Testing Decentralised Treatment Solutions for Portable Home Toilet Waste

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Test a treatment system using existing “off-the-shelf” decentralised treatment technologies which come closest to meeting the following criteria:

- ability to treat the liquid effluent for discharge into the environment, as specified by the Ghanaian guidelines;
- small footprint so it can fit on current and future Clean Team sites;
- low capital costs;
- easy to transport and install;
- track record of extended operation in off-grid situations;
- ability to be operated by well-trained competent staff without tertiary training;
- low energy use
Sistema Biobolsa

Aerobic gravel filter 5 m³ each
(2.5 m³ effective volume)

From: Sistema Biobolsa
Sistema Biobolsa installation at Dompoase, Kumasi
Biorock

From: greeninnovation.co.uk
Biorock installation at Dompoase, Kumasi
Photos taken at Biofil HQ in Accra
Daily operation plans

- **Sistema Biobolsa**: 100L/day → 1000L/day Clean Team waste
- **Biorock**: 50L/day Clean Team waste → 2 day retention time (standard for a septic tank)
- **Biofil**: receiving sludge from Biorock
- **Liquid and solid samples collected daily and tested for:**
  - pH
  - Alkalinity
  - ammonia concentration
  - Chemical Oxygen Demand
  - Temperature
  - Turbidity
  - presence of blue dye in final effluents (using a spectrophotometer)
Further tests

- Liquid and solid samples collected weekly and tested for:
  - Total Solids
  - Volatile Solids
  - E. Coli

- Diary on ease of O&M

- Phytotoxicity trials every 6 weeks to check if chemical biocide persists
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