Biosand-Zeolite Filter with Silver Impregnated Clay Granular (BSFZ-SIG)

Bringing safe water within everyone's reach

Tshwane University of Technology
We empower people

TECHNOLOGY SUMMARY

BSFZ-SIG is a decentralized point-of-use water treatment system that makes use of the process of biosand filtration, zeolite filtration and silver impregnated clay granular. Disclosed materials are gravel, sand, zeolite and silver impregnated clay granular. The objective of the invention is to ensure that water is microbiologically safe for consumption without electricity.

UNIQUE BENEFITS

- No electricity requirement, making it suitable for off-grid and unreliable-electricity environments.
- Uses relatively accessible materials such as sand, gravel, zeolite and clay.
- Decentralised treatment at household or small-community level.
- Combines biosand + zeolite + silver-based antimicrobial treatment in one system.
- Potential for local manufacturing, assembly and repair.
- Suitable for institutional and social-impact deployment.
- Can potentially reduce reliance on boiling and other energy-intensive treatment methods.

STAGE OF DEVELOPMENT

From around TRL 4 to 5 (roughly estimated). It is beyond the concept and laboratory stage and has been prototyped with relevant field tests done on household water treatment using locally available technologies such as biosand, zeolite, and silver-based technologies (Mwabi, Mamba, and Momba, 2013).

IP STATUS

The technology originates from the TUT research environment and has an invention disclosure. The feasibility report recommends that TUT undertake an IP review and clarify ownership and protection before commercialisation.

APPLICATIONS

- Household drinking-water treatment
- Rural communities
- Informal settlements
- Schools and ECD centres
- Clinics and community health posts
- Farms and worker settlements
- Lodges and eco-tourism facilities
- NGO/humanitarian programmes
- Municipal emergency response
- Disaster-response programmes
- Corporate social investment/community development projects

OPPORTUNITY

The problems faced by South Africa with regards to its water availability and quality may open up opportunities for decentralized water treatment systems that are affordable. The suggested strategy would be to concentrate on institutional purchases, NGO collaboration, CSI funding, donor funding, replacement media sales, and maintenance.

PRINCIPAL RESEARCHERS

- **Prof. Maggie Momba**
- **Ms. Resoketswe Moropeng**
- **Prof Lizzy Monyatsi**

CONTACT

Innovation and Technology Transfer Office (ITTO)

Mr Kgatle Thomas
Innovation Officer
KgatleDT@tut.ac.za

Dr. Kim Lamont-Mbawuli
Deputy Director
Lamont-MbawuliKT@tut.ac.za