



Water: the risk and the opportunity

Water. It is an issue that is demanding the attention of the South African industrial sector as well as ordinary citizens at an ever increasing rate. Long before water shedding recently became a necessary measure in many municipalities, numerous companies rate water as one of their top three risks, along with insufficient energy supply, skill shortages and regulatory uncertainty. Added to this is the negative impact on water supply volumes and quality from competition for water resources, aging infrastructure and a changing climate.

Coupled with the proposed tariff hikes laid out in the 2015 Department of Water Affairs and Sanitation's revision of the water pricing strategy, water demand and consumption will have a significant impact on the country's economy if not strategically managed.

TAPPSA Journal spoke to Talbot & Talbot's Renier Pretorius, Regional Sales Manager, and Helen Hulett, Director of Water Risk and Strategy, about how the company is supporting customers' risk management in the water space.

"To assist our clients in managing the water risk, we launched a new business unit - Water Risk and Strategy - at the beginning of the year," explains Pretorius. The value provided by this augmented service offering is in understanding both our client's business drivers and their operations to develop an optimised water strategy.

"By identifying sustainable, financially attractive and customised solutions, and through the support of the broader Talbot business, we can offer support from identification through design, construction, implementation and operation, depending on our client's needs."

Within the pulp and paper sector there are numerous water-associated opportunities that would not only ensure legal compliance and reduce risk exposure, but also decrease operating costs by lessening water and energy requirements. Significant among these are the opportunities linked to waste water treatment.

"Wastewater treatment within the South African pulp and paper industry constitutes a meaningful opportunity for strategically managing a facility's risk while at the same time providing substantial financial prospects," adds Hulett.

Just over R48 million in savings

Talbot & Talbot's Water Risk and Strategy unit is able to analyse water and wastewater balances for industrial users and offer risk and opportunity assessments for direct operations and supply chain. The team can also provide a scenario analysis and strategy and guide clients in establishing water reporting and evaluation systems.

All South African paper and pulp mills are equipped with anaerobic digestion components in their effluent treatment plants. These technologies allow the plant to decrease the facility's effluent chemical oxygen demand

concentrations by 99%, to recover up to 70% of the water, and also create opportunities for energy recovery by capturing biogas (methane).

With the use of efficient recovery mechanisms and by optimising the methanogenesis process during anaerobic digestion of the available carbon sources in the effluent, methane gas production can be exploited to contribute to the overall sustainable offering of the effluent treatment plant.

Recovered biogas can be supplied to the biogas boiler and further reduce the associated carbon emissions. Pretorius explains that Talbot & Talbot has developed an offering that assesses the biogas production potential of an effluent, in order to accurately determine the feasibility and technical requirements of waste-to-energy recovery units, for both existing and new effluent treatment plants.

Hulett shares a case study of an existing paper mill client. "As an example, a mill producing 12,000m³ of effluent per day could potentially achieve an annual water saving of R37 million, an energy saving of R10 million and a future carbon tax saving of R1.3 million." These energy and water savings are calculated at today's price and would be substantially greater in the short to medium term following the proposed water tariff restructuring.

Seeing the opportunity in the challenge

As a 27-year-old water and wastewater company servicing various sectors across Africa, Talbot & Talbot has solved complex water related problems through sustainable engineered and scientific solutions. "These experiences have bolstered our ability to provide practical and customised offerings to a longstanding client base," says Pretorius.

The Talbot & Talbot team appears to thrive on a challenge – from remote site locations to varying waste stream and effluent quality – and it is a culture which has set them up to identify a unique and critical approach for each project with a realistic offering in terms of costs, timelines and technical needs. While there may be opportunity within risk, so to is the opportunity among challenges. ■

Interesting facts

South Africa is the **30th** driest country worldwide.

South Africa uses about **10,200 million m³** of water a year from its major dams.

The majority of water consumption can be **attributed to** drinking, irrigation, electricity, mining and industrial processes.

Only 2.5% of the planet's water is fresh. Of the available fresh water 69% is stored as glaciers and ice caps, whilst surface water features and groundwater resources accounts for the remaining 31%.

Sources: www.gov.za/about-SA/water-affairs; water.usgs.gov/edu/earthwherewater.html

RIGHT Biogas boiler.

OPPOSITE PAGE Water treatment plant;

