SASTEP Project
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ENVIROSAN SANITATION SOLUTIONS (Pty) Ltd

Overview: Eazisplit

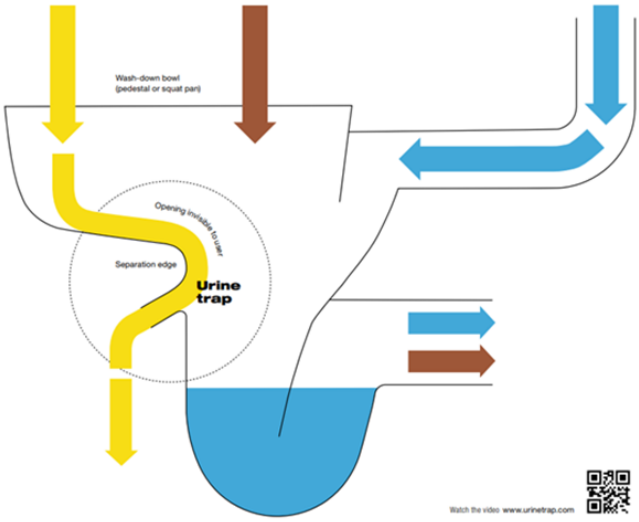
The **Envirosan Eazisplit** is a hybrid low flush urine diversion sanitation technology based upon the EOOS design and the Bill & Melinda Gates Foundation (BMGF) "Reinvent the Toilet" initiative.

As a pour flush, the Eazisplit solution is entirely off-grid and requires no mains water connection, as it flushes manually, with as little as 2L of grey or potable water, whilst maintaining a 70-80% urine split.

The Eazisplit system can be upgraded to work with an internal or external cistern (still flushing with as little as 2L of water) and can be connected to a formal water supply / sewerage system if such ever becomes available. The urine can be separately collected and treated for further use as a fertilizer.

Technology category

Hybrid Pour / Low Flush Urine Diversion Sanitation Solution for Rural, Peri-Urban and Urban Settlements



Input

Pour Flush or Conventional Low Flush Application using 1-2L of water to flush.

Technology category

On-Site and Off-Site Sanitation options

Output

The Eazisplit has been designed to be compatible with a range of rural "back end" solutions, including a leach pit, septic tank, conservancy tank, biodigester, solids-free sewer system or similar on-site / off-grid treatment facility, without any adverse effects on the surrounding soil conditions. The Urine can further be treated / collected for alternative use or disposal

Figures 1-3: EaziSplit™ Sanitation System installed at Celinkungu Junior Secondary School

Envirosan was appointed by the Water Research Commission to install Eazisplit toilets at Celinkungu Primary School in the Eastern Cape.

Celinkungu Junior Secondary School is a public state primary school located at Mwaca Agricultural Authority, Mount Ayliff, Kokstad, Eastern Cape Province, South Africa.

In April 2022, Envirosan installed and commissioned a low flush, urine-diverting sanitation system at the school and after 5 months of monitoring, the solution has proven to be a robust, cost-effective option that has potential for other South African schools.

The Eazisplit is a novel toilet pedestal, which is low flush and urine-diverting. The installation at Celinkungu PS used precast concrete superstructures, which are a cost-effective alternative to the standard approach of face brick construction in schools. The Eazisplit solution has potential to address a few challenges in the school sanitation sector:

1. The need for dignified and safe options for school sanitation

2. The demand for water-sensitive sanitation solutions

3. The demand for source-separated urine for agricultural use and/or further processing to produce useful by-products

The Eazisplit installation was monitored by Partners in Development (PID) for 5 months after installation, with a focus on the following aspects:

✓ User Acceptance

✓ Robustness of the technology

✓ Operation and Maintenance requirements

✓ Water requirements

School toilet use increased
Toilet use increased dramatically as a direct result of the installation of the Eazisplit toilets

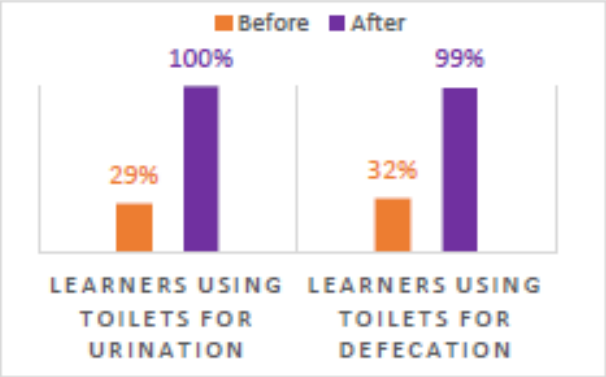


Figure 4: Learners using the toilets for urination and defecation, before and after the change in sanitation system

Low Water Demand
Based on daily water meter readings, the **average water use for toilet flushing was 3.9 ℓ/person/day, and the average use for handwashing and other uses (e.g. drinking, cleaning) was 1.6 ℓ/person/day.**

Low Sludge Accumulation Rate
During the post-implementation evaluation, the team measured sludge accumulation in the 6kℓ septic tank connected to the EaziSplit™ system. The **calculated sludge accumulation in the septic tank was 5.2 ℓ/person/year.**

RECOMMENDATIONS FROM PARTNERS IN DEVELOPMENT (PID) REPORT

Envirosan's Eazisplit pedestal is well suited use in schools and the following recommendations are made:

✓ Low flush toilets make flushing systems more feasible in water-scarce areas, with a water demand of approximately 4 ℓ/person/day.

✓ The urine diversion element can be useful in instances where there is demand for urine to be used as a fertiliser / soil conditioner

✓ Septic tanks should be sized based on the number of users and a minimum sludge holding capacity of 5 years. Approximately 40 litres of tank volume per user (allowing for 26 litres of sludge storage volume per user) should be provided in the first chamber of the septic tank. To minimize soakpit failure, only septic tanks with two or more chambers should be used. Preferably septic tanks should be emptied every three years.

✓ Daily cleaning and monitoring of sanitation systems is imperative for success. Every school should have at least one janitor. Janitors should be funded by the Department of Education as essential staff members (e.g. administrative worker) or alternately their cost should be specifically provided for in the schools' Norms and Standards budgets. Regular training and monitoring should be provided for janitors.

✓ The use of precast concrete structures results in significant savings in construction costs and time and still without a loss of function