

Waila enters 21st century with upgrade

THE major infrastructure upgrade at the Waila Water Treatment Plant will see an improved service for 250,000 Water Authority of Fiji (WAF) customers living in the greater Suva area.

WAF CEO Mr Opetai Ravai said that while it was necessary to shut down the water supply for 32 hours, the approximately \$30 million worth of completed work at Waila has resulted in a totally refurbished, modern plant, utilising the latest technology to increase the levels of treated water production and an improved water quality to meet the set National Standards.

"While WAF sympathises with the inconvenience suffered by many of our customers during the upgrade, we are also very proud to announce this development that has taken place so close to the celebration of World



The newly refurbished Waila Water Treatment Plant.

Water Day, that is in line with Government's commitment to providing sustainable water resources to the community," said Mr Ravai.

The Asia Development Bank (ADB) funded project was under the WAF Project Management Unit with contracted work carried out by Fletchers Fiji Ltd.

WAF Waila Plant Team

Leader Mr Kamal Singh said that the scope of works included the upgrade and extension of two new flocculation tanks, the removal of concrete walls in the existing infrastructure link to create a new expanded system,, the total refurbishment of all filters, the replacement of all chemical dosing equipment and the

introduction of polymer and fluoride as treatment chemicals, a new clarifier with the latest tube settling process and a new, environmentally-friendly sludge extraction process to trap all alum solids.

Of major importance is the environmental benefit resulting from the upgrade. All waste water produced in the treatment process is recycled, so no waste water disposal into creeks and rivers takes place.

"The whole process is now totally automated with WAF Plant Operators receiving the relevant training, and it brings the 1982-constructed Plant into the 21st century. The upgrade allows WAF to increase treatment efficiency and treatment capacity, which translates into an increase of water to be shared amongst the people who live in the greater Suva area," said Mr Ravai.

Master Plans for WAF

THE community's future needs for a continuous supply of clean, treated water with an efficient system managed by a effective water utility are being addressed by the current work by the Water Authority of Fiji (WAF) on water treatment Master Plans for Suva- Nausori, Nadi-Lautoka, Labasa and Sigatoka, and a waster water treatment Master Plan for Levuka.

"For a water utility to run

smoothly, we need to have a continuous improvement plan in place to meet the ever-increasing expectations of our customers," said Mr Laxman Attanayake, WAF Chief Operation Officer.

As well as estimating future projected population figures and areas of urban development, WAF has to take into account the overall economic growth potential of Fiji in areas such as tourism and hotel development and industrial and manufacturing expansion.

Having estimated these future projected requirements, the capacity of the current resources to meet these requirements must be



Master Plans include population growth and urban development projections.

assessed. New, additional water sources are being investigated along with the most cost effective ways of integrating such sources into water treatment and supply system.

"The planning horizon may be fifty years away, but implementation of measures to meet projected shortfalls would begin in six or seven years.

"WAF also rolls out three-year and annual work plans that feed into the long-term planning horizon. These shorter term plans include maximising existing infrastructure and optimising existing transmission systems, such as the work WAF has undertaken to increase the hydraulic capacity," said Mr Attanayake.



Team Leader Ateet Roshan (3rd from left) and the Kinoya Laboratory staff monitor drinking water quality.

Quality testing at Kinoya Laboratory

ENSURING that water from Fiji's 42 water treatment plants is safe for consumption makes the National Water Quality Laboratory in Kinoya a valuable entity in water quality monitoring.

The lab's key responsibility, says Team Leader Ateet Roshan, is to comprehensively monitor the quality of drinking water supplied by WAF across the nation. Water quality monitoring begins from catchments, through treatment, to distribution ending up at customer's tap.

"We provide the necessary scientific services to all business units of WAF and carry out compliance assessments of the water treatment plants and waste water treatment plants. If

we get a water sample, we can test if it is good water or waste water," said Mr Roshan.

Conventional water treatment typically goes through the following key processes- coagulation, sedimentation, filtration, disinfection, fluoridation, and PH correction. The laboratory carries out tests for levels of bacteria, chlorine, turbidity, pH, and water temperature onsite for treated water as well as water delivered at customer's taps.

A full chemical analysis is carried out to test for 33 water quality parameters at the laboratory for both treated water and water delivered to the customer's tap, monitoring the water chemistry.

"Coliform Bacteria in water within the distribution network develops as a result of nil

chlorine residual due to high turbidity; that means there are a lot of dirt particles in the water. As a result free available chlorine is used up, thus there is no chlorine available for continuous disinfection," said Mr Roshan.

"If our field officer in the field finds that the residual chlorine is very low or less than 0.2 milligrams per litre while the turbidity exceeds 5 NTU, then we suspect a quality breach. We are 100% sure the water will contain disease causing Coliform bacteria."

Technology via a texting mechanism on site ensures all relevant individuals are instantly alerted if a breach should occur so mitigating action can be carried out immediately.

New treatment plants for 2014



Clean water coming for residents, from Korovou to QVS.

By August this year, residents of Baleivuto in the west and from Korovou to Queen Victoria School in the Central Division will have access to clean, treated water when the planned water treatment plants are installed at Baleivuto and Korovou.

Water Authority of Fiji (WAF) General Manager Projects Unit Mr Sereicocoko Yanuyanurua said that purchase of the treatment plant units from the French company Degremont had been approved by the WAF Board of Directors. Degremont is an internationally recognised company, with world-wide branches and subsidiaries.

"These installations are being made possible by Government's increased budget allocation to WAF for 2014 which recognises the importance of the Authority's services to the community," he said.

Mr Yanuyanurua said that other areas that would benefit from the fitting of treatment plants included Veisari, Vunidawa and Nadroga.

Other plants are to be fitted with filters that will cope with dirt carried by storm water before the water is treated with chlorine.

"We aim to have a 24/7 potable water supply that meets the National Water Quality Standard set by the Ministry of Health that WAF must comply with, a standard that surpasses the standards set by the World Health Organisation," said Mr Yanuyanurua.

Drinking Water Safety Plan Workshop leads to action

ALTHOUGH yet to be endorsed by WAF management, a national Drinking Water Safety Plan (DWSP) task force has been established following a recent training of trainers workshop.

The workshop was two-pronged - to upskill participants on how to develop, implement, and audit a DWSP and secondly, to make them better trainers.

The DWSP is a risk-based approach to drinking water supply management. It involves identifying the risks



WAF COO Mr Laxman Attanayake addressed the workshop.

and working out an action plan to control the hazards proactively. Underlying these

efforts is WAF's ultimate goal – ensure safe drinking water to consumers at all times.

Eleven WAF participants representing the company's production, water quality monitoring, and customer service departments were in attendance. The participants, who had hands-on experience in conducting visual risk assessments, were from the Central, Northern, and Western divisions

The two and a half day training was supported by the World Health Organisation.

GIS for accuracy

GATHERING data and capturing assets such as water pipes, water meters, water nodes - a term that includes treatment plants, reservoirs, all varieties of valves and fire hydrants - and adding these to the growing wealth of information available on the Water Authority of Fiji (WAF) Geographic Information System (GIS) is not just a job for the Authority's GIS System Administrator / Acting Team Leader Mr. Josua Wainiqolo and his team, it is their passion. As well as Mr. Wainiqolo, this

team consists of Mr. Emosi Catanasiga, Mr. Semi Sauliga, Mr. Solomone Rasiga and Mr. Sitiveni Vakarusabola.

"By working as a team we can build up the GIS to assist everyone in WAF to improve efficiency, effectiveness and productivity," said Mr. Wainiqolo.

"The more accurate and 'truthful' our data collection, the more effectively GIS can be used to enhance the decision-making process as well as be a useful tool in monitoring assets as part of an on-going



Passionate about accuracy, WAF GIS System Administrator /Acting Team Leader, Mr Josua Wainiqolo.

maintenance programme." Members of the GIS and Production teams are using Global Positioning System devices to capture the location and condition of assets while in the field. The information is collected, manipulated, sorted, and verified into the GIS Application either in MapInfo (tab),

ArcGIS (shp) or AutoCAD (dwg) format. Data is then run through Pathfinder software to reduce errors of accuracy. Post processing reduces uncorrected errors from five to seven meters of accuracy to one to three meters of accuracy, compared with what is on the ground.



Festive seasons impact the demand for water.

Demand impacts system

"THE Water Authority of Fiji (WAF) team is very aware of the difficulties many of our customers are facing in accessing an uninterrupted water supply, and we are working to address these issues in the long term," said WAF General Manager, Production, Mr Taitusi Vakadravuyaca.

"When I came to WAF in June 2013, water was not getting through the system at Nadi. The Nadi system is slowly settling through the introduction of Vent O air valves and we are working towards settling the Lautoka and Suva systems as well."

Increasing population, urban drift, seasonal shifts in demand, changing rainfall patterns are some of the global trends also experienced in Fiji.

"During holiday and festive

seasons, the influx of people to towns and cities increases the demand on the city water supply. For example, in Suva a household of four might become a household of eight during Hibiscus Festival. Four to eight showers become between eight and sixteen showers a day, not to mention the increased water usage in cooking and washing clothes and dishes. And those are conservative numbers for just one household."

This seasonal influx intensifies the on-going increasing demand taking place in urban areas for the supply of safe, treated water and of waste water treatment.

"In Suva, expansion is taking place in areas such as Tamavua, Tacirua and Cunningham as people migrate to the city. There

is also considerable commercial expansion taking place along Grantham Road. All of this development places greater demand on the services we provide.

"Then factor in the unusually dry period during December 2013 and January this year that has seen the water supply in the reservoirs fall," said Mr Vakadravuyaca.

He said that when it does rain, it doesn't always fall in the right place. And when it does, it may help fill the reservoir, but it still takes time for the water to go through the treatment process.

"Fiji is not the only country facing such difficulties, but there is a huge scope of work at hand as WAF works to address the water needs of the people," said Mr Vakadravuyaca.

Treated water for Baleivuto



Baleivuto community members were advised by WAF staff.

FOUR hundred meters and service connections will be installed in the Baleivuto community as a part of the Water Authority of Fiji's (WAF) expanded metering programme in the Western Division.

At the Baleivuto Awareness Expo, more than 200 community members took advantage of the opportunity to be advised by WAF staff on the importance of having access to clean, safe, treated drinking water as an introduction to being connected to the WAF water supply later this year.

ISO 9001:2008 for Operations and Customer Services



WAF staff members take the first steps in SOP capacity building.

THE first Water Authority of Fiji (WAF) training in ISO 9001:2008 Standard Operating Procedures was attended by 20 staff members as the first step in building capacity towards standardising procedures within Operations and Customer Services.

ISO 9001:2008 is an internationally recognised set of guidelines that assists companies to streamline their processes and improve their operating procedures.

To meet the requirements of ISO 9001:2008 certification there are six mandatory procedures: the control of documents, the control of records, internal audits, the control of non-performing products, corrective action and preventative action.

As well as becoming an organisation operating at an

internationally recognised standard, meeting the requirements for eventual ISO 9001:2008 certification will see benefits accrue for WAF.

These include the streamlining of processes, knowledge sharing to address the future need of technical staff members, uniformity in service delivery, a higher productivity rate, a reduction in non revenue water, the automation of water and waste water distribution systems after capturing the "as is" processes and the availability in all plants nationwide of the same set of information.

Obituaries

IT is with deep regret and sadness that Water Authority of Fiji acknowledges the deaths of two employees. WAF management and staff wish to convey their condolences to the families of

Mr Uraia Namoumou,

employed in Production at the Mechanical/Electrical Workshop in Natabua, Lautoka who passed away Saturday 8th March and



Mr Apenisa

Ganita, a Trade Assistant at the WAF Shipping Depot, who passed away Friday 14th March.



Best practice for backhoe operators



JCB's Mr Matt Shingler (left) explains best practices.

BEST practices to maintain the life and best procedures to get the best on-site performance from the recently purchased JCB back hoe were the focus of the Water Authority of Fiji (WAF) operator training conducted by Australian-based JCB Regional Training and Product Manager, Mr Matt Shingler, at the Wailoku Depot in Suva.

Twenty-three WAF employees from the North, West and Central/Eastern division depots participated to ensure that they were well versed in standard operating procedures for the machinery.

Save water, save energy national theme

THE link between water and energy consumption was highlighted by Chief Guest the Minister for Works, Transport and Public Utilities Captain Timoci Natuva, at the annual World Water Day celebrations held at Gatward Park in Korovou, Tailevu, when he spoke of

Government's commitment to putting in place the legal and regulatory frameworks to ensure the sustainability, usage and preservation of both these resources that are important to the nation's development and security.

Water Day is celebrated 22nd March each year.



Children show the connection between water and energy at the event.

Technology a useful tool

BASED at the Wailoku Depot on Suva city's outskirts, Mr Vula Vakacegu, Water Authority of Fiji (WAF) Regional Manager Central/Eastern, and his 153-strong team are making the most of technology to meet the public's demand for safe, clean water.

"The depot's basic functions are operations and maintenance. Operations, the production and distribution of water, is the process of conveying water from the source to the treatment plant and then distributing it to our customers. Maintenance includes attending to customers' complaints as well as making sure that water mains are repaired. Computer technology is a useful tool that is assisting all of the depot's



SCADA Operators, Ms Maraia Babi and Mr William Jonai remotely monitor the system.

functions," said Mr Vakacegu.

Complaints are received at the WAF Call Centre at Head Office and entered into the WMS (Work Management System) that automatically generates details of the complaints at the depot. These form the basis of the work orders for the maintenance crews each morning.

Technology is also used at

the depot 24 hours a day to remotely monitor the reservoir levels and the distribution of available water to WAF customers.

"Technicians are at work 24 hours a day, making sure that water continues to be distributed through the system to our customers, but we have to balance how much water we supply with the reservoir level. When the level is low, this means sharing the water distribution to different areas at different hours of the day.

"Hospitals are a priority customer when water levels are low, and we keep the central business district supplied as much as possible to keep businesses open," said Mr Vakacegu.