



**Post-Doctoral Position in the Pollution Research Group  
(Chemical Engineering)  
Funded through the Reinvent the Toilet Challenge (Phase II), Bill and  
Melinda Gates Foundation**

### **1. Context**

The Pollution Research Group in the School of Engineering, University of KwaZulu-Natal (South Africa) is a recipient of funds for the Reinvent the Toilet Challenge (RTTC). This is an international initiative supported by the Bill and Melinda Gates Foundation to redesign the way in which sanitation is approached where existing waste-water treatment is at capacity or does not exist. The multi-million dollar project is designed to provide low cost sanitation for the 2.6 billion people worldwide who do not currently have access to water based sewerage. The University of KwaZulu-Natal has been selected to provide the majority of the analytical design data for such systems (currently there is little or no literature available) to other partners under the RTTC.

The concept behind this international Gates Foundation funded challenge is to use 21<sup>st</sup> century Chemical Process Engineering to develop a sanitation system to replace the 19<sup>th</sup> century technology currently in place. The ideal system will harness the energy obtained from combusting organic material in human excreta to drive the separation of pure water from the waste. While other institutions are developing prototype systems that do not consider the characteristics of the process stream to be treated, UKZN has attracted international attention by taken a needs-based approach to develop and undertake specific methods and analyses of the process streams characteristics.

### **2. Post-Doctoral Position**

Under this project, a position exists for a Post-Doctoral Fellow who will be responsible for overseeing and co-ordinating the research of Masters students working on this project, as well as undertaking theoretical modelling and reporting on results. The Masters projects that will be undertaken include the following:

- Thermal Properties and Drying Characteristics of Faecal Sludge
- Rheology, Extrusion and Pelletisation of Faecal Sludges
- Forward Osmosis as a final step in the recovery of water from urine
- Micro- and Nano-filtration of Flush Water
- Separation Products of Urine

Experience in any of these fields is therefore an asset for the position.

### **3. Candidates profile**

Candidates with a PhD in the relevant Engineering discipline (e.g. Chemical, Civil, Environmental Engineering or equivalent) will be considered. Experience in the Water and Sanitation sector will be

an asset. These positions involve laboratory and field work with handling of faecal sludge and fresh human excreta (faeces and urine).

#### **4. Financial conditions**

The successful candidate will be paid a monthly salary of R 15 000 (tax free). This is a contract position for 12 months.

#### **5. Applying for the position**

UKZN is an equal opportunity employer. Applications should be sent by email to Prof Chris Buckley ([BUCKLEY@ukzn.ac.za](mailto:BUCKLEY@ukzn.ac.za)), with cc to Ms Susan Mercer ([Mercer@ukzn.ac.za](mailto:Mercer@ukzn.ac.za)).

Eligibility Criteria:

- A doctoral degree obtained in the last three years
- Age less than 45 years
- Based at UKZN for the duration of the scholarship

Applications should include:

- Completion of attached application form
- A detailed CV, with two referees
- A covering letter
- A list of publications

Deadline for applications: Monday 30<sup>th</sup> September 2013

Start date: October/November 2013 (negotiable).

#### **6. Contact - enquiries**

Prof Chris Buckley, Head of Pollution Research Group, UKZN, Durban: [BUCKLEY@ukzn.ac.za](mailto:BUCKLEY@ukzn.ac.za).