

water world

A QUARTERLY PUBLICATION OF THE WATER AND SEWERAGE AUTHORITY






AVOID DISCONNECTION! PAY YOUR WASA BILL NOW!


**Water we need.
It is costly to treat.
It is not free.**


Customers can pay their bills at WASA Customer Service Centres:


- King Street, Princes Town
- Market Street, Chaguanas
- Cor. Millard Street and Southern Main Road, Couva
- Guapo Road, Point Fortin
- Sorzano Street, Arima
- Trincity Regional Centre, Golden Grove Road, Arouca
- Head Office, Farm Road, St Joseph
- Mon Chagrin Street, San Fernando
- Crooks River, Scarborough, Tobago
- Kew Place, Port of Spain


OR any commercial bank, Via, SurePay or Western Union

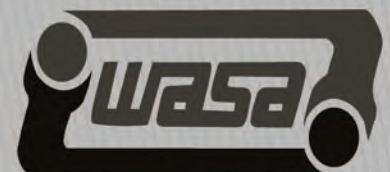
 **WASA Trinidad & Tobago**

 **@wasatnt**

 **800-4H2O (800-4420/4426)**

 **was.gov.tt**

 **9272**



***"Water Security for Every Sector.
Deliver it. Sustain it."***

CONTENTS

ISSUE 2 • JULY – SEPTEMBER 2013

*Cover Photo: Anthony Farrell
Arena Reservoir - San Raphael*

- 03. The Adopt a River Programme
- 09. Using Technology to Integrate Our Business
- 11. WASA Converts to CNG
- 13. Avoiding Land Development Pitfalls
- 16. Measuring Our Service
- 18. Towards Water For All
- 25. 24/7 Supply for Tobago by 2014
- 27. Wastewater Expansion and Rehabilitation
- 29. Project Implementation Unit – Responsible For Managing WASA’s Infrastructural Projects
- 32. WASA on Good Governance Path
- 35. Cultivating a Safety Culture
- 37. WRA’s Rianna Gonsalves takes on the Environmental Challenge
- 39. The Unsung Inventor
- 41. WASA Workers Forge Strong Bond

Feature p:07



EDITOR'S NOTE



This 2nd issue of Waterworld will prove to be as informative and educational a read as our first edition with its array of articles on new developments within the organisation and the sector. Our cover story focuses on the thrust of the Authority to improve on the utility's bottom line. The 2012/2013 financial year has been a good one for the Authority but still a far cry from where the organisation needs to be revenue wise. A major challenge, therefore is improving on the traditional revenue stream through water improvement and wastewater expansion projects whilst exploring and securing new areas of business to commercialise.

Also included this issue, is the outcome of a customer satisfaction survey carried out at the Authority's Customer Service Centres – a must read; as well as the skillful innovation of a long serving employee who designed a practical solution to an irksome problem in safeguarding valves along the pipeline distribution system.

There are often questions raised about the approval process for new building developments which will also be dealt with in this issue.

Until the next issue ...

Happy reading!

Ellen Lewis
Head Corporate Communications



A QUARTERLY PUBLICATION OF THE WATER AND SEWERAGE AUTHORITY

ISSUE 2

JULY – SEPTEMBER 2013

Publisher

Water and Sewerage Authority
of Trinidad and Tobago

Editor

Ellen Lewis
Head Corporate Communications

Contributors

Ramchand Ramcharan
Director Programmes and Change Management

Doodnath Bohola
Director Corporate Services

Penelope Williams
Head Internal Audit and Compliance

Denise Lee Sing Pereira
Head Wastewater Projects

Frederick Vasey
Head Project Implementation

Dial Ramkissoon
Head Information and Communication Management

Carol Dos Santos
Snr. Manager Customer Business Services

Roger Karim
Snr Manager HSE

Gregory Roxborough
Asst. Manager Corporate Communications

Jiselle Webster
WASA Tobago Affairs, Corporate Communications

Rianna Gonzales
Water Resources Agency

Richard Smith
Customer Business Services

Rachel Lewis
Corporate Communications

Advertising Inquiries

Allysa la Touche
Corporate Communications

Art Direction/ Design

Kenneth Henry

Photography

WASA Stock Photography

Printer

Scrip - J

Contact information

Water and Sewerage Authority
of Trinidad and Tobago
Head Office:
Farm Road, St Joseph
Trinidad and Tobago. WI
Ph: 868-662-2302-7 Ext. 2310
Fax: 868-662-8184

Waterworld is published by the
Water and Sewerage Authority
of Trinidad and Tobago
Corporate Communications Department

All rights reserved.

*Water and Sewerage Authority of Trinidad and Tobago
must be appropriately credited for any
partial reprint or duplication of this magazine*

The Adopt a River Programme –

Charting a new way towards realizing water pollution management



On the 5th July 2013, the Adopt a River (AAR) Programme was officially launched at the Lee King Quarry in Valencia. The launch marked the end of two years of work developing the framework for the AAR programme by the Water Resources Agency (WRA – a division within the Authority) and saw the honouring of participants and the welcoming of new adopters to the programme.

At the launch, five (5) major adopters were successfully signed on to the programme namely: Phoenix Park Gas Processors Ltd., The University of the West Indies, ROSE Environmental Ltd., Caribbean Youth Environmental Network and the Guanapo Community and Environmental Development Organisation. Since the launch, the AAR Programme has had ten new groups from across the country expressing an interest to sign on. But how and why did the AAR come about?

Having realized that many of the water pollution issues are related to man-made activities, the former CEO of WASA and now Minister of the Environment and Water Resources, Senator the Honourable Ganga Singh, proposed the AAR programme as a means of increasing the awareness towards water related issues in Trinidad and Tobago. The programme also aims to encourage the involvement of schools, communities, public and private sector and government agencies in the management of water resources locally.



The AAR programme in essence, allows interested parties to adopt a particular river, or part thereof, with the aim of improving its status over a one year period. After this initial phase an assessment is carried out by WRA and thereafter adopters will have an opportunity to continue with their projects. There are a number of different ways in which adopters can effect change for example, through public education and awareness, clean-up campaigns, school-based competitions, water quality monitoring projects, reforestation projects or voluntary clean-up of effluents.

Minister of the Environment and Water Resources, Senator the Honourable Ganga Singh at the launch of the AAR programme at Valencia



Full house at the launch of the AAR programme

As a show of commitment, Mr. Singh as then WASA CEO announced in July 2011 that the Authority will adopt the Guanapo River. The Guanapo River is heavily impacted by quarrying, which affects the Guanapo Intake and Caroni Water Treatment Plant, and chemical contamination from the Guanapo Landfill.

In January 2012, a meeting was held at the Arima Town Hall to introduce the AAR programme to the Guanapo community and to win their support. Since then, WASA and the Guanapo Community and Environmental Development Organisation have had a number of important successes in this watershed:

- The Ministry of Works and Infrastructure gave their commitment towards installation of proper drains and pavements to assist with the problem of flooding during heavy rains. Work had commenced.
- The University of the West Indies has partnered with WASA/WRA, SWMCOL and the Caribbean Institute for Meteorology and Hydrology in Barbados to look at the impact of the leachate from the landfill on surface and groundwater in the Guanapo catchment. This project has started and preliminary data collection is almost complete.
- The Guanapo Community and Environmental Development Organisation received water quality training in September 2012. They have just completed one year's worth of water quality data which they have provided to WASA/WRA and the public.

WASA's commitment towards the AAR programme has however, not been limited to Guanapo. We have also hosted the 'In the Know with H2O – Adopt a River" Secondary School Quiz which Presentation College Chaguanas won. We have also participated in many public education programs geared towards water conservation at home and work such as World Water Day celebrations, NIHERST Sci Techno Fest and many others.

Since its inception, the AAR programme has successfully provided water quality training to three other communities other than Guanapo; they are South Oropouche, Cumaca and Mausica. There are intentions of providing training to farmers in Tabaquite before the end of 2013.



Minister of the Environment and Water Resources, Senator the Honourable Ganga Singh, presents an award to Gary Texeira of Rose Environmental Limited.



Kathleen Washington, President of GCEDO, checking the temperature of the Guanapo River downstream of the Quarry

Adopters can effect change for example, through public education and awareness, clean-up campaigns, school-based competitions, water quality monitoring projects, reforestation projects or voluntary clean-up of effluents.



Honourable Minister Ganga Singh presents a token of appreciation to Kathleen Washington, President, GCEDO

The AAR programme was introduced in Tobago in March 2012. Since then, follow up meetings in September 2013 have been held with key stakeholders who included the THA Administration and also NGO's, CBO's and environmental groups. Project plans are being prepared for the Courland catchment, where the largest surface water source for the island is located.

This programme represents an exciting opportunity for citizens of this country to become more involved in reducing their impacts on rivers locally. The activities proposed allow for cross sectoral interactions, by bringing corporate entities and communities together to partner in the enhancement and rehabilitation of our watersheds. Hands-on participation in the Adopt a River programme is also very effective in building public awareness and instilling greater appreciation for our natural resources. So, the benefits of the programme are not just limited to water and water related issues. But most importantly, the AAR programme is a fun interactive way of leaving a positive footprint on the environment.



Dr. Sharda Surujdeo-Maharaj discussing water sampling techniques with Guanapo residents during their water quality training



Invited consultant Dr. Peter Spillet addressing the crowd at the Adopt A River Programme launch



Natalie Blanc, one of the trustees for GCEDO, collecting water samples from the El Cedro River



Members of the Guanapo Community and Environmental Development Organisation (GCEDO) conducting tests on water samples collected from the Guanapo River



Protecting our most Precious Resource

With the world's growing population and the increasing concerns brought about by climate change, RBC® knows that access to clean, fresh water is becoming one of the world's most important economic and environmental issues.

That's why we are investing CAD \$50 million in the RBC Blue Water Project™, a decade-long initiative focused on protecting and preserving fresh water around the world.

We are committed to helping everyone have access to drinkable, swimmable and fishable water.

To find out more visit www.rbc.com/bluewater/caribbean.

Clean, fresh water for the Caribbean.

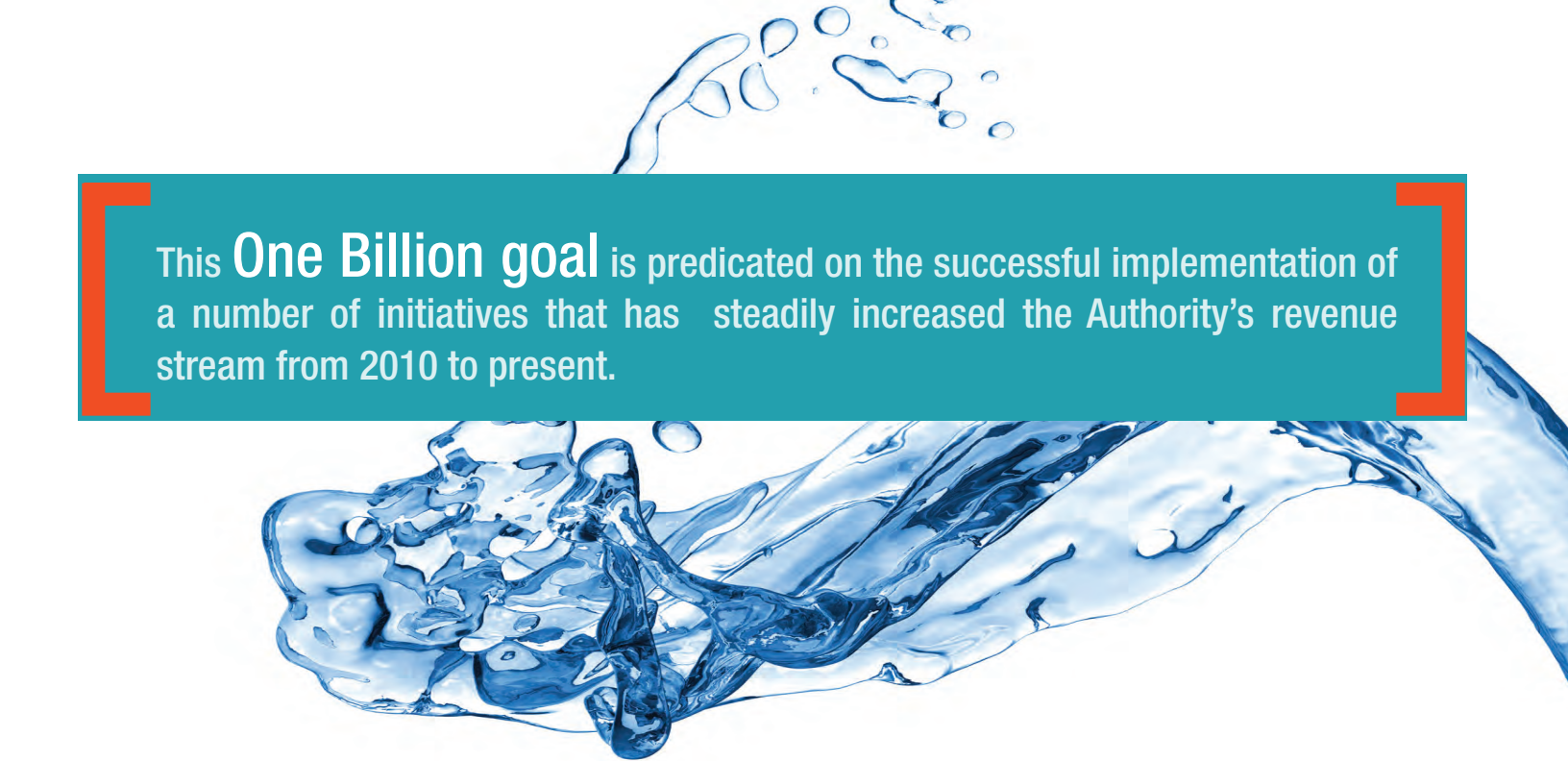
Chasing ONE Billion



Gerard Yorke
Chief Executive Officer (Ag.)

Among the Authority's four developmental pillars is that of revenue enhancement - the others are cost optimisation; customer care and human capital development. A true measure of a company's success is its ability to turn a profit or in the case of the utility sector the entity's ability to meet its operational expenditures. This is certainly the initial goal of the Authority in its efforts at financial viability thereby reducing the demand on the public purse.

With this in mind, the Authority in 2010 began implementing a plan to increase its revenue collection in pursuit of financial viability and sustainability. Since then WASA has made significant strides in increasing its revenue collection to the point where as acting Chief Executive Officer, I have set a target of \$1 billion in revenue for fiscal 2013/14.



This **One Billion goal** is predicated on the successful implementation of a number of initiatives that has steadily increased the Authority's revenue stream from 2010 to present.

This \$1 billion goal is predicated on the successful implementation of a number of initiatives that has steadily increased the Authority's revenue stream from 2010 to present. These initiatives include the start of a robust revenue collection drive in 2010 that saw WASA re-engaging in water disconnections for the first time in 12 years. In that same year, the Authority also offered an amnesty to persons with illegal connections, to allow such persons to regularize their service, thereby becoming legitimate bill paying customers. The introduction of these measures yielded immediate results, as WASA was able to achieve collections for the period 2010/11 in the sum of \$614Mn, which represented an increase of \$64Mn over the previous year.

In January 2012, the Authority achieved another milestone with the increase in the Water Improvement Rate for industrial customers at Point Lisas Industrial Estate, from \$7.50 per cubic metre to \$12.00 per cubic metre. This measure along with the continuation of those mentioned previously, again resulted in record collections of \$727Mn for the 2011/12 fiscal year, \$113Mn above the previous year.

During 2012/13, WASA continued its drive to increase revenue collection with the establishment of a new Business Enhancement Unit that focused on pursuing new business winning strategies. This saw the Authority embarking on several new revenue generating ventures such as refurbishment of infrastructure for the Estate Management and Building Development Company Limited (EMBD), installation of pipelines at St. Ann' Hospital, as well as cleaning of drains in Port of Spain and Couva. WASA was able to generate some \$55Mn in revenue and collections from this area, which contributed to the Authority achieving record revenue collection for the third year running, totaling \$867Mn for 2012/13, \$140Mn over the previous year's performance.

These results have been achieved despite the unfortunate

circumstances where the Regulated Industries Commission (RIC) has not granted WASA a tariff increase on domestic and non-domestic customers since 1993. This situation has arisen although the Authority presented a compelling business case to the RIC approximately 5 years ago. We nevertheless continue to provide the RIC with current information to justify our case.

In keeping with our aim of achieving \$1 billion in revenue for the fiscal year 2013/14, the Authority intends to enter into another phase of its revenue enhancement plan, which is tied directly to ongoing infrastructural development works occurring system-wide and the related improvement in service to customers. Over the last three years WASA has expended approximately \$500 million on projects designed to deliver an improved level of service to customers. This has resulted in the number of customers nationally receiving a 24/7 water supply moving from 18% in 2010 to 49% at present.

With an increase of 31 percentage points in the number of customers receiving a 24/7 supply, the Authority is now able to apply a 35% rate increase under PUC Order of 1993, for customers who previously could not have their rates increased because of the less than 3 days per week supply they received.

Along with this increased charge to customers and the subsequent collections for fiscal 2013/14, the Authority will continue with the following:

- Encourage the timely payment of rates and arrears through the continuation of disconnection and other measures
- Increased revenue collection opportunities through new initiatives developed by the Business Enhancement Unit
- Continue the metering of large users of water
- Disconnection/regularization of persons with illegal connections
- Presentation of an updated Business Plan to the RIC for increased tariffs for domestic and non-domestic customers, keeping in focus the fact that the last tariff increase was 20 years ago.

Using Technology to Integrate Our Business



Dial Ramkisson
Head Information and Communication
Management ICM

In its continued drive to deliver quality services, the Water and Sewerage Authority of Trinidad and Tobago continues to invest in emerging technologies with a view to providing up-to-date, consistent and reliable information to both internal and external customers.

One such initiative undertaken by the Corporate Services Division is the implementation of a Financial Package of an Enterprise Resource Planning (ERP) Solution. The Package which is an Oracle E-Business Suite solution, will provide inter-connectivity and inter-operability across the Authority through a common IT platform, thus integrating WASA's core business processes. The modules included in the Financial Package are Project Accounting, Fund/Grant Management, Fixed Assets, Accounts Payable, General Ledger and Purchasing & Inventory Management System

The contract for the acquisition and installation of the Financial Package was executed in June 2013. The solution is expected to:

- Support the Authority's mission to be more customer-focused utilizing information technology as an enabler.
- Implement modern business tools and techniques that would promote sound business practices.
- Provide an enterprise solution that will integrate WASA's core business processes to eliminate or minimize duplication and redundancy.
- Provide the most efficient and accurate real time information system for users to support data driven decision processes.



- Provide a single dashboard containing real-time data.
- Provide an open and flexible system for future growth needs.

The ERP solution is expected to reap many benefits which include but are not limited to the following:

- Lower cost per transaction and reduced transaction time.
- Repeatability of and aligned reporting.
- Transparency and accountability.
- Improved job management.
- Revenue and expenditure management.
- Unified view of information through a single dashboard.
- Increased functionalities such as Project Costing, Contract Management, etc.
- Online access for internal and external customers.
- Visibility across the organization for information sharing.
- Standardization of processes.

The modules within the Financial Package can be easily integrated with other applications such as Customer Information System (CIS), HR/Payroll System and Work/Job Management Package, which have been identified for future implementation by the Authority. The following are the major benefits of integration:

- Provides an organization with a common business language.
- Increases the coordination between departments.
- Business workflow orientation versus stand-alone applications.
- Real-time “ripple” effect of data through all business functions.
- Seamless integration of data between business functions (e.g., automatic financial postings based on transactional processing in all modules).
- One-time data entry ensuring data consistency and reliability

by sharing information between modules.

Critical to the implementation of the Financial Package was the acquisition and installation of two (2) Oracle Sun Database Servers in 2012 to replace two (2) database servers which were purchased in 2002 and 2004 and have reached end-of-life. Commissioning of the new servers have mitigated against previously experienced challenges such as recurring disk failures and intermittent loss of data. In addition, there has been a vast improvement in performance, coupled with high availability and reliability of the mission critical databases. These servers provide the backbone for the implementation of the Financial Package.

With a focus on availability and recoverability of services in the event of a disaster, the Authority has constructed a Disaster Recovery Site which will house one (1) of the new servers. The server has been allocated for the replication of databases and applications to support corporate level functions thus ensuring business continuity, while safeguarding the information assets of the Authority. Currently, infrastructure works are being undertaken to accommodate the IT equipment and is expected to be completed in December 2013.

With the full-time dedication of the WASA team members and the implementation consultants, the project which commenced September 30, 2013 is scheduled to go live in June 2014. The implementation is considered one of the largest IT investments in the history of the organization and will result in improved business processes, improved work flows and reduced operating cost.



Doodnath Bohola
Director Corporate Services

WASA converts to CNG



1st vehicle converted to CNG

W

ASA has successfully completed the conversion of its first vehicle from the use of diesel to Compressed Natural Gas (CNG), as part of a pilot project in keeping with an initiative of the Government to encourage the conversion of transport, commercial, government and state vehicles to the use of CNG. CNG is considered a major alternate source of vehicular fuel in Trinidad and Tobago and the promotion of its wide use is being spearheaded by the Ministry of Energy. The use of CNG also supports the work of the Ministry of the Environment and Water Resources as it relates to the protection and preservation of the environment.

Authority will save **50%** on the cost of fuel per vehicle, as well as reduce maintenance cost due to less engine wear

In August 2013, WASA commenced the pilot project with two vehicles identified for conversion - a dump truck and a water tanker. The dump truck has since been fully converted and is in operation, while the water tanker is still undergoing modification works and will hit the road by October end.

Following the conversion of the two vehicles, the Authority plans to proceed similarly with six additional pieces of heavy equipment in its fleet i.e. two (2) Flat tray Trucks, two (2) Dump Trucks and two (2) Water Trucks, over a period of approximately 10 months. This initiative is expected to cost some \$750,000.00 and will save the Authority 50% on the cost of fuel per vehicle, as well as reduce maintenance cost due to less engine wear from the use of CNG.

Apart from the environmental benefits of switching from diesel and gasoline use to CNG, there are economic advantages. CNG is currently less than half the price of super gasoline resulting in substantial savings in fuel costs. It is also cleaner since CNG contains no additives and burns cleanly leaving no by-products of combustion to contaminate the spark plugs and engine oil of a vehicle. CNG is Greener resulting in harmful emissions such as Carbon Dioxide CO₂ and Nitrogen Oxides being reduced by as much as 35% and 30% respectively when compared to traditional liquid transportation fuels. The use of CNG is also safer: as its components are made to international standards and are tested to ensure safe performance.

All vehicles that have been converted to CNG will be clearly identifiable with the use of stickers.

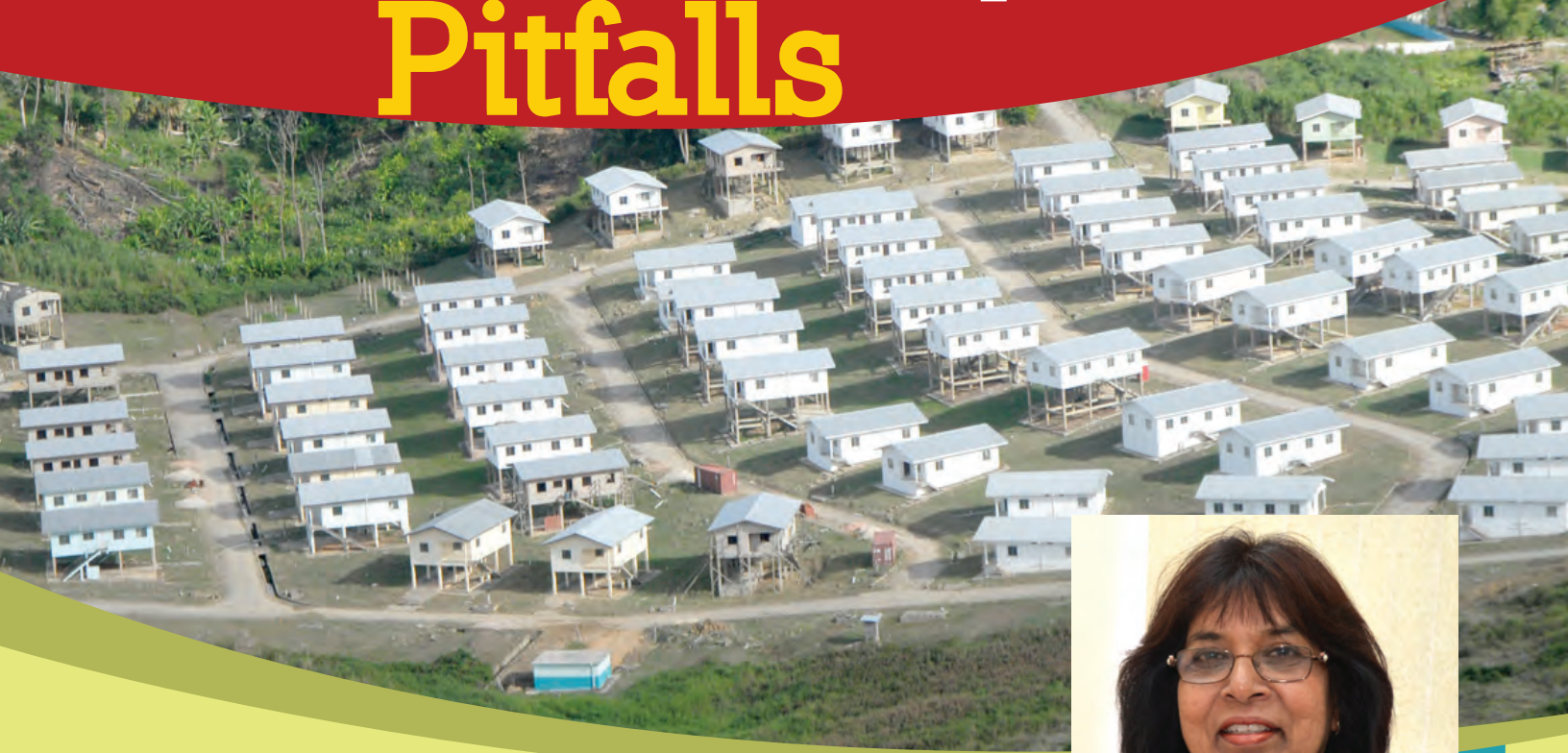


Kenny Brooks of the Central Workshop Facility in action as he uses the lathe machine to modify pistons as part of the conversion process



Stephen Brizan of the Transport Department fitting the engine to the newly converted CNG dump truck

Avoiding the Land Development Pitfalls



Land development in Trinidad and Tobago invariably requires the approval of the Water and Sewerage Authority for the establishment of water and wastewater infrastructure. The Authority in keeping with its mandate as established by the Water and Sewerage Act, Chapter 54:40 regulates the development of water and wastewater infrastructure to ensure that an adequate supply of water is provided to customers and that wastewater is safely collected, treated and disposed, ensuring that public and environmental health is safeguarded.

Where land development is undertaken the developer submit applications to the Authority's New Services Department on prescribed forms for the construction of water reticulation and wastewater disposal systems. The Authority considers the application by conducting both a water supply and wastewater disposal feasibility, resulting in the granting of an Outline Approval. The Outline Approval advises the applicant that their proposed development is feasible and outlines the requirements for water supply and wastewater disposal.

Applicants are then required to submit to the New Services Department designs of both water reticulation and wastewater disposal system for the proposed development. The designs are reviewed and once in conformance with the set standards. Final Design Approval is granted. At this stage the applicant submits a schedule of works for construction and request inspections by the Authority of the water reticulation and wastewater disposal system as they are being constructed.



Carol Dos Santos
Snr. Manager Customer Business Services

The Authority witnesses many developments being outfitted with pipelines and appurtenances manufactured with inferior quality materials

Sustaining the Flow

The Water and Sewerage Authority of Trinidad and Tobago remains focused on its mandate to provide a safe and reliable potable water supply to the people of Trinidad and Tobago as part of a wider commitment to our nation's socio-economic development.

Check out our website www.wasa.gov.tt



WASA Trinidad & Tobago



Follow us on Twitter

@wasatnt



*"Water Security for Every Sector.
Deliver it. Sustain it."*



After the water reticulation systems are installed, inspected, tested and found to be in accordance with the standards of the Authority an interconnection to the Authority's existing network is carried out by the Authority's personnel, with the cost of such interconnection defrayed by the applicant. Wastewater disposal systems are also inspected for conformance to the standards of the Authority.

Upon successful inspection, testing and connection of the water reticulation system and wastewater disposal system of a development, the Authority issues a completion certificate.

There has been some confusion by persons engaging in land development about the process required for the installation of water infrastructure and wastewater disposal systems on their developments. This has manifested itself in instances where developers have installed water mains on their lands, only to be refused approvals by the various Regional Corporations as they have not obtained the prior approvals of the Authority, resulting in higher cost of development to these developers. In addition applications submitted to the Authority results in several rejections at the design approval stage due to inconsistent designs by various consultants.

At the inspection stage the Authority witnesses many developments being outfitted with pipelines and appurtenances manufactured with inferior quality materials. The removal of these and refitting with materials and appurtenances of appropriate materials can be costly to developers.

An HDC development at Golconda

There has been some confusion by persons engaging in land development about the process required for the installation of water infrastructure and wastewater disposal systems

The Authority having identified the deficiencies in the private development industry has embarked on a programme of updating the National Plumbing Code as well as, developing a Code of Practice for the design and installation of water reticulation and wastewater disposal systems in Trinidad and Tobago. In addition the Authority has also embarked through its Workforce Assessment Centre, on a programme of training Licensed Sanitary Constructors in the application of the correct standards and methods for water reticulation and wastewater disposal system designs and installation.

Measuring our service at the frontlines



Mr. Indar Maharaj
Chairman



Customer satisfaction is at the core of a customer's experience, reflecting their like or dislike of a company's business activities, services and products. It is also among our developmental pillars the others being revenue enhancement; cost optimisation and human capital development. The routine measurement of an organisation's performance in the core business area of customer service offers a good gauge on how satisfied is the customer with services provided.

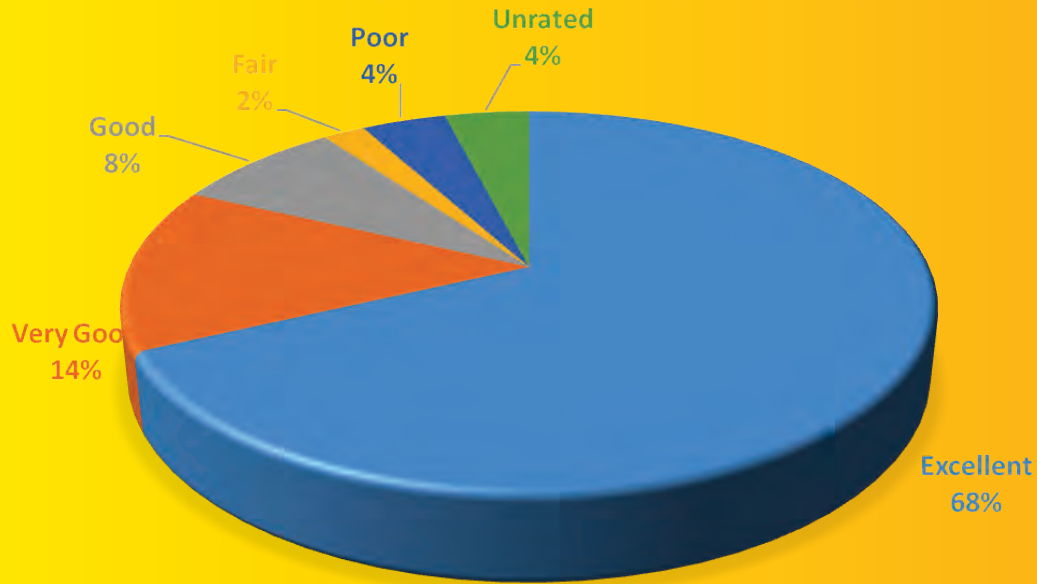
Customer care and ultimately their satisfaction play a pivotal role in the operations of the Authority. So much so that over the last fiscal year the Authority has been actively engaged in a number of Customer Service Improvement strategies. To this end a customer satisfaction survey was conducted by the Customer Care Division to measure satisfaction levels with the Authority's face of service that is the face to face interaction with the service representatives at our ten service centres. The results returned are a definite signal that the Authority is heading in the right direction.

Based on a scale of one (1) to five (5), with one being the lowest (Poor) and five the highest (Excellent), 75% and over of the customers polled give our service representatives a rating of very good to excellent.

Customer care and ultimately their satisfaction play a pivotal role in the operations of the Authority

Perception	5	4	3	2	1
Staff was pleasant courteous and eager to serve	69%	16%	4%	1%	3%
Knowledge of transaction displayed by staff	68%	14%	1%	1%	2%
Advice given by staff was relevant	64%	14%	4%	1%	1%

OVERALL SERVICE RATING



When looking at overall grade in terms of customer satisfaction 68% of customers visiting our centres rated the service received as excellent.

These results though favourable will be used in the development of strategies to continuously improve upon our Customer Care delivery, towards the organisational goal of water security for every sector.

Apart from the internal measures established for capturing data on key performance areas, in October 2013, HHB and Associates will conduct a national customer satisfaction survey on behalf of the Authority, which would provide an independent assessment of the organisation.

Customers wait in line at WASA's St Joseph Customer Service Centre



TOWARDS WATER FOR ALL

How We Got to 49 percent 24/7 National Water Supply Coverage

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 have embarked on a plan of transformation.

On 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 this year, 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 in T&T.



Ramchand Ramcharan
Director Programmes and
Change Management

Meeting Our Mandate

In 2010, the total potable water production was 224 million gallons daily (mgd) with the deficit calculated to be 38 mgd.

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. The following have been completed:

- 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

The water supply was increased by 8.4 mgd.

In addition, works have been completed to replace leaking pipelines including the Navet Trunk Main, Hollis Trunk Main South, Maracas Royal Road and many others, to save an estimated 3.0 mgd. This was part of a transmission system upgrade where over 150 km of pipeline were laid.



Ramchand Mahabir, wife Hemwati and daughter Priya tend to their plants at home in Cunupia.



Senator the Honourable Ganga Singh, Minister of the Environment and Water Resources unveils the cornerstone at the commissioning ceremony for the Biche Water Improvement Project at the Biche Booster Station. Looking on from left to right are Gerard Yorke, CEO, WASA; the Honourable Collin Partap, Member of Parliament for Cumuto/Manzanilla; the Honourable Winston Peters, Minister of Community Development and Member of Parliament for Mayaro; His Excellency Harry Partap, High Commissioner to the Republic of South Africa; and Indar Maharaj, Chairman, WASA.

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 pipe being installed at a cost of \$474M.

Project Achievements

More recently, WASA completed several new projects that dramatically improved supply for members of communities throughout the nation:

- **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 Point Fortin Desalination Plant** gave over 30,000 residents of Point Fortin and parts of La Brea, a 5-7 day supply of water.
- **Biche Water Improvement Project** provided 4,000 residents in 499 households in Biche and Plum Mitán a 24/7 water supply.
- **Chase Village Pipeline Project** provided 5,000 residents with a 24/7 supply.



Ongoing and Upcoming Projects

In terms of new supplies, the expansion of the Point Lisas Desalination Plant is currently in progress to have an additional average 10 mgd produced. Contractually, the supply is to be increased from 24 mgd to 40 mgd, but flows of 30 mgd are currently being achieved. In addition, a Reuse Plant is proposed to utilise the effluent from the Beetham Wastewater Treatment Plant to produce industrial-quality water for customers at the Point Lisas Industrial Estate with a production capacity of 11 mgd. Six wells are proposed in Point Fortin, Santa Cruz and Port of Spain to produce 0.8 mgd in 2014. With these measures, an additional 21.8 mgd will be made available, reducing the deficit to 4.8 mgd.

Demand is projected to be reduced through the commencement of a Universal Metering Programme commencing in north-west Trinidad and being expanded to 20 percent of population, realising a reduction of 3.6 mgd. The overall level of Unaccounted for Water (UFW) is projected to be reduced by 5 percent through this initiative and others. With these measures in place, the global demand should be satisfied.

Building on a Firm Foundation

Having already spent in excess of \$450M on water infrastructure upgrades, further development is proposed. To build on the improvements realised to date, work has commenced on the replacement of 44 km of the aged Hollis Trunk Main between Port of Spain and Valencia to reduce leakage and improve service to customers along the East-West Corridor. In addition, upgrade of the transmission system in Tobago continues with the recent installation of a new transmission main between Bacolet and Signal Hill.

In preparation to continue the thrust in mains replacement, pipes have been purchased for the installation of a 44-inch diameter Dual Caroni South Trunk Main to improve the efficiency and reliability of this system.

L-R: Gerard Yorke, CEO, WASA; Indar Maharaj, Chairman, WASA; Paula Gopee-Scoon, MP for Point Fortin; Senator the Honourable Ganga Singh, Minister of the Environment and Water Resources; Keith Gilges, Head – Political & Economic Section, US Embassy; John Curtis, President, Seven Seas Water Corporation; and Robert D. Dixon, CEO, Seven Seas Water Corporation, at the unveiling of a cornerstone to commemorate the commissioning of the Point Fortin Desalination Plant which is owned by Seven Seas Water Corporation.

While these are the larger projects, works have commenced to increase potable water production, transmission, storage and distribution capacities while improving on the reliability of the infrastructure. Projects include the rehabilitation of several water treatment plants, installation of key transmission pipelines, construction of new booster pump stations and installation of storage reservoirs. A total population of approximately 140,000 persons have benefitted from improved service from the projects undertaken thus far.

Water for Communities

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.



Senator the Honourable Ganga Singh and Assemblyman Handel Beckles, unveil the cornerstone to commemorate the commissioning of the Bacolet to Signal Hill Transmission Main Project. Looking on L-R: acting Permanent Secretary, Ministry of Environment and Water Resources, Vidiah Ramkhelawan; Member of Parliament for Tobago East, the Honourable Vernella Alleyne-Toppin; and Commissioner, Hewlett Waldron.

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.

Wastewater

In the area of wastewater, works were recently completed at Chaguaramas to reduce pollution of the environment due to a leaking submarine sewer across Williams Bay. Sewage is now being transmitted to the Point Gourde Wastewater Treatment Plant for treatment and the safe discharge of effluent.

Major expansions of the collection and treatment facilities have been initiated through the Inter – American Development Bank (IDB) including:

- Integration of 8 wastewater systems in Maloney
- Integration of 2 wastewater systems in Cunupia



Nelville and Lynette Douglas, residents of Techier Village water their garden.



Hillsborough Water Treatment Plant

- Expansion of collection systems and treatment facilities at Malabar and San Fernando
- Rehabilitation of the Scarborough Wastewater

Treatment Plant and connection of 215 properties to the collection system (under Caribbean Regional Fund for Wastewater (CReW))

Collectively, funding has been secured to the value of US\$278M. US\$246M of this represents the first component of a multi-phase loan of US\$546M to undertake works at Malabar and San Fernando.

The other major initiative in wastewater is the rehabilitation and extension of the sewerage system in south-west Tobago, with treatment to be effected at waste stabilisation ponds at Bon Accord and Samaan Grove.



Senator the Honourable Ganga Singh turns the tap at the Chandernagore Presbyterian Primary School to formally commission the Chase Village Pipeline Project alongside, Minister of State in the Ministry of the Environment and Water Resources, Ramona Ramdial, Indar Maharaj, Chairman WASA Board of Commissioners and Gerard Yorke, Acting CEO WASA.

In addition, steps have been initiated to address some of the chronic problems being experienced in collection and treatment systems. Installation of new sewers along the Vistabella River in San Fernando and several streets in Port of Spain will replace existing pipes. The rehabilitation of a number of wastewater treatment plants will improve the effluent quality and reduce the negative impact on the environment.

Towards Viability

In working towards financial viability, the Authority intensified its revenue collection, achieving the highest annual collection of \$727M in fiscal year 2011-2012. For fiscal year 2012-2013, collections increased to \$867M, \$140M over the previous year's performance. This was done through an aggressive collection

strategy, as well as an increase in the Water Improvement Rate for the Point Lisas Industrial Estate. New business winning strategies are also being pursued.

Customer Satisfaction

As a culmination of the Authority's efforts, the last MORI Poll conducted in May-June 2011 showed a 67 percent customer satisfaction rating was achieved, an improvement of 30 percent from the previous poll.

WASA is now acting on measures towards implementation in 2014 and beyond, aimed at improving the level of service to customers in both water and wastewater while it continues its journey towards becoming the best water utility in the Western hemisphere.



Workers position new transmission line at Quare, Valencia



PROTECT YOUR FAMILY!

Fact:

The Influenza A (H1N1) virus or swine flu is spread between humans in the same fashion as common and seasonal flu.

Fact:

Clean & White Bleach protects your family. Use it as a disinfectant on frequently touched surfaces. Simply mix 1 gallon of water to 3/4 cups Clean & White Bleach and use on surfaces.



Everyday... *a different way!*





Raffie David
Head Tobago Affairs

24/7 supply for TOBAGO by 2014

A scheduled supply will be a “thing of the past” by the end of 2014 for residents of Tobago. This, as our Tobago Services is well on it’s a way to delivering a 24/7 water supply to customers on the sister isle. In 2013, WASA Tobago Services successfully surpassed its target to provide 24/7 supply to fifty percent of its customers providing sixty seven percent 24/7 coverage instead. This was achieved with three major projects which incorporated the replacement and modernization of the pipeline infrastructure in Arnos Vale, Bacolet to Signal Hill and the Courland to Buccoo project.

An estimated 24,650 domestic and commercial customers have benefitted from these projects in Tobago at a total cost of \$59 million dollars. WASA Tobago Services is now moving apace to meeting its targeted objective for all of Tobago. This milestone will be achieved through five (5) projects that will ensure a 24/7 water supply for all areas now receiving a scheduled supply. These projects are the Culloden pipeline replacement project, the Bloody Bay pipeline project, the commissioning of the Louis D’or Well, the installation of storage tanks in Bloody Bay and Charlotteville and a Pressure Management project which is ongoing.

The Culloden Pipeline Project, which is expected to commence by year end 2013, will bring the areas of Culloden, Golden Lane, Mt. Thomas and Moriah from a 24/2 to a 24/7-supply. The project’s scope of works entail the installation of 3 km of 6” PVC pipeline. The three phased project has already been awarded to P.O.B Plumbing, J. Peters Construction and Equipment Services and J.A.C. and Company Limited.

Castara, Bloody Bay, Parlatuvier and L’ Anse Fourmi will also receive a 24/7 supply with the laying of 200mm Ductile Iron Pipe. This project will be conducted in-house and will involve two phases: Phase 1. which is projected to start in November 2013, will consist of the laying of 3km of 8” Ductile iron from Bloody Bay Plant to Bloody Bay/Parlatuvier Junction; Phase 2 , the laying of 6km of 8” Ductile iron from the Bloody Junction to Englishman’s Bay Well .

WASA Tobago
Services is now
moving apace
to meeting its
targeted objective
for all of Tobago

An estimated
24,650
domestic and commercial
customers have benefitted
from these projects in
Tobago at a total cost of
\$59 million dollars



A 16 inch ductile iron pipe being installed at Courland Water Treatment Plant (Courland to Buccoo Pipeline Project)

The aforementioned areas will further receive a regular and reliable supply with the installation of an additional storage tank in Bloody Bay. This installation will increase storage in Bloody Bay from 5,000 to 50,000 gallons. The tourism oriented area of Charlotteville will also benefit from the installation of an additional tank with a storage capacity of 100,000 gallons, which is double the current capacity of 50,000 gallons.

Louis D'or Well commissioning will enhance the water supply for residents of Delaford (Windsor and John Gully), Louis D'or Settlement and Betsy's Hope. In addition, Roxborough, Pembroke and Goodwood will receive an improved supply, since the well will offer greater flexibility with Richmond W.T.P. Similarly, Lucy Vale and Top Hill- Speyside will obtain a better supply from King's Bay W.T.P.



Ms Fanta Carrington –Signal Hill villager watering her kitchen garden

Finally, the ongoing Pressure Management project will boost the supply to many areas via the installation of pressure reducing valves. The replacement and installation of pipelines throughout the island has posed a challenge where low points areas are encountering frequent burst lines due to high pressures while the elevated areas receive no water. As such, pressure reducing valves have been installed in Bethel, Signal Hill, Speyside, Castara, Lambeau, Carnbee, Charlotteville, and Spring Garden which have a diverse terrains. The installation of these valves have reduced high pressures in the low lying areas whilst affording the high points a 24/7 supply. This ongoing project will continue as more pipe laying projects are completed.

The Culloden and Bloody Bay pipeline projects, the commissioning of the Louis D'or Well, added to installation of storage tanks at Bloody Bay and Charlotteville and the installation of pressure reducing valves will definitely boost the water supply on the island. This milestone once accomplished will make Tobago a model for 24/7 supply in the country.



Sluce valve installation at the Courland to Buccoo Pipeline Project



Wastewater Expansion and Rehabilitation –

Helping to safeguard the environment

A wastewater plant at Edinburgh 500

In the first edition of “Waterworld”, readers were informed of the major capital investment taking place in the wastewater sector in Trinidad and Tobago. This capital investment represents Government’s and WASA’s intervention towards curbing the uncontrolled discharge of wastewater into the open environment, specifically in the Malabar, San Fernando and Maloney Catchments.

At present, the Wastewater Projects Unit (WWPU) under the leadership of the Director Programmes and Change Management, Ramchand Ramcharan, is implementing various Inter-American Development Bank (IDB) initiatives, including two (2) multi-million dollar loans and grant funding under two (2) Technical Co-operations. This article is the second, in what will be a series of articles to follow; that will be geared towards capturing the ongoing works made possible with the signing of Loan No. 2890/OC-TT (TT-L1026) Multi-Phase Wastewater Rehabilitation Program – Phase 1 valued at US \$246,500,000.00 and Loan No. 2600/OC-TT (TT-L1018) Wastewater Infrastructure Improvement Program valued at US \$50,000,000.00.

Loan No. 2890/OC-TT (TT-L1026) Multi-Phase Wastewater Rehabilitation Program – Phase 1

Loan 2890/OC-TT is comprised of two components. Component I: will finance the construction of two wastewater treatment plants

and the associated collection system in the San Fernando and Malabar catchment, Component II: Institutional Strengthening of WASA will fund activities related to the initiation of policy and institutional reforms at WASA, as well as institutional restructuring and capacity building.

Component I (Description of Works)

Works within the San Fernando Project includes the Infrastructure works for the construction of a 45 Million Litres per day (45ML/d) wastewater treatment plant; the construction of Gravity trunk sewers, north of Cipero River using “trenchless” techniques and tie-in to existing sewer areas; the decommissioning of the West Park and Corinth Wastewater Treatment Plants, the decommissioning of the Tarouba North, Tarouba Heights, Pleasantville and Union Hall 1 & 2 Lift Stations, and the construction of new sewer connections. Further, there is an access road and bridge which is a prerequisite to the works at the San Fernando Wastewater Treatment Plant; these works are currently under construction.

Works in the Malabar Catchment entail the construction of a 40 Million Litres per day (40ML/d) wastewater treatment plant; three (3) lift stations in Arima, La Horquetta, and O’Connor Drive, installation of 12 km of new sewers,

construction of new Sewer Service connections, and the decommissioning of three (3) Wastewater Treatment Plants and one (1) lift station.

Component II

Component II aims to implement key actions to improve corporate governance (such as development of comprehensive corporate governance policies, improvement of the current information management policies and disclosure practices, training on risk management and control systems, and the strengthening of audit and internal control practices); training activities on contract management of outsourced operations, operation and maintenance, and environmental management.

Loan No. 2600/OC-TT – WASA Modernization and Wastewater Infrastructure Rehabilitation

Loan Contract No. 2600/OC-TT amounts to Fifty Million United States Dollars (US\$50,000,000.00) and falls under the Program “WASA Modernization and Wastewater Infrastructure Rehabilitation.” The general objective of the Program is to improve the environmental conditions of Trinidad and Tobago, by increasing the amount of wastewater treated, and to improve WASA’s efficiency, by supporting the reorganization of its personnel structure and reducing personnel costs.

The specific objectives of the Program include the takeover, refurbishment, upgrade, integration or decommissioning of malfunctioning wastewater treatment facilities; the rationalization of WASA’s personnel; and the improvement of WASA’s wastewater management operational and maintenance performance. The program is divided into three main components as follows:

- Component 1: Improvement of Trinidad and Tobago’s Wastewater System
- Component 11: Reorganization of WASA
- Component 111: Institutional Strengthening of WASA in Wastewater Management.

Component I:

Component I relies on technical studies financed through the IDB funded Technical Corporation ATN/OC-11932-TT. This component will finance the civil works related to the refurbishment, upgrade, and integration or decommissioning of malfunctioning wastewater treatment plants in the Maloney Catchment with a total budgeted cost of Twenty-Eight Million, Nine Hundred and Thirty-Five Thousand United States dollars (US\$28,935,000). The Maloney sub-catchment was selected based on a prioritization matrix using criteria that included geographical, environmental as well as economic indicators. Resources allocated to this component will be used to interconnect eight existing wastewater treatment plants at Lynton Gardens, Lillian Heights, La Florissante, Bregon Park, Timberland Development, La Resource, Santa Monica Gardens and Maloney Gardens.

Component II:

Component II benefits from the inputs of technical studies that focused on the preparation of a transformational analysis for WASA (including definition of critical personnel roles within WASA; optimal size for divisions and departments; performance considerations). The



Wastewater Project Team walking the trunk routes in San Fernando with Surveyors to confirm location of manholes. (IDB loan, No. 2890/OC-TT)



Pre-Bid site visit held with Contractors, Purchasing and Stores, Supervising Engineer and Wastewater Projects Team in the Maloney Catchment, under IDB Loan No 2600/OC-TT



Pre-Bid site visit held with Contractors, Purchasing and Stores and Wastewater Projects Team in the San Fernando Catchment, under IDB Loan No 2890/OC-TT.

total budgeted cost for this component is Twenty Million United States dollars (US\$20,000,000).

Component III:

Complementing the activities financed through ATN/OC-11932-TT on standard operating procedures development, Component III will address WASA’s institutional strengthening needs, focusing on wastewater management. The total budgeted cost for this component is Six Hundred and Twenty Five Thousand United States dollars (US\$625,000) and includes preparation of Operation and Maintenance (O&M) manuals for the new system and assets; training activities on O&M and the newly created standard operating procedures (SOPs) for the improved wastewater systems; training on environmental safeguards, and support to WASA’s water quality monitoring program.



Project Implementation Unit –

Responsible For Managing WASA's Infrastructural Projects



Frederick Vasey
Head Project Implementation

The Project Implementation Unit (PIU), under the Programmes and Change Management Division, is charged with the responsibility of ensuring that the organisation's plant and infrastructure are in place to adequately manage the varying needs of the water sector. Project Implementation is also charged with the delivery of the Authority's Capital Projects.

The Unit's portfolio does not only include pipeline projects but also include the delivery of specialist projects including the following:

Wastewater

Vistabella Trunk Sewer Replacement Project: The repair/re-construction

GOSINE

ENTERPRISES LIMITED

GENERAL CONTRACTORS

Transport and Equipment Rental:
Dump Trucks, Backhoes, D4, D6,
D8, Bobcats, Rollers Hiab, Cranes,
Loaders, Excavators
(inc. Amphibious) and
Lowboy Trailers.



GOSINE
ENTERPRISES LIMITED
26 6th COMPANY ROAD
MATILDA, PRINCES TOWN

TEL: 655 7196 • FAX: 655-5628
EMAIL:
mookishgosine@hotmail.com





Thrust blocks being constructed at the Vistabella Sewer Main Replacement Project

of the 762 mm diameter Vistabella Sewer Trunk Main, located along the Vistabella River, Pointe-a-Pierre Road, Vistabella.

Land slippage of the roadway along Pointe-a-Pierre Road and the surrounding land has contributed in part to the dislodging of a section of the main, as a consequence of the damage to this sewer, raw sewage was entering the environment.

The project, which is being executed by Trinidad Contractors Limited (TCL), entails the construction of a river wall and the replacement of approximately 250 meters of sewer trunk mains along the southern bank of the Vistabella River.

PIU is also responsible for a programme of works being undertaken to upgrade wastewater treatment plants at Cantaro, Santa Cruz, Orangefield, Bon Air, Arouca, Mountain View, Maracas, St. Joseph, Lange Park, Edinburgh 500 and Orchard Gardens, Chaguanas. It is scheduled to be completed in November 2013.

Metering

A key component of the Authority's Water Demand Management efforts is the commencement of a Universal Metering programme that would see the installation of 8,000 domestic meters in North-West Trinidad over a one year period, with an additional 30,000 meters being installed nationwide by 2016.

Internationally, it has been shown that the installation of meters, coupled with an appropriate tariff has resulted in a reduction in domestic usage by as much as 30%.

Other benefits of universal metering include:

- Fairer system of payments since you pay only for what you use**
- Reduction of customer side leakage**
- Improved supply availability**



Navet Trunk Main Project

PIU ... delivering the Authority's Capital Projects

Maracas Royal Road Pipeline Replacement:

This project entails the construction of 7 kilometers of 400mm and 300mm diameter transmissions mains and 8.5 kilometers of 150mm diameter distribution pipelines along the Maracas Royal Road from Freeman Road to Santa Rita Road that will benefit an estimated 12,000 residents of Maracas Valley. The project commenced in May 2012 and was completed in August 2013.

The Project Implementation Unit will continue to deliver and strive for better quality higher standards at all levels to ensure the Authority accomplishes its goal of becoming a premier public utility service provider to all.

WASA

on a good governance path

Corporate Governance has been defined as "... the system by which companies are directed and managed. It influences how the objectives of the company are set and achieved, how risk is monitored and assessed, and how performance is optimized." In the WASA context it speaks to relationships between the Board and Executive Management and our stakeholders such as the Government and the public; and the systems and structures put in place to ensure the achievement our main objective of providing water for all. It is therefore very important that we get governance right, since everything else "flows" from there.

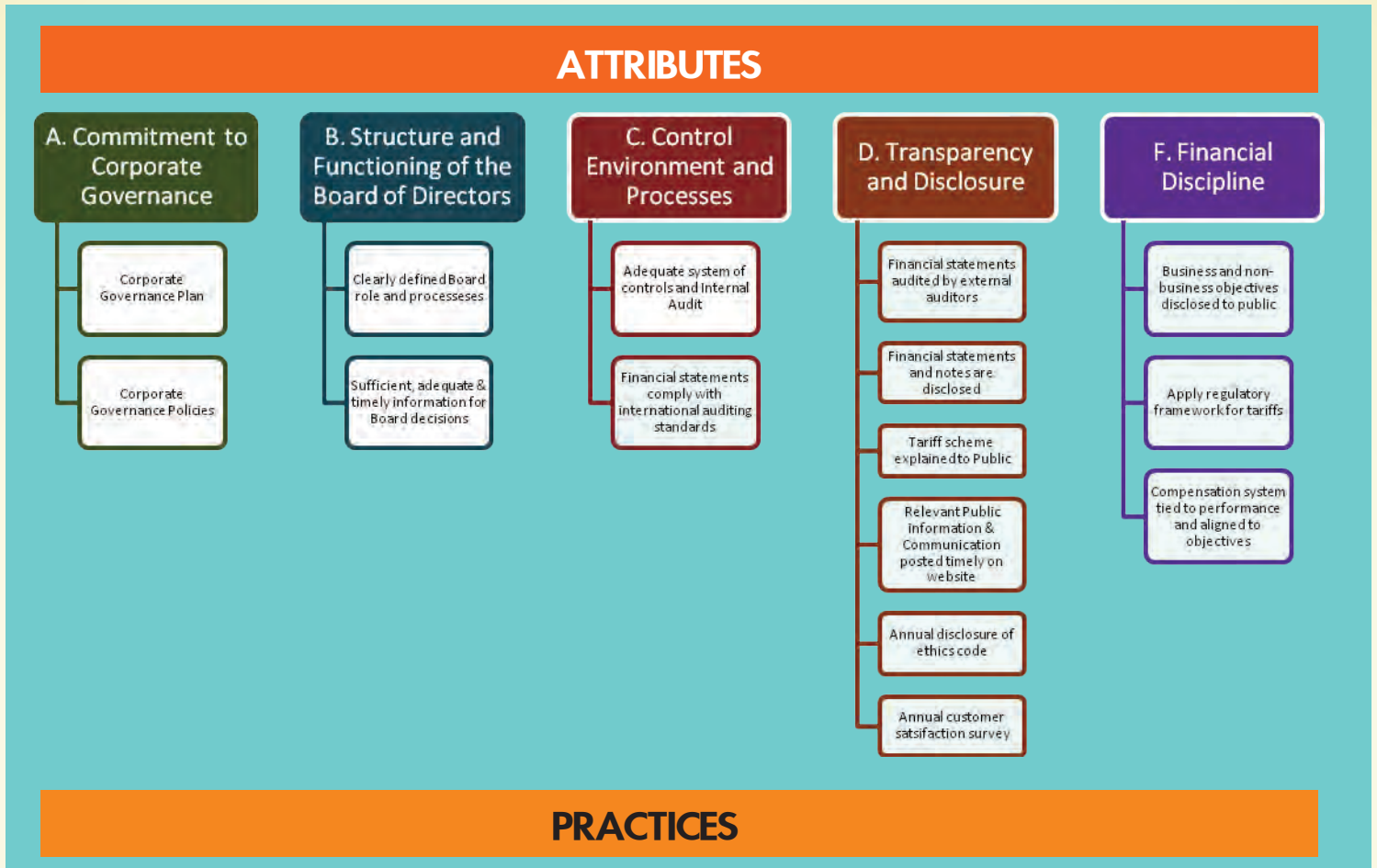


Good corporate governance has been hailed the world over as an absolute necessity for successful organizations. This continues to be a challenge for both private and public sector companies especially state enterprises in this country. The global corporate scandals of yester-year and even those here in Trinidad and Tobago have directly been linked to the poor governance practices taking place in those organizations. Some of these organizations have had major restructuring of their governance processes in order to survive as an entity; other organizations have simply not recovered from their governance lapses.



Penelope Williams
Head Internal Audit and Compliance

The Authority is therefore taking proactive steps to strengthen and transform our Governance model. For instance, with the Inter-American Development Bank intervention, the Authority has set up a task force chaired by the Corporate Secretary and General Counsel, Dion Abdool, to develop a Corporate Governance (CG) Action Plan for the Authority. This CG action plan is based on internationally recognized attributes and practices of good corporate governance, and once implemented these will ensure that WASA's governance structures are among the best in the country and that the Authority is well poised to meet its objectives. Some of the attributes and practices being implemented are as follows:



A two-day Corporate Governance Workshop was held at the Trinidad Hilton Hotel and Conference Centre on 3rd and 4th September, 2013 where the acting Chief Executive Officer, Gerard Yorke, assured the support of the organisation for the objectives being pursued by the Corporate Governance Task Force as articulated in its Corporate Governance Action Plan. This workshop was administered by our internal consultant, Fidel Cuellar who reviewed the progress made thus far on implementation of divisional projects under the CG Action Plan. These individual projects when implemented are key drivers towards creating transparency, governance and a new WASA.

The Authority is also currently involved in two consultancies that would directly impact the way the organisation is governed and directed. These consultancies relate to the implementation of an organization wide enterprise risk management framework and the development of a Disaster Preparedness with Business Continuity program for the Authority. This will be the first time in the Authority's history that there will be co-ordinated enterprise wide risk management and business continuity. The Authority will therefore be in a position to identify, assess and respond to



Left: General Counsel & Corporate Secretary, Dion Abdool, shares a point with participants during day one of the CG Workshop. Standing in background is facilitator of the workshop Consultant, Fidel Cuellar

current and emerging risks facing the organization and will have an overall system for dealing with and reacting to natural disasters and other emergencies. Certainly these represent a significant and positive shift in WASA's governance model.

Internal Audit has long been recognized as a key pillar of good corporate governance in organizations; the others being the Board, External Auditors and Management. As such the Authority's Internal Audit and Compliance Department actively supports the above mentioned governance initiatives and will continue to monitor these to ensure their success. This is in line with international best practices which require Internal Audit to assess and make recommendations to improve governance processes that ensure the Authority's accomplishment of the following objectives:

- Promoting appropriate ethics and values within the organization;
- Ensuring effective organisational performance management and accountability;
- Communicating risk and control information to appropriate areas of the organization; and
- Coordinating the activities of and communicating information among the board, external and internal auditors, and management.

In conclusion:



Cultivating a Safety Culture

The safety culture of an organization can be described as an atmosphere where safety and health is understood to be, and is accepted as a core value and given high priority. The management of safety and health must not be treated as a cost, but as a way to improve the performance of the organization and must be embraced by everyone. Safety and health must be integrated into every aspect of the organisation's activities.

The key to cultivating a positive and proactive safety culture is to secure two types of commitment - from the organizational level and the employee level. The lead for change must be driven by the leadership through their enthusiasm and active involvement and their willingness to commit resources to safety. On the other hand, employees must commit to co-operate with the leadership in all efforts to improve safety and health in the workplace. There must be belief by everyone throughout the organization that safety is worth the commitment of time and resources.

Safety culture can be influenced by attitudes, the environment in which people work and the systems in place for managing safety and health (see diagram 1). When the right conditions exist, the organization's culture changes from one in which the emphasis is on the policing approach to ensure compliance with safety and health requirements to an environment in which all employees take individual responsibility for their safety and the safety of others. In other words employees do the right thing of their own accord.

ATTITUDES

- Senior management
- Middle management
- Supervisors
- Workers
- Safety and Health representatives and committee members
- Other stakeholders like Contractors

ENVIRONMENT

- Type of organisation
- Financial status
- Types of work performed
- Job design
- Pace of work
- Site safety and health plan
- Training available
- Safety and health reps and committees
- Lines of communication
- Incidence and injury cases

Trust is also an essential requirement for the cultivating of a good safety culture. Everyone in the organisation should feel comfortable to correct unsafe practices regardless of who may be involved and be encouraged to report incidents. People at all levels must be accountable for safety.

Management systems, safety systems and individual attitudes and perceptions must be measured and analysed to identify barriers that prevent people from performing at their best. These findings can point to the need for modification of the existing systems and for training/retraining.

- Hazard reporting process
- Incidents reporting process
- Auditing processes
- Investigating processes
- Communicating and feedback systems

SYSTEMS

People who are provided with training and regular information about workplace safety and health are more likely to be mindful of safety and health issues and the ways in which their actions can affect themselves and others. Any initiatives for change need to take account of the interrelationship between people, environment and systems (see diagram 1).

Recognition, rewards, incentives, reinforcement and feedback are important. By celebrating success whether big or small, it makes it worthwhile for everyone to maintain focus on the benefits of a good safety culture. Safety culture is about improving safety management with a holistic, whole of organisation, whole of life approach.



General Earth Movers Limited

---Developing Nations---



Our design and construct solutions are evident through our complete project delivery chain from planning through design, construction supervision and asset handover

OFFICE: 1-868-657-3880

MOBILE: 1-868-732-8027



Profile

General Earth Movers Limited is a limited liability company based in San Fernando, Trinidad and Tobago.

The company offers a variety of integrated construction services such as Land Development, Building Construction, River Improvements, Road Construction, Bridge Construction, Asphalt Paving, Concrete Supply and Equipment rental to both the Public and Private Sectors.

The company engages specialist firms whose services include Quality Assurance and Quality Control.

Our Specialization

- ✓ Civil Engineering Works
- ✓ Construction and Rehabilitation of Potable & Waste Water Treatment Plants
- ✓ Land Development & Infrastructure works
- ✓ Bridge Construction
- ✓ Building Construction
- ✓ Landscaping, Road Paving & Repairs
- ✓ Drain Construction
- ✓ Earthmoving & General Contracting
- ✓ Heavy & Small Equipment Rentals
- ✓ Supplier of Ready Mix Concrete
- ✓ Manufacturer and Supplier of Asphaltic Mix
- ✓ Structural Steel Fabrication

6, Purcell Street, San Fernando, Trinidad, West Indies

Office: 1-868-657-3880 & 657-0208 | Mobile: 1-868-732-8027 | Fax: 1-868-653-0021

Website: www.gemltd.com | Email: info@gemltd.com



WRA's Rianna Gonzales takes on the Environmental Challenge

Mankind is encroaching on our forests and rivers at an alarming rate with activities such as burning of the forested areas to clear land for farming, the release of industrial waste into rivers, illegal quarrying, urbanization, unauthorized developments and unregulated tourism which all contribute to the degradation and depletion of our watersheds.

As employees of WASA, we can appreciate the negative impact that these poor environmental practices have on our watersheds, as we face a different host of challenges to supply clean, safe water to our customers.

In our very own twin-island state of Trinidad and Tobago, the watershed areas of the Northern Range are the most significant contributors to the freshwater supply. It is most vulnerable to erosion and degradation with most of the range experiencing human-induced ecosystem change.



Rianna Gonzales
Graduate Engineer Trainee

as citizens of this country, which is blessed with an abundance of natural resources, play a critical role in the preservation of this unique and fragile environment which affects our health and livelihood

The removal of vegetation, as well as, grading of land surface accelerates runoff into streams from rainfall which results in an increase in the volume and frequency of floods. We all know of the recurring problem with floods which causes significant damage to property and even loss of life; with the more recent examples in Diego Martin and Central Trinidad. However, not all is lost, as we can still do our part to protect our natural resources through environmental conservation, protection and preservation.

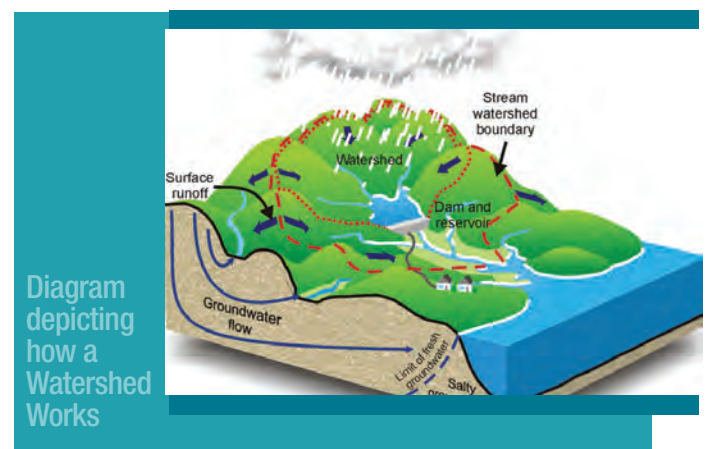
We as citizens of this country, which is blessed with an abundance of natural resources, play a critical role in the preservation of this unique and fragile environment which affects our health and livelihood. Governments throughout the world are appreciating the economic and social impact of poor environmental practices and the need to preserve our natural resources through environmental awareness initiatives. In particular, there is a significant percentage of the youth population in the world, filled with ideas and is demanding participation in programmes and activities relating to environmental affairs.

Having an appreciation for the natural environment, the resources and opportunities it provides for enjoyment, reflection and inspiration, youth environmental advocate, Rianna Gonzales of the Water Resources Agency, spoke to Waterworld about her involvement in connecting youth with nature in a way that inspires values of environmental stewardship, as well as, advocating for youth in environmental sustainability.

Rianna Gonzales, 28, a recipient of the 2012 Woman of the Year award for Environmental Work from the Network of NGO's for the Advancement of Women, first got involved in environmental preservation as a volunteer in night patrols and monitoring of endangered leatherback turtles with the UWI Biological Society. She also engaged in public awareness campaigns about preservation of the environment including the world's largest volunteer effort to clean up waterways and the ocean – International Coastal Cleanup. Rianna now leads the Trinidad and Tobago's Chapter of the Caribbean Youth Environment Network (CYEN) which is a non-profit organization established in 1993 with a purpose to provide a forum for young people to participate in the design development, implementation and promotion of new progressive and sustainable developmental policies and programmes across the Caribbean.

As part of her leading role, Rianna sensitizes youth on the importance of ensuring sustainable use of natural resources to protect human health and wellbeing. She provides the knowledge and skills needed through the Junior UpCyclers "Trash to Treasure" project for kindergarten and primary schools which involves activities such as using old cans and toilet paper rolls to make ornaments. Also the "Elements of Awareness" delivered under the schools outreach programme to raise awareness of local environmental concerns.

Rianna also partners with notable environmental advocacy organizations including the Global Water Partnership – Caribbean (GWP-C), Barbados Youth Development Council (BYDC), United Nations Environment Programme (UNEP) and the Commonwealth Youth Programme Caribbean Centre (CYPCC) to raise awareness on local and regional issues. The most recent project ongoing with the group is the creation of a position paper, formulating youth perspective which has received acceptance by the United Nations for Small Island Developing States in August 2013.



It is important that we find a sustainable balance to support the needs of mankind while ensuring the preservation and rehabilitation of our natural resources. When we do our part to protect the environment, we give future generations a chance to live and work happily on a healthy and thriving planet.

The Unsung Inventor Trevor Haddaway



Craftsman III, Trevor Haddaway displays his invention
'The Haddaway Plug'
at the D'Abadie/Tacarigua Area Office.



Systems Operator, Mitra Ragoonan demonstrates how
the valve is accessed at the Sangre Grande Pressure
Reducing Valve Chamber.

WASA Craftsman, Trevor Haddaway, has developed an innovative solution to a longstanding problem faced by the Authority as it pertains to the safety and accessibility to the many types of valves along the utility's transmission and distribution system. The invention referred to as the 'Haddaway Plug' is designed to seal the outlet of the valve chamber, which is used by system operators to access and operate the valve.

The Haddaway Plug is a cylinder-shaped plug made from concrete with a metal coil for easy detection by a valve locator, with a collapsible handle in the center. The device is customized to fit valve chamber access points ranging in sizes 4", 6", 8" and 12".

According to District Manager – North East, Joel Young, the theft of the metal valve cover is a recurring and costly problem that has negatively impacted field operations and maintenance since the valve chamber opening is left exposed to elements of the weather. Trevor's innovation has resolved this problem, as well as others such as allowing easier access to valves and preventing debris from entering the valve chamber, which will save on the need for frequent maintenance. The device also prevents unauthorized access to valves, as well as minimizes the risk of pedestrian injury or vehicular damage due to the unsealed opening in the valve chamber.

Trevor commenced his career at the Authority as a Craftsman I and is now a Craftsman III attached to the Authority's North East Distribution – Utility Team. His many years of service to the organization was recognised during a long service award ceremony in 2009. Trevor had at that time chalked up 34 years of committed service. He works with a crew of six (6) attendants with responsibility for among other things, rehabilitation of valve chambers in the North East Region. When asked about his invention, Trevor explained that since joining the North East Team, the idea was conceptualized after noticing the high number of missing metal valve covers due to theft and the negative impact it was having on operations. He therefore embarked on an exercise to resolve the problem under the guidance of the District Manager, Joel Young.

The first plug was installed in Sangre Grande on 6" and 12" chamber, that regulates the flow from the North Oropouche Water Treatment Plant to Sangre Grande. Over the past weeks, there have been some design improvements to the Haddaway Plug, with the ultimate aim of utilizing the device to cover exposed valve access ports along roadways and other areas. The North East Systems Operators, who have been using the Haddaway Plug thus far, have hailed the value of the device to their work.

The Haddaway Plug is expected to be put into wide use along WASA's transmission and distribution systems.

It may only take a moment of inspiration to think of a good idea that can contribute to improving organizational performance. Congratulations to Trevor Haddaway on bringing his inspirational idea to life and for giving us the 'Haddaway Plug'.

Water We Need...

Don't waste it!

tip

Make sure the
taps and faucets
in your home are
not leaking.

By conserving water today,
you help secure your water
supply for tomorrow.



Check out our website www.wasa.gov.tt



Like us on
Facebook

WASA Trinidad & Tobago



Follow us on
Twitter

@wasatnt



"Water Security for Every Sector.
Deliver it. Sustain it."

WASA WORKERS FORGE STRONG BOND ON AND OFF THE JOB



Members of Team WASA who show their commitment to providing customers with high quality water and wastewater services on a daily basis have formed a strong bond both on and off the job.

This is on display as staff from various levels of the organization participate in Sporting and Cultural activities organised by the WASA Sports and Cultural Club.

Teams being inspected during the opening of WASA's Inter-department Small Goal Football Competition at Head Office 'Greens' St Joseph

Over the years, the Club has brought many an activity to the fore, as it aims to cater to the varying recreational, social and sporting needs of the organization, by showcasing activities that include Ballroom Dance Classes, Table Tennis and All Fours competitions, as well as aligning itself with various cultural organisations





Consultant Dawn Richards conducts a staff improvement session

including the National Parang Association for the staging of parang shows.

The philosophy of staging diverse activities/events aimed at engendering wide spread participation of employees, is proving to be successful, this is evident in the support and attendance shown whenever these events are held.

The Sports Club is currently co-ordinating WASA's Annual five a side Inter-Department Small Goal Competition, involving teams from North and South Trinidad engaged in keenly contested matches that has become a fixture in the Sports Club's Annual calendar.

The WASA Sports Club also hosts the Annual WASA Carnival Fete, held on the WASA "Greens", Farm Road, St. Joseph, which is now firmly entrenched on the Carnival schedule as one of the highly anticipated event that is attended by thousands.

Next year will be a significant one in the history of the Sports Club as Trinidad and Tobago plays host to 25th Annual Caribbean Utilities Employees Associations, (C.U.E.A.) Easter Festival.

The C.U.E.A., is comprised of Sports and Cultural Clubs from Water and Electricity Utilities throughout the Caribbean and has been in existence for the past 25 years. The Associations' aim is to foster closer relationships amongst employees of the various utilities in the Caribbean through sporting and cultural programmes.

Last year's festival which was held in Curacao was a tremendous success with approximately three hundred participants in attendance comprised of staff members from TSTT, WASA and T&TEC.



WASA Dragon Boat team 'Aqua Force'

Water We Need...

Don't waste it!

tip

Make sure the pipes and
float valves on
your tank
are working well.

By conserving water today,
you help secure your water
supply for tomorrow.



Check out our website www.wasa.gov.tt



Like us on
Facebook

WASA Trinidad & Tobago



Follow us on
Twitter

@wasatnt



*"Water Security for Every Sector.
Deliver it. Sustain it."*

