responsible for the collection, transmission, treatment and disposal of wastewater in Trinidad and Tobago and achieves this mainly through its Public Sewerage Systems in Port of Spain, San Fernando, Arima, Point Fortin and Scarborough Tobago.

Developments in the Wastewater Sector

Early Water Supply Systems 1902 – 1965

In 1861, Trinidad’s first underground sewer system was constructed along Port of Spain and serviced the immediate western areas of the capital city. It was designed to collect wastewater from public baths and washhouses for discharge to the sea in the area of the present port of the city. These sewers would later become part of the network serving the greater Port of Spain area leading to the Beetham Treatment Plant.

The first major sewerage system was done in 1902, which included a low level sewer along Wrightson Road, Port of Spain and the Mucurapo Pumping station, all emptying into the lagoons of Beetham. With the establishment of a Port of Spain Sewerage Board the need to maintain a healthy environment and to ensure proper waste disposal was essential. In 1904, Dr. J. R. Dickson was appointed as the first Sanitary Inspector. The importance of proper sewage disposal to the overall health of the nation was recognized.

Over the period 1902-1937, street sewers were constructed in Port of Spain. These developments marked an early step in moving away from the reliance on the outhouse system in the city. Construction of the High Level Sewerage System was completed in 1937 to convey sewage from Woodbrook and Belmont. This System, together with the Low Level Sewer along Wrightson Road, collected sewage from an area in Port of Spain bounded on the east by the Dry River, west by Petra Street, north by Oxford Street and south by Wrightson Road. There was, however, no treatment of the sewage and float studies carried out in 1959 showed that solids drifted back to shore even when they were pumped 600 metres (more than one-third of a mile) out to sea.

One of the Earliest Private Wastewater Treatment Plants, the Sangre Grande Hospital Wastewater Treatment Plant (WWTP) was set up in 1950. Years later, in 1962, the Government of Trinidad and Tobago with the assistance of Lock Joint (America Ltd.) embarked on a major island wide sewerage project. It focused on extending sewer services to the areas of San Fernando, Port of Spain and Arima. The project comprised the laying of 384 km of sewer. This undertaking would soon be described as one of the most ambitious and progressive sanitation systems ever put in place to provide health benefits to a newly independent nation. The Arima Wastewater Treatment Plant (WWTP) was constructed in 1962.
Not too long after, in the year 1965, WASA was established as a consolidated entity. The Beetham Wastewater Treatment Plant (WWTP) was constructed in 1965. The plant comprised the existing Beetham Pump Station, a raw sewage force main and a series of lagoons. Also built at this time was the San Fernando WWTP. Both plants are owned and operated by WASA.

The following year, 1966, saw the major island wide Sewerage Extension Project which was completed by Lock Joint Ltd. It comprised the installation of over 384 km of street sewers and 5,000 manholes in Port of Spain, San Fernando and Arima. The project also included the construction of sewage treatment plants and pumping stations in Port-of-Spain, Diego Martin, Arima and San Fernando.

A report by Attas and Defour Consulting Engineers in 1972 recommended the establishment of sewerage facilities in three regions of Tobago:

- Scarborough
- South West Region I (Buccoo/Mt. Irvine, Caanan/Bon Accord and Crown Point/Black Rock)
- South West Region II (Plymouth/Black Rock).

Schools Get their Own Wastewater Treatment Plant

To serve an increasing student population, the University of the West Indies Wastewater Treatment Plant was constructed in 1973. In 1978, a Wastewater Treatment Plant (WWTP) was constructed at the Carapichima Senior Comprehensive School. The construction of a number of Junior Secondary and Senior Comprehensive Schools beginning in the mid-70’s with their own wastewater facilities, would add to the growing list of WWTPs throughout the country.

A study in 1979, seeking to identify the best option for meeting the sewerage needs of the East / West corridor, selected an approach involving the integration of several existing sewerage collection systems into a centralized sewage treatment facility at Orange Grove. This new system would have meant replacing several of the small Wastewater Treatment Plants that existed at the time.

In 1980, WASA completed the construction of the Piarco Wastewater Treatment Plant that serviced both the Piarco International Airport and the Caroni Water Treatment Plant. Also set up in 1980, were the Fairview and Boodram Wastewater Treatment Plants located at Maraval and Chaguanas, respectively.

The next year, 1981, six (6) Wastewater Treatment Plants were constructed. They were the Five Rivers Crescent / Bon Air Housing Development No. 1 WWTP; Golden Grove Prison WWTP; Providence Gardens (Ackbaralli) WWTP; La Florissante WWTP; Orchard Gardens WWTP and the Palmiste (The Woodlands) WWTP. Two years later the Santa Rosa Heights and the Lange Park Housing Development were also completed. These plants are owned and operated by WASA. Across in Tobago, the Scarborough Wastewater Treatment Plant was completed in 1994.

1982 also saw the booming construction of private Wastewater Treatment Plants (WTTPs). Those constructed were:

- Real Springs (NUGFW) WWTP
- Harmony Hall WWTP
Striker’s Village WWTP
Marabella Junior Secondary School WWTP
Ramsaran Park (Chase Village Industrial Park) WWTP
Trintoc La Fortune WWTP

With the continued mushrooming of private Wastewater Treatment Plants (WWTPs) fuelled by the development of new housing estates, growing populations and increased industrial development along the East-West Corridor, WASA announced plans to sewer the Eastern Main Road communities. With growth and expansion in mind, in 1983 – 1984, several new Wastewater Treatment Plants were constructed.

In 1985 the responsibility of wastewater was removed from the District Engineers in Trinidad and divided into two areas, Wastewater Engineer North and Wastewater Engineer South. This action was taken to address the increasing responsibilities required in the National Wastewater Sector including the adoption of the growing number of wastewater systems in the country.

In 1987, two new Private Wastewater Treatment Plants were constructed at Eastern Credit Union’s La Joya Complex, St. Joseph and the Maximum Security Prison, Arouca. The Bon Air West, El Dorado Youth Camp and Maracas Beach Resort Private Wastewater Treatment Plants were constructed in 1992.

In 1994 Tobago’s Wastewater Needs were identified and preliminary designs prepared for the collection, treatment and disposal of wastewater in Tobago to meet demands up to the year 2020. Options for treatment facilities included:
1. The construction of one plant at Crown Point to treat all the waste from the entire southwest region.
2. The construction of two plants - one at Crown Point and the other at Plymouth.

A report by Delcan International Corporation in association with AdeB Consultants in 1994 proposed the integration of separate sewerage systems in Trinidad to handle the problems associated with numerous small poorly operated treatment plants. This move would also allow WASA to assume responsibility for the operation and maintenance of all existing and proposed sewerage systems in Trinidad, in a way that would minimize operating and maintenance costs.

Tobago’s Scarborough Wastewater Treatment Plant was concluded in 1994. This project was one of the most significant investments in the island’s wastewater sector and was designed to treat the wastewater from a population of 10,000. This plant is owned and operated by WASA.

In an effort to bring about the rehabilitation of the country’s wastewater system, a feasibility study and detailed final design for the rehabilitation of selected facilities, including eleven treatment plants and twenty-one lift stations was undertaken in 1996.

In 1997, Trinidad and Tobago Water Services (TTWS) Limited outlined a project to solve the problems of wastewater collection, treatment and disposal in south west Tobago. The plan sought to eliminate pollution in the Store Bay to Buccoo areas and then extend the project up to Plymouth.

Amid cries for WASA to adopt the numerous small, privately-owned, poorly functioning Wastewater Treatment Plants (WWTPS) scattered across the country, an adoption model was developed in 1999 to
lay the foundation for a massive adoption drive. The Edinburgh 500 WWTP served as the pilot project for this model.

Dillon Consulting Group detailed a Strategic Plan for the wastewater sector in Trinidad and Tobago in the year 2000. Three of the main objectives of their report were:

1. To identify legal and institutional changes required to regulate centralised and decentralised collection and treatment services;
2. To develop a short, medium and long-term investment plan for wastewater collection and treatment;
3. To determine viable alternatives for the financing of the plan.

WASA recognized that greatly expanded sewage facilities would be required to meet stringent environmental standards. Consequently, construction of the multi-million dollar New Beetham Wastewater Treatment Plant (WWTP) commenced in 2001. The new completed Beetham Wastewater Treatment Plant officially began to treat domestic waste in 2004. Its excellent performance has made a major positive environmental impact in the area. It is the first WASA facility to utilise ultra-violet radiation to disinfect plant effluent. It services more than 182,500 individuals. It currently serves customers within the greater Port of Spain and environs, Pt. Cumana, Mt Hope, Diego Martin and Maraval areas.

As part of a Wastewater Adoption Project, from 1st September, 2004, WASA assumed responsibility for over 30 Private Wastewater Treatment Plants (WWTPs) previously owned and operated by the National Housing Authority (NHA) and the Ministry of Housing. The ultimate goal is the adoption of all WWTPs.

Coming out of an intensive study by “Safege Consulting Engineers” in 2005, six (6) regional Wastewater Treatment Plants (WWTPs) were planned for the East-West Corridor. These plants ultimately lead to the elimination of the numerous smaller WWTPs that existed, and set the stage for further development of the sector. The plants to be constructed include:

- Bamboo WWTP
- Trincity WWTP
- Maloney WWTP (upgrade of existing plant)
- Malabar WWTP
- Sangre Grande WWTP

WASA’s takeover of NHA’s wastewater treatment plants and collection systems has lead to the need for additional equipment to properly maintain our ever increasing wastewater network. As a result, a fleet of new and modern Vac Masters were acquired in 2006 to assist in accomplishing this task. In 2010 seven (7) brand new VAC Masters and four (4) tankers were purchased to more efficiently maintain our sewerage network.

The New Technologies unit was formed in the month of October 2007 with a mandate to research and investigate the applications of New Technologies in the Water and Wastewater industry. Its initial focus is to look at Wastewater reuse and the increase in use of desalination Water Treatment Plants.
SECTION 3

Social, Economic and Leadership Impacts
Social, Economic and Leadership Impacts

Early Developments: 1903 – 1965

The Government of Trinidad and Tobago proposed to pass the Waterworks Bill that would introduce water rates for the first time. This legislation was mainly directed against the high usage of water by the upper-middle class citizens in the Port-of-Spain areas. These citizens used Roman-type baths (flow through swimming pools) that had a storage capacity of 50,000 gallons of water that were emptied two to three times per week. This proposed levy sparked outrage which resulted in the Water Riots of 1903.

In 1904 a recommendation was made, by the Commission of Enquiry into the Water Riots and Red House Fire, that Municipal Authorities would handle the water and sewerage in the Port-of-Spain area rather than the Colonial Government. This development emphasized to the population that the provision of water was not free but was supplied at a cost, if systems were to be developed and maintained. Hence, in 1923 the first tariff structure was put into place. A Port of Spain Water Authority and a Port of Spain Sewerage Board were set up.

In 1935 the Government centralized the administration of public water supplies by creating the Central Water Board (CWB). They controlled all the various District Waterworks and was responsible for the development of water sources and the distribution of water in rural areas. The CWB using Ordinance No.15 of 1935 revised the existing tariffs. Customers were now required to pay 10% of the Annual Rateable Value (ARV) of their property as General Water Rates and by 1938, customers were required to pay 7 ½ %. A sewerage rate was also introduced in St. James, Woodbrook and Newtown, which were serviced by the existing sewerage network.

In 1942, there were water shortages in several parts of the country. A Water Enquiry Board was established to investigate the situation. A recommendation was made that the administrative bodies in Arima, Port of Spain, San Fernando be unified into one central authority. It was hoped that a more integrated approach would help solve the problems experienced.

In 1951, the cost of providing a potable water supply was becoming more and more burdensome so an increase in the tariff structure was proposed. However, this proposal was unsuccessful.

The Birth of WASA – September 1st 1965

Government announced that effective September 1st 1965, seven (7) agencies would be incorporated to form a new agency - The Water and Sewerage Authority (WASA). The Authority was officially brought into being by the Water and Sewerage Act, No. 16 of 1965 of the laws of T&T. Its office was set up on Tragarete Road, Port of Spain, just west of the Strand Cinema. As such a team from the Pan-American Health Organisation arrived in Trinidad in 1968 and set about coaching, instructing and providing advice to the new entity. With the local personnel on-board, the team made several recommendations for the development of the new structures, policies and programmes for the Authority.
Mr. Horrace O. Roberts became the Chairman of the Water and Sewerage Authority, and Mr. V. A. Mc. Killop, its Executive Director in 1965. In 1968, Mr. W.E. Daniel held the position of Executive Director of WASA.

As a new entity, WASA made its first request for a rate increase in 1966, which was refused. Former Minister of Public Utilities, Mr. Errol Mahabir, laid the foundation stone for WASA’s new $337,000 Head Office Building at St. Joseph in 1967. This new home at Farm Road was set up on lands bequeathed to the Authority by Government, adjacent to the headquarters of the Central Water Distribution Agency (CWDA), one of the original members of the WASA family. Also that same year the Inter-American Development Bank (IADB) announced its intention to lend the Trinidad and Tobago government US$300,000 to finance a survey of water resources in the country.

In 1968, Mr. W.E. Daniel held the position of Executive Director of WASA.

In 1972, the Inter-American Development Bank (IADB), which had earlier funded research in water resources management, granted WASA $7.6 million to improve and expand the water supply system in Trinidad and Tobago.

With their performance under scrutiny, the prolonged drought which resulted in severe water shortages and record low elevations in the water levels in the reservoirs, 1973 was turning out to be a hard year for the Authority. In addition, WASA was burdened with unrealistic rates which impacted on its ability to meet the increasing demand for water. WASA announced its intention to apply to the Public Utilities Commission for an increase in rates.

The Government of Trinidad and Tobago arranged with a Canadian firm to train persons in the collection and analysis of basic hydrological and hydro meteorological data between the period July 1966 and late 1970. They formed the first staff of the Water Resources Survey, which later became known as the Water Resources Agency attached to the Water and Sewerage Authority in March 1976.

Yet another proposal by WASA for an increase in tariffs failed in 1976. The country experienced severe water shortage in 1977. Customers were asked to assist by practicing conservation whenever possible. Trinidad and Tobago experienced the driest February in 31 years in 1978. Employees of WASA laid down 5,791 metres (3 ½ miles) of 30 centimetre (12 inch) P.V.C. pipeline on the Churchill Roosevelt Highway in twenty-one (21) days in 1979. This was a record performance spurred on by the desire to provide hundreds of consumers with a better water supply in time for Christmas that year.

Despite repeated pleas over the years for a rate increase, the latest proposals for such an increase were turned down again in 1979. In spite of being denied the rate increases so vital to improving its service, a survey in 1980, described the authority as the only Public Utility to have shown any improvement over the last few years and as being the most effective public service organisation.

Construction of WASA’s Kew Place Regional Office and Rate Pay Centre began construction in 1980. This was to facilitate the improved operational efficiency, thereby serving its customers better. With the authority striving to become more customer-oriented and accountable to its customers in 1981, under the helm of the current Chairman of the WASA Board of Commissioners Mr. Mervyn Mc Connie, WASA along with various other Public Utilities participated in an Accounting to the Tax Payer exercise.

In 1985, WASA acquired its own computing facilities with a technology upgrade of a new computer system called the NCR 1-9300 System that was installed at the Authority’s Head Office in St. Joseph. With its
introduction, WASA was able to more efficiently process a variety of application data including Consumer Billings, Salaries, and Creditor Listings.

After numerous disappointments, in 1986 WASA at last received its first rate increase via Public Utilities Commission (PUC) Order No. 54. Though still short of what was desired, the increase was greatly appreciated.

Bowing to the pressure of the unusually long dry season, WASA implemented immediate water curfews to parts of South and Central Trinidad in 1987. Tobago, whose rivers had almost dried up, was also without steady pipeline supplies and was dependent on truck-borne water. WASA advised consumers to store water to tide them over the curfew hours. In 1988 the country fared no better as consumers experienced another severe dry season. The level of water at the country’s largest reservoir, Arena, plunged from a top reading of 36.27 metres (119 feet) to 26.43 metres (86.7 feet). This was the lowest level in the reservoir’s seven year history. In that same year the positions of Chairman of the Board of Commissioners of WASA, and Executive Director, were held by Ms. Stephanie Daly and Mr. Elton Wyke, respectively.

The workers of WASA selflessly ensured that its essential services to the public were maintained during the challenging days of the attempted coup of July 1990. In addition to the maintenance of essential services, the Authority’s Security Officers assisted in the transport of medical supplies to and from the Port of Spain General Hospital. In that same year, the International Industrial Merchant Bank of Trinidad and Tobago Ltd. (IIMBTT) successfully placed a $55 million bond issue for the Water and Sewerage Authority. The bonds were raised from insurance companies, pension funds and other financial institutions.

In 1990 the first collective agreement was signed between WASA and the Public Services Association (PSA) for monthly paid employees of the Authority for the period January 01, 1990 to December 31, 1992. To the present day, the PSA continues to serve as the bargaining body for monthly-rated employees of the Authority.

Given its precarious financial situation and the ever increasing demands for the provision of more efficient services, WASA’s Institutional Strengthening Team (IST) produced an Action Plan for financial self-sufficiency in 1992. Also in that same year, WASA launched “Project Collect-All” to recover more than $50 million in arrears from domestic consumers. “Collect-All” targeted people who had not paid their rates for the last three years. 250 employees were trained to locate delinquent customers and distribute disconnection notices. WASA then embarked on a Metering Programme, which targeted 8,000 industrial, commercial and domestic customers. The implementation of this programme was meant to provide a more equitable means of rate paying as well as to encourage conservation.

The new men at the helm in 1992 was Mr. Henry Sealy, the Chairman of the Board of Commissioners of WASA and Mr. Ronald Amoroso, the Authority’s Chief Executive Officer (CEO).

1993 saw WASA launching the utilization of its latest technology - Geographic Information Systems (GIS) at its Head Office in St. Joseph. WASA’s Emile Charles who was appointed as the Team Coordinator of WASA told the gathering that GIS would improve the efficiency at the Authority and increase its customer base. Then Minister of Public Utilities, Morris Marshall commented that at a time when most of the information released on the Authority was negative, this new aspect of WASA’s operations gave it a positive outlook. Today, WASA’s GIS is well recognized, having received a number of international awards.
WASA established its Customer Service Bureau’s (CSB) in 1996. This new department supplied information and service help lines for customers who wished to telephone in complaints and obtain other relevant information related to the Authority’s operations.

The software package ALCIE (an acronym for Assets, Liabilities, Capital, Income and Expenses) became operational in 1996. This integrated package of computerized financial systems covered the areas of Purchasing, Inventory Management, Accounts Payable, General Ledger and Fixed Assets.

In 1997 the authority began using a new technology called Trenchless Pipe-laying. This new technology allows pipelines to be laid under the road, without disturbing the road’s surface; a major plus for the travelling public. Using a “Grundomat” or piercing tool to bore through the soil, the pipe is pulled in behind it at the same time. The result is that new pipelines are laid below the road, while the traffic runs above as normal.

In 1998, with the position of Chief Executive Officer being held by Mr. Eric Ashcroft, there was a technology overhaul at WASA. Computer systems now included hardware infrastructure with 10 servers and over 170 personal computers, 35 printers and 32 laptops. There was also the introduction of new telephone switchboards at main offices and more telephone extension numbers. SCADA (Supervisory Control and Data Acquisition) technology also began to play a major role in the Authority’s operations. This technology allows users to both remotely monitor and control operating systems and equipment. Just imagine being able to switch on a pump from miles away. SCADA has resulted in better use of manpower, early detection of problems, and reduced operational costs.

By early June of 2003, WASA had begun rationing water supplies as the country endured another harsh dry season. The Authority also stepped up its truck borne water supply to hard hit areas as production dropped at major impounding reservoirs and river sources.

In the true spirit of “Team WASA”, the Authority warmly welcomed on board, Mr. Anthony Diaz, a “differently-abled” employee in 2003. With this spirit, the Authority also in that same year, strove to better manage various human resource issues and functions, an upgrade of the Authority’s HR management software to Hrplus Anyware 4.0 was “on the cards”. This fully web enabled system, allowed employees to better manage and maintain their own data, and to perform various administrative and decision-making tasks.

Our New Chairman of the Board of Commissioners of WASA, Mr. Barry Barnes, began his term of office in 2004. As such, WASA began to sensitize its entire staff about its three year Strategic Plan, which identifies key actions to be taken to improve the organization and so improve customer service. The ultimate objective of the Authority is to provide a 24/7 water supply to all its consumers and expanded wastewater services before 2020.

On November 26th, 2004 WASA launched the Water Sector Modernisation Programme. The goal of this programme was to provide greater wastewater coverage throughout the country and a 24/7 water supply to the entire population by modernising and expanding the existing transmission and distribution system.

A computerised asset maintenance management system or Maximo continued to be a valuable tool to the Asset Maintenance and Facilities Management Departments in 2004. It assisted in the effective scheduling of jobs and resources, increased productivity and cost cutting.
At a Joint Select Committee of Parliament in 2004, it was revealed that WASA was in debt to the tune of over $3 billion. This stemmed from high debt-servicing and operating costs, and high expenses relating to overdrafts and credit line facilities.

In December 2004, WASA officially launched its 40th anniversary celebrations. Embracing the theme “Celebrating Our Workforce, Our Achievements and Our Vision for the Future”, the Anniversary logo was unveiled to the rousing cheers of employees.

To address a major source of customer complaints, related to road restoration, in 2005 WASA began use of a new cement/aggregate to improve standard of road restoration. The material known as Flowable Fill or Foamed Concrete provided superior results compared to back-filled trenches.

In 2005 the Government announced that $27 billion will be pumped into WASA over the next 15 years to upgrade its infrastructure to First World standards. $1.3 billion will be allocated in the first instance.

In 2005, the use of Global System for Mobile Communications technology (GSM), and Subscriber Identity Module cards (SIM), made a significant impact in the better management of water resources. SIM cards allow field data to be sent directly to cellular phones, and to computers at the Authority's Head Office. Continuing in this way, WASA explored the possibilities of Voice over Internet Protocol (VoIP) to improve its efficiency, reduce costs, and enhance internal and external communications. One of the major advantages of VoIP is its ability to send voice, fax and other information over the Internet, rather than through a regular telephone network.

2005 saw WASA focusing on Universal Metering as part of its Strategic Plan. Metering is accepted as one of the most effective ways to encourage conservation. This move will give customers the power to control the size of their bills which will be based on the volume of water used, and allow WASA to improve its operational efficiency.

2006 saw the establishment of the WASA’s first Public Education Centre (PEC) at the Authority's Head Office Complex in St. Joseph. The PEC, the first education centre in this region, today serves as the home for education on all aspects of water and wastewater, as well as, developments in the sector. The PEC has since become a major resource centre for our internal and external publics.

Seeking to expand on the success of the PEC and the valuable information it extends to all those who visit, in 2007, WASA acquired two branded “water is life” vehicles. These vehicles operate in both Trinidad and Tobago, to assist in developing a more water conscious society.

In July 2006, the Authority introduced E-Auction to its procurement process. This electronic reverse auction technology enables suppliers to use internet based software to competitively bid against each other online.
On the 16th of July, 2008 the Honorable Minister of Public Utilities, Mr. Mustapha Abdul–Hamid, formally announced the new board of commissioners with the new Chairman, Dr. Shafeek Sultan Khan. Following the appointment of the new board in 2009, the Authority's corporate structure was changed to reflect three (3) divisions under the following headings:

• Corporate Division
• Operations Division
• Finance Division

**Golden Jubilee Celebrations:** As of September 1st, 20014 WASA announced its plans to celebrate its’ 50th year as an organizations.
SECTION 4

Plans towards 24 / 7
Plans towards 24 / 7

Since 2010, the Water and Sewerage Authority of Trinidad and Tobago (WASA) had set itself the goal of becoming the best-performing water utility in the Western hemisphere. To achieve this, we embarked on a plan of transformation.

By July 31st 2013, WASA achieved the milestone of providing 49 percent of the people of Trinidad and Tobago with a 24-hour, 7 days a week supply of water. This is an increase of 31 percent from 2010, when the figure was 18 percent. This massive improvement in coverage has been achieved through the upgrade and rehabilitation of infrastructure and optimisation in the operation of the water supply systems. Earlier in 2013, our initial target of a pipe-borne supply of 24 hours at least twice per week for the entire nation was achieved. Now we are working towards full 24/7 compliance for every citizen in every community by December 2014.

In 2010, some of the issues impacting supply and demand included:

- Water Demand greater than production:
  - Water Demand - 262 mgd
  - Water Production - 224 mgd
  - Deficit - 38 mgd
- Aged and leaking transmission and distributions mains
- Deteriorating Water Treatment Plants with low operating efficiency
- Minimal investment in development of new water sources
- Domestic Metering - 4% coverage only
- Service Coverage 18 % 24/7 and 89 % 24/2
- Lack of an aggressive leakage management plan

Given the mandate to achieve “Water Security for Every Sector”, a plan was developed to increase the total volume of water available for distribution while reducing demand. To this end the following have been completed among others:

- The construction of potable water treatment plants at Talparo, Matura, Penal and Point Fortin with a capacity of 2.2 mgd
- Drilling of wells at Freeport, Valsayn, Point Fortin, Chatham, Cap-de-Ville and Louis D’Or in Tobago producing 1.6 mgd
- Construction of a desalination plant at Point Fortin with production of 4.6 mgd

These led to an increase of 8.4 mgd to overall available water supply.
In addition, works have been completed to replace leaky pipelines such as the Navet Trunk Main, Hollis Trunk Main South, Maracas Royal Road among others, that have saved an estimated 3 mgd. This was part of a transmission system upgrade where over 150 km of pipeline were laid.

With these measures, the deficit in supply has been reduced by an estimated 11.4 mgd to 26.6 mgd. This, together with a massive replacement and extension of distribution pipelines contributed to the 24/7 supply being extended to 49 percent of the population. This programme involved over 578 pipeline projects with 415 km of pipes being installed at a cost of $474M.

More recently, the Authority completed several other projects that dramatically improved the water supply to a number of communities system-wide:

- Chin Chin Road Pipeline Project provided some 9,400 residents of Cunupia and 700 households with a 24/7 supply of water
- Covigne Road Water Improvement Project gave 1,200 residents of Covigne Road a reliable pipe-borne supply for the first time through the installation of 2.9 km of new mains and a state-of-the-art booster system
- The new Point Fortin Desalination Plant provided over 30,000 residents of Point Fortin and parts of La Brea, with a 5-7 day supply of water
- Biche Water Improvement Project gave 1,200 residents of Biche and Plum Mitan a reliable pipe-borne supply for the first time through the installation of 2.9 km of new mains and a state-of-the-art booster system
- The new Point Fortin Desalination Plant provided over 30,000 residents of Point Fortin and parts of La Brea, with a 5-7 day supply of water
- Biche Water Improvement Project saw 4,000 residents from Biche and Plum Mitan receiving a 24/7 water supply
- Chase Village Pipeline Project provided 5,000 residents with a 24/7 supply
- A new intake was developed using the Morang River at an estimated cost of $2,200,000, benefitting approximately 750 persons. Works have also commenced at another intake site at Matelot, Toco and it is estimated that upon completion approximately 1,000 persons would benefit.
- Three (3) wells were drilled, two in Chatham and one in Wallerfield at a cost of $8 million combined, benefitting 7,459 persons. One (1) well was developed at Louis D’Or, Tobago at a cost of $3 Million, benefitting 1,525 persons.
- 1,263 pressure reducing devices ranging in size from 20mm to 100mm were installed in North and South Trinidad. In Tobago, a total of 295 PRVs ranging in size from 20mm to 100mm were installed at Carnbee, Bethel, Cambee, Culloden and Charlotteville.

To complement these initiatives, WASA has implemented a number of key projects across the country to improve water transmission. Pipeline installation was undertaken in Union and Bristol Villages in Mayaro and Brasso Venado, Tabaquite where residents are now experiencing a pipe-borne water supply for the first time.

The completion of pipeline works and the construction of a booster station along the Cunapo Southern Road between Rio Claro and Biche have resulted in a significant improvement in pipe-borne water service to communities along the route including Biche, Plum Mitan, Cushe and Navet. In south-west Trinidad, a new booster station was constructed at South Oropouche to better supply communities from Otaheite to La Brea and Avocat to Erin. In Tobago, a new transmission pipeline has been installed between Courland and Buccoo to address the water demand in south-west Tobago.
To address inadequacies in the distribution network, projects were undertaken across the country including L’Anse Mitan in Carenage and Covigne in Diego Martin. First-time pipeline installation has also been undertaken in a number of communities under the National Social Development Programme with residents now having access to a pipe-borne water supply.

**Toward 24/7 in 2014**

Over $500M has already been spent on water infrastructure development and upgrades as the Authority continues its drive toward the goal of providing a 24/7 supply to customers system-wide in 2014. There remains a number of significant projects for execution that aim to increase water production and improve and expand the reliability of service to customers. With this in mind, a number of key projects have been identified, with the aim of achieving 24/7 in Tobago firstly by July and in Trinidad by December 2014.

The projects in Tobago include:

- Construction of three (3) km of 200mm diameter DI pipelines from Bloody Bay WTP to Bloody Bay Junction
- Installation of six (6) km of 200mm diameter DI mains from Bloody Bay Junction to Englishman’s Bay
- Construction of three (3) km of 150mm diameter PVC pipelines from Culloden Junction to Board Road, Mt. Moriah
- Upgrading Charlotteville Intake to a Water Treatment Plant
- Installation of storage reservoirs at Charlotteville and Bloody Bay with a total capacity of 150,000 gallons.
- Refurbishment of water treatment plants at Courland, Richmond, King’s Bay and Highland Road.

The projects in Trinidad include:

- Expansion of production at Point Lisas DESAL by 10 mgd from 30 mgd to 40 mgd
- Seven (7) new production wells in Diego Martin, Port of Spain, Santa Cruz and Point Fortin by June 2014, which is expected to provide 1.1 mgd
- Construction of Beetham Water Reuse Project, which is expected to yield 10 mgd (scheduled to be completed in 2015)
- Refurbishment of water treatment plants at Caroni, Navet, Point Fortin, Teschier and Guayaguayare
- Construction of new Savonetta Booster Pump Station (scheduled to be completed in 2015 to pump additional water on transmission system with division of potable water supply from Point Lisas with completion of Water Reuse Project.)
- Installation of a 1100 mm diameter pipeline to dual the existing 1350 mm diameter Caroni South Trunk Main from CAWTP plant to Couva
- Implementation of Network and Pressure Management Programme in North East and Central Trinidad
- Installation of storage reservoirs in Arouca, Tompire, Santa Cruz, Plaisance Park, Stonebright (Mayaro), La Fillette, Four Roads (Diego Martin), Quare Road (Valencia), Hololo (St. Anns) and Arena with a total capacity of 3.79 Million gallons.
• Refurbishment of major Booster Pump Stations at Valsayn and San Fernando
• Installation of transmission pipelines in Point Fortin, Guárico-Tamana, Santa Cruz, Claxton Bay as well as the completion of the replacement of the old Hollis Trunk Main between Port-of-Spain and Valencia.
• Installation of distribution pipelines in localised communities in Trinidad and Tobago.

With these measures, an additional 21.8 mgd is expected to be made available, further reducing the deficit to 4.8 mgd.

Demand is projected to be reduced through the commencement of a Universal Metering Programme, which will begin in north-west Trinidad and expanded to 20 percent of population. This is estimated to realise a reduction in demand of 3.6 mgd. The overall level of Unaccounted for Water (UFW) is projected to be reduced by 5 percent through this and others initiative. Global demand is expected to be satisfied when all these measures are taken into account collectively.
SECTION 5

Implementing a Corporatization Framework
Implementing a Corporatization Framework

Background
As the Authority seeks to transform itself into a high performance utility, the pursuit of an internal governance arrangement that meets internationally accepted principles of Best Practices is pivotal. The genesis of WASA’s Corporate Governance project arose from a need to improve the Authority’s operations and business practices and attain greater levels of efficiencies through the implementation of approved corporate governance practices. One of the key deliverables of the Corporate Governance project is to establish a framework for effective governance which will see WASA eventually transformed into a corporatized entity. As a corporatized utility the Authority will have an independent corporate status while retaining accountability to its stakeholders, including the Government of Trinidad and Tobago. It will also enjoy the advantages of a private sector company with the expected efficiency, productivity and financial sustainability.

Defining Corporatization
A useful definition of Corporatization is “The process of transformation of a Government owned entity under the purview of a Ministry or municipality into a publicly owned corporation with its own corporate identity”.

The guiding principle of corporatization is the intent to capture the advantage of a private sector company including efficiency, productivity and financial sustainability while retaining accountability to owners.

1) INSTITUTIONAL STRENGTHENING
   I. The Authority is mandated among other things to implement institutional strengthening activities to sustain the turnaround and transformation of the Authority, including undertaking infrastructural works under the Multi-Phase Rehabilitation Programme Phase I.

2) IMPLEMENTATION OF CORPORATIZATION FRAMEWORK
   I. The Board of Commissioners at its 685th meeting held on 23rd March, 2012 approved the implementation of a corporatization framework within the Authority, in particular, the execution of the following three (3) main activities:

   i. Establishment of a distinct legal identity for the corporatized entity “WASA”, under which the GORTT’s role is clearly defined as owner/majority shareholder;
   ii. Removal of the Authority’s assets and finances from other government operations; and
   iii. Implementation of private sector commercial orientation and managerial independence with systems of accountability to the GORTT.

   iv.

3) CORPORATE GOVERNANCE (CG) TASK FORCE
   I. A Task Force comprising of senior managers in the Authority was established in April 2013 to coordinate and drive the implementation of the corporate governance practices with a view toward achieving the ultimate goal of the corporatization of the Authority.

4) CORPORATE GOVERNANCE ACTION PLAN
A Corporate Governance Action Plan ("CGAP") was subsequently developed through a consultative process of workshops.

5) CORPORATE GOVERNANCE PRACTICES
In order to achieve the transformation of the Authority into a corporatized utility it is critical that best practices in corporate governance be implemented. The Board of Commissioners approved the implementation of twenty-five (25) corporate governance practices for the first annual action plan, of which the following eight (8) practices were identified as critical:

1. The enterprise has an articulated and public plan to improve its corporate governance practices;
2. The enterprise has a written set of corporate governance policies that cover, at the very least, the rights and treatment of shareholders, the role of the board of directors, transparency, and disclosure;
3. The enterprise has put in place an adequate system of internal controls and internal auditing;
4. The enterprise prepares and presents its financial statements, complying with the International Auditing Standards;
5. The enterprise’s financial statements, along with its notes, are annually disclosed to the owners, investors, control entities, and the public;
6. The enterprise discloses in its yearly management report its ethics' code, the main measures for enforcing it, and the degree of fulfilment reached;
7. The enterprise's business and non-business (public policy) objectives are articulated and disclosed to the public and;
8. The enterprise comprehensively applies the regulatory framework for tariffs, including periodic adjustments for inflation or costs recognised by the regulator; or alternatively, these are self-regulated with the goal of covering costs and reducing differences in tariffs with those of neighbouring territories.

6) IMPLEMENTATION OF CORPORATIZATION MODEL
The implementation process requires activities at three (3) levels
- National level
- Defining the relationship between the corporatized utility and its owners
- The Internal Governance arrangements of the Corporatized Utility.

7) LEGAL STRUCTURE IN A CORPORATIZED UTILITY
The legal transformation to a corporatized utility changes the relationship of the government to the utility. The board has defined interests or priorities in relation to the company. The legal regime will provide for a more rigorous system of performance, expectations and oversight than the previous system. It will also provide a greater degree of organisational autonomy. The legal framework will:

- Be comparable to that of non-government owned commercial companies
- Provide for Board of Directors and company officers
- Provide clarity of corporate objectives
- Provide transparency obligations of each party
- Require commercial orientation
• Provide for external accountability
• Document targets and performance expectations

8) FINANCIAL MANAGEMENT AND ACCOUNTABILITY IN A CORPORATIZED UTILITY
The corporatized utility will achieve its commercial goals and financial sustainability by:

• Establishing customer revenue as the key source of financing.
• Defining goals to recover Operations and Maintenance, investment costs, depreciation and debt servicing.
• Setting tariffs appropriate to overall business investment and financial plans.
• Collecting, analysing and utilising financial information collected for planning management and oversight.
• Utilising audit tools, systems and processes to verify appropriate financial practices.

9) CUSTOMER AND MARKET ORIENTATION IN A CORPORATIZED UTILITY
The following factors would contribute to customer care:

• There is recognition of customer value as a source of revenue.
• Regular consultation and communication to establish demand/response service.
• Implementation of monitoring and reporting on defined targets for improved customer satisfaction.
• There is transparent commitment to the customer through a customer contract or charter.

10) KEY BENEFITS OF A CORPORATIZED UTILITY
Key benefits of a corporatized utility include:

- Reduction of the negative equity position and improved system of value creation thereby achieving financial sustainability and self-sufficiency.
- An independent corporate status while retaining accountability to its stakeholders, including the GORTT.
- Enjoyment of the advantages of a private sector company with the expected efficiency, productivity and financial sustainability.
- Stable water supply and wastewater services.
- Financial autonomy achieved through independently determined tariffs and a sound management system.
- Large-scale investment in infrastructural development according to a long-term plan that is aligned to strategic objectives.
- Excellent goodwill among customers.
- Ongoing communication to increase employee awareness and buy-in for the transformation initiatives under the Corporate Governance Action Plan (CGAP).
- Incentives (e.g. profit sharing) when the organisation achieves financial viability
- To be part of an organisation that is performance driven.