

Funding for a MScEng and PhD Study: An investigation into the physical properties of faecal sludge

According to the World Health Organization, approximately 2 billion people worldwide lack proper sanitation services. Since 2011, the Bill & Melinda Gates Foundation (BMFG), through the Water, Sanitation & Hygiene department, has supported the development of transformative technologies that can be applied to solve the lack of sanitation in developing countries. Consequently, several technologies have emerged to treat human excreta and recover valuable resources such as water, nutrients and energy. Nevertheless, these emerging technologies face several technical challenges that need to be overcome for their application at large scale.

The Pollution Research Group, School of Engineering (Howard College Campus, University of KwaZulu-Natal, Durban, South Africa), has secured funds for **One Masters and one PhD position**, in order to conduct research to assist in overcoming the technological gaps faced by these transformative technologies. The following research areas will be covered:

- Stickiness of faecal matter causes fouling in toilet bowls, which is unpleasant for the toilet user, and in downstream processing units, which can negatively affect the efficacy of the process. This will be the first stage in forming a database of sludge fouling characteristics and propose methods to avoid fouling;
- Physical characteristics of the faecal material related to the dewatering and drying processes, which are key in the treatment of the waste;
- In-situ solar drying of faecal sludge in order to treat the waste in the generation site.

The positions will start from January 2018. A total bursary of **R 120 000** will be provided for the **masters** student (over 1 to 2 years) and **R 450 000** for the **PhD position** (over 3 to 4 years). Payment is made on set deliverables being achieved. The project will also cover the cost of a computer, tuition fees and all research operating expenses for conducting field work.

The candidates should have an academic background in engineering, preferably in Chemical or Mechanical Engineering, and be prepared to handle faecal material. In addition, for health and safety reasons, the successful applicant will need to undergo the necessary inoculations.

UKZN is an equal opportunities employer. If you are interested in this position, please submit an electronic copy of your transcript, degree certificates and a CV with two referees and a covering letter explaining your motivation to **Ms Susan Mercer** (mercero@ukzn.ac.za). Only shortlisted applicants will be contacted and the deadline for applications is **31st December 2017**.

Pollution Research Group Discipline of Chemical Engineering, School of Engineering

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