

## Fact Sheet 7: Durban Water Recycling Plant

### History

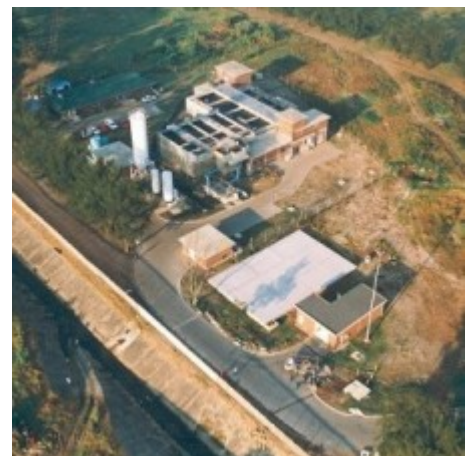
There has always been a concern in South Africa in general, and Durban in particular, of the increased demands on South Africa's limited water resources. Durban treats in the region of 450 million litres of wastewater daily, and in this context, the Council's eThekweni Water Services (EWS) commenced an investigation into the recycling of treated wastewater. In 1993 EWS developed a reclamation process for the production of high quality reclaimed water and tested it at laboratory and pilot scales in 1994 and 1995. It was envisaged that Mondi Paper, situated in the southern part of Durban adjacent the Southern Wastewater Treatment Works (SWTW), who had previously approached EWS, would be the major customer for the reclaimed water.

Despite the proven technical success of treating the wastewater, the economic feasibility was in doubt. EWS then approached the Rand Merchant Bank in 1997 to assess the project. RMB produced a report which indicated that, provided certain guarantees were obtained, the project was economically feasible. The costs, technical complexity and the risks associated with the project lead EWS to recommend to the Council that it would be in the Council's best interests to consider a Public Private Partnership (PPP).

In 1999, after a formal tender process, Durban Water Recycling (Pty) Ltd was awarded a 20-year concession contract for the production of high quality reclaimed water. Construction commenced in 2000 and was completed in 14 months. The R74m construction phase included upgrading the activated sludge process from 50 to 77 ml per day, the construction of the tertiary plant, tying in with pre-existing and decommissioned assets, refurbishment of the SWTW high-level storage tank and the installation of the reclaimed water reticulation system.

### Commissioning of the Plant

Located in the south of Durban in the grounds of the eThekweni Water Services' SWTW, the plant was commissioned in May 2001. Officially opened by the Minister of Water Affairs and Forestry, Ronnie Kasrils, the R74m sewage-to-clean-water recycling plant treats 47.5 million litres of domestic and industrial wastewater to a near potable standard for sale to industrial customers for direct use in their processes. Understandably the saving of treated potable water in of great benefit to Durban.



### Lower Tariffs

A considerable benefit to industries is the lower tariff when compared to the normal tariff paid by industries for potable water. The two largest customers so far are the Mondi Paper Mill in Merebank and the Sapref Refinery, owned by Shell and BP. The first private water-recycling project in South Africa, this plant is the culmination of a 20-year Build Own Operate and Transfer (BOOT) contract awarded to treat 10% of the city's wastewater. Vivendi Water is the major stakeholder in Durban Water Recycling and its partners are Zetachem, Khulani Holdings, Umgeni Water and Marubeni Europe. Some of the key elements for the success of the project is ETW's vision in initiating the project, Vivendi's ability to provide finance and to implement innovative, tailor-made technical solutions and Mondi's endorsement of the project, by committing its entire paper production at its Merebank Mill to recycled water.

## Drinking Water

The plant will free up sufficient drinking water for approximately 300 000 people. "This contract has borne many advantages to the city. Apart from the financial investment and world-class technology, we will be recycling effluent. This in turn reduces the demand for potable water, and reduces the quantity of effluent we put back into the environment. Industry will reduce its costs by accessing less expensive water and it will also free-up water to extend services to the impoverished," said Neil Macleod, Former Head: Water and Sanitation.

## Technical Aspect

Veolia has installed a highly specialised water treatment process, specifically tailored to meet the exacting water quality requirements of DWR's main client, Mondi Paper. Mondi Paper uses the recycled water directly for the production of fine paper which is extremely sensitive to process water quality and its impact on water brightness. The recycled water specification includes 22 parameters that are measured in the South African water standard (SABS 241:1999). The production of near potable quality recycled water to a guaranteed standard continuously and reliably, from domestic and industrial wastewater, is a showcase for water process technology and process engineering.