Photo © Maskam Water

Wastewater treatment and reuse/reclamation

CASE STUDY

Wastewater treatment and reuse/ reclamation refers to the process of contaminant removal from captured discharged water and chemically, biologically or physically treating it to a desired standard as reclaimed water for restored use.

SA CHALLENGES ADDRESSED BY WASTEWATER TREATMENT AND REUSE/ RECLAMATION

Comparative costs of centralised wastewater treatment systems

Connection to centralised wastewater treatment systems and managing wastewater sludge are costly (~40 - 60% of total WWTW plant costs), and usually requires significantly longer development timeframes.

Disposal and landfilling costs

Residual sludge (digestate) disposal is becoming less viable due to transportation costs and landfilling fees.

Producer-beneficiater misalignment

Lack of bespoke infrastructure and technology requirements that adequately meet the wastewater sludge composition/quality for beneficiation.

Property developments are constrained due to lack of wastewater infrastructure and capacity at WWTWs.

ASSOCIATED CLEAN TECHNOLOGIES
examples and service providers

- **SAFWATER**
  Mobile sewage treatment plant - Mobile package solutions of various volume and effluent capacities for waste water treatment. The 17m3/h WWTW runs on as little as 340Watt and can easily be powered through a solar PV installation.
- **MASKAM WATER**
  Clarus Fusion - A sustainable on-site wastewater recycling solution.
- **OTHER EXAMPLES OF WASTEWATER TREATMENT AND REUSE/RECLAMATION SERVICE PROVIDERS**
  KaacKai

KEY DRIVERS FOR THE UPTAKE OF WASTEWATER TREATMENT AND REUSE/RECLAMATION

Sludge diversion opportunities

Municipalities can save ~R330 million per annum through technology service providers by diverting sludge from disposal and saving on transportation costs.

Regulatory landscape changes

- Imminent organic waste to landfill reduction plan and existing liquid waste to landfill ban in 2027.
- National target for **75% organic waste diversion from landfills** by 2030.
- Imminent organic waste to landfill ban by 2027 in the WC.

Project preparation support for wastewater infrastructure projects

Increased interventions by **Government to support technical feasibility studies** and pipeline of potential projects in water reuse, non-revenue water, and off-grid sanitation (eg. DBSA's Project Preparation Facility)

KEY BENEFITS OF WASTEWATER TREATMENT AND REUSE/RECLAMATION

Decentralized and effective

On-site wastewater treatment is more cost effective, and implementation can occur over a short time frame without having to connect to central wastewater treatment plants.

Multitude of uses possible with treated grey, blackwater and industrial effluent

Non-potable water can be used at household levels (reuse of grey and/or black water), commercial and industrial levels (onsite treatment and reuse of organic and inorganic wastewater), and municipal levels (municipal-scale reuse of treated effluent).

Business case of wastewater reuse and sludge beneficiation

Potable water savings, water and sanitation tariff savings. Beneficiating wastewater sludge and faecal matter to produce fertiliser, compost, bio-char, and fuels for energy recovery and power generation.

UNDP'S SUSTAINABLE DEVELOPMENT GOALS (SDGS)

- 6 Clean water and sanitation
- 7 Affordable and clean energy
- 11 Sustainable cities and communities
- 12 Responsible consumption and production

What will it take to shift the dial on Wastewater treatment and reuse/reclamation

INCREASED INVESTMENT IN WATER AND SANITATION SECTOR

The Department of Water and Sanitation (DWS) estimates a **R90bn per annum capital requirement** for the water and sanitation sector, of which R70bn is required to supply and maintain water supply infrastructure, and R20bn is for sanitation and wastewater collection and treatment.

THIS REPRESENTS A SHORTFALL IN FUNDING OF **R33BN** PER ANNUM.

ALTERNATIVE, SUSTAINABLE AND INNOVATIVE SOLUTIONS to decentralized wastewater treatment due to deterioration and inadequate refurbishment of WWTW and infrastructure.

OUT OF **824 ASSESSED WWTWS** IN SA:

212 ARE CRITICAL RISKS

259 ARE HIGH RISK

218 ARE MEDIUM RISK

135 ARE LOW RISK

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