

Sedibeng Water Chair in Water Utilisation Engineering

CHAIR
in Water
Utilisation
Engineering

The Sedibeng Water Research Chair in Water Utilisation Engineering was launched in the University of Pretoria's Department of Chemical Engineering in the Faculty of Engineering, Built Environment and Information Technology on 9 September 2014.



→ From left to right: Prof Roelf Sandenbergh, former Dean of the Faculty of Engineering, Built Environment and Information Technology, Prof Evans Chirwa, Chairholder of the Sedibeng Water Research Chair in Water Utilisation Engineering, Mr RT Takalane, Chief Executive of Sedibeng Water, and Prof Philip de Vaal, Head of the Department of Chemical Engineering at the University of Pretoria.

This research chair, with Prof Evans Chirwa as Chairholder, will focus on the delivery of high-quality water, and follows an integrated approach to total water management via ongoing participation in research activities and promoting consumer awareness of the value of water. The Department's broad objectives are to promote research in the South African water sector and the training of water engineers. The focus is on controlling the growth of algae, odour-causing and toxic organic compounds and the optimisation of chlorine doses to meet demand.

The research chair's first round of funding will last for five years with an annual budget of R1.4 million. The funding will be used to build capacity and support research in the remediation of

algal infestation and the impact of eutrophication on natural water bodies. The research will focus on controlling algal growth, determining carbon cycling and improving the treatability of algal metabolites in the interim.

It is well known that algal metabolites are responsible for the foul odour and taste in water from natural water bodies with high nutrient loading. Additionally, the treatment of algae-infested waters with chlorine produces a range of disinfection byproducts (DBPs), including trihalomethanes (THMs) and haloacetic acids (HAAs). THMs and HAAs are suspected carcinogens and their occurrence at high concentrations is of great concern to water supply service providers. The soup of organics that is recycled in the water body from dead algal cells

in the sediment zone of a reservoir creates a high chlorine demand during the water treatment. This means that the initial dose of chlorine is consumed by the organics and is therefore not available as an effective disinfectant to disease-causing bacteria in the water.

Apart from addressing some of the problems encountered at Sedibeng Water, the research supported by the Chair will also address problems encountered at other treatment plants, since algal problems are encountered globally. Problems associated with the algal infestation of water bodies and the resultant diminishing water quality are mainly products of increased agricultural and industrial activities that contribute the largest portion of nutrient loading to water bodies. ☀