

***“We often forget that in our business we have a positive impact on every citizen’s life every day.”***



**Exclusive interview with Peter Flower, Director Water & Sanitation, City of Cape Town. He is a panellist during the upcoming African Utility Week’s panel dialogue on the Water-Energy-Food nexus. On 17 March South Africa’s National Water Week kicks off and International Water Day is on 22 March.**

**1) What current projects in water and sanitation by the City of Cape Town are you most excited about currently?**

The most gratifying projects are those where you can see the difference that you make to people lives – provision of water and sanitation where they never had access to these services before. We often forget that in our business we have a positive impact on every citizen’s life every day.

As an engineer, I am naturally excited about many of the large infrastructure build projects we have on the horizon – an example is a R1.7 billion bulk water supply scheme including the new 500ML/d water treatment works two 300ML reservoirs and large diameter pipeline from the Berg River Dam, which will be constructed over the next eight years. Beyond that, we are looking at new technologies to supply water, and it is interesting to be breaking new ground for Cape Town in studies looking at large scale groundwater abstraction, water reclamation for non-potable and potable use, and the desalination of sea water.

The project that excites the Wastewater Branch most, and for which we have just received the integrated Environmental Authorisation from the Department of Environment Affairs, is for the development of our Biosolids Beneficiation facility (BBF). Presently, as part of the wastewater treatment, the treated effluent is recovered for use for irrigation/industrial/golf estates and the majority of the sludge (biosolids) is applied to agricultural land.

While the application of sludge onto the farmland has been ongoing for the past 12 years, the intention of the City, in terms of its BBF, is to beneficiate the biosolids and recover energy/resources from the biosolids.

With respect to the biosolids facility project, the Regional BB facility will treat approximately 80 ton(ds)/day or 600m<sup>3</sup>/d (wet) of the sludge (both primary and secondary sludge) from 9 of the City’s northern Wastewater Treatment Plants with advanced anaerobic digestion. (There will be another regional biosolids facility at a southern works). Besides the normal mesophilic anaerobic digestion, the facility will have a pre-treatment of the sludge by means of thermal hydrolysis to be able generate more biogas. The biogas will be used for the generation of electrical energy for the on-site use and external use. The heat energy will be used to sustain the digestion process. Essentially, the facility will be self-sufficient in its energy requirements. The benefits of this project will be:

- (i) the production of Class A biosolids which can be used as a fertiliser. This implies that the farmers within the City need not be entirely dependent on fertilisers manufactured from chemicals. This will also ensure the necessary food production can continue with a low cost but a high nutrient product.
- (ii) the recovery of essential nutrients such as struvite (magnesium ammonium phosphate) and possibly nitrate. (same as (i) above)
- (iii) an estimate 3MW<sub>e</sub> of energy will be recovered through the treatment process. This quantity of energy recovery could be equated to 45% of the electricity consumption used at all these WWTW.
- (iv) Fortunately, there is a potential to use either the electricity or the biogas for proposed neighbouring industrial Park.

In addition, we are extremely committed to improving the capacity of some of our older waste water treatment facilities and are currently making substantial investments in a number plants such as Bellville, Macassar and Potsdam. It’s exciting to see the results of our investment and hard work starting to be realised.

Furthermore we are extending our major sewer lines, eg. Northern Areas Sewer line and Cape Flats 3. We are eagerly awaiting the benefits that these lines will have on our reticulation network.

## **2) What are the City's main challenges when it comes to managing its water resources and providing water for its residents?**

Water and sanitation services provides people with dignity, and the provision of these services at all levels, especially to the poor/underprivileged communities of our City, remains a challenge, but the City has made good progress and ensured that all of our citizens have at least basic levels of water and sanitation services.

Cape Town is a growing city – with a growing population and economy. There is a consequential growth in the demand for water, and as a result we need to build additional infrastructure to increase the capacity of our water and sanitation systems. This infrastructure expansion is expensive, and affordability is a challenge.

At the same time, we have aging infrastructure (some of our dams and pipelines are more than a century old), and the management and maintenance of these aging assets is also a challenge.

As with many African cities, rapid urbanisation is impacting on the water resources. This, together with the growth rate in the economy, put pressure on the need to ensure the security of water supply and it is therefore imperative that the City manages its water demand, so that we can use our existing infrastructure effectively. The City has implemented a very successful water demand management strategy, and has been able to reduce its water losses and demand growth significantly over the last 14 years.

The rapid growth of our informal settlements, the high density of informal dwelling and also the location of some of the informal settlements makes them extremely hard to service to standards (in excess of the DWA basic minimum levels) that we would like to apply. However, this is an area we are focusing on and we're making great progress in spite of these challenges. For instance, this year we have already exceeded our annual targets for tap and toilet installations within informal settlements. Our efforts in this regard are also evident in the last StatsSA Census and the excellent results obtained in independent customer satisfaction surveys.

Another challenge is ensuring that our recreational waters (rivers and vleis) are fit and safe for use.

## **3) If there is one thing you would like residents to know about the water management in the Mother City, what would it be?**

The City's Water Department has been able to very successfully manage its demand growth over the last 14 years, through the co-operation of the residents of Cape Town and the successful water demand management strategy that the City has implemented. An indication of the success of these efforts is that in 2013/14, the City used less water than in the year 1999/2000. This is remarkable when you consider there was significant population growth during this period.

The excellent quality of our water. We are proud of our long-standing track record of producing excellent water quality and stringent water testing. Last year we received a Platinum Award in the DWA's annual Blue Drop Assessment Programme for 4 successive Blue Drop Awards. We are hoping for our 5<sup>th</sup> in a row this year after recently completing the rigorous 2-day assessment.

## **4) What about your job do you enjoy the most?**

I really enjoy working with such a wonderful group of people. My staff in the Water and Sanitation Department are very passionate and committed and frequently go well beyond what is expected of them in their duties.

Another enjoyable aspect is due to the unique characteristic of Cape Town's full water cycle, being the only Metro that manages the service from source to tap and back to the environment again. Being able to work with the challenges from abstraction, storage and treatment of raw water all the way through to wastewater treatment and effluent reuse, makes my job exceptionally interesting and often exciting.

## **5) What surprises you about this sector?**

How much work and amount of resources it takes to provide a safe and secure water and sanitation service to a large city like Cape Town – yet most people take it for granted and don't give it a second thought when they open a tap in their house.

**6) You are part of the panel dialogue on Water-Energy-Food Nexus at African Utility Week, why is this an important conversation for Cape Town?**

This will become a critical issue in future, as different sectors see growing demand, yet will have to compete for the same resources. The impacts of climate change are predicted to have significant influence on water supply, energy provision and agriculture. There is the debate around water use for urban areas and to allow people to live dignified and comfortable lives versus agriculture and the need to produce food. While in Cape Town we have been able to minimise the reliance on electricity for operating our water supply infrastructure (due to our topography and design of our water supply system), many of the possible future water supply schemes have high energy requirements. Besides competing for existing electricity supplies, there is also the debate about whether water provision should be contributing to increased generation of electricity, with its own possible climate change impacts.

For further comment on food and energy – see 1 above.

**7) What will be your specific message at the event?**

To ensure the sustainability of this wonderful City of ours, all communities need to be more conscious of, and pro-active in, recycling and in water and energy conservation.

**8) Does the City have special activities for World Water Day?**

Yes, we are recruiting 120 people from informal settlements across the City for a water awareness project that will use drama and performing art to communicate water saving messages to communities throughout the city. They will also be exposed to the World Water Day Industrial Theatre hosted by the Department of Water Affairs at the V&A Waterfront. (See attached programme for further details)

**9) What are you most looking forward to at African Utility Week?**

Interacting and learning from people in other utility organizations with similar challenges

**10) Anything you would like to add?**

Yes, we're also excited about our achievements in water demand management. There has been a steady decline in non-revenue water and un-accounted for water over the last few years and overall water consumption has stabilised in spite of rapid urban growth. We are aggressively rolling out pressure management and investing in our distribution network for treated effluent. I believe that the integrated programme that also involves public awareness, pipe replacement, plumbing repairs in indigent households, leak detection and the introduction of the step tariff system are starting to pay off.

African Utility Week is being organized by Spintelligent.