

Evaluation and Monitoring of Faecal Sludge Treatment Plants (eFSTP)

Eawag/Sandec is partnering with DELVIC Sanitation Initiatives and ENPHO to carry out the first in-depth systematic assessment of faecal sludge treatment plants (FSTPs) in South-Asia and Sub-Saharan Africa. Funded by the Bill & Melinda Gates Foundation, the main project goal is to make evidence-based recommendations and guidelines to optimise the design, operation, maintenance and management of FSTPs.

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Sanitation, Water and
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Context

Due to increasing acknowledgment of the importance of faecal sludge management (FSM), FSTPs are starting to be constructed in South Asia and Sub-Saharan Africa. However, there is very limited operating experience on which to base the designs. Hence, they are based on assumptions that in reality are not necessarily reflective of the actual operating conditions. The result is inadequate treatment performance, or even failures of the technologies. It is therefore essential to monitor the technical, financial, environmental and social aspects of FSTPs during the actual operation.

Objectives

The eFSTP project will systematically monitor eight FSTPs over one year, and gather data on operating conditions and performance in order to develop an empirically based understanding of actual faecal sludge treatment processes. Design and operation guidelines will be developed based on this evidence, and on the experience gained during the optimisation of the FSTPs operation. These guidelines will assist decision makers and engineers in making informed decisions about FSM and FSTP design, and provide sound empirical evidence for future investments in FSM. This work will also improve the provision of citywide treatment services for faecal sludge and hence improve public and environmental health in South Asia and Sub-Saharan Africa.

The specific objectives of this research are:

- To analyse the design assumptions of the FSTPs in regards to the actual quantities and qualities (Q&Q) of faecal sludge discharged.
- To develop an understanding of the cause-effect relationships of faecal sludge Q&Q fluctuation and treatment performance.
- To translate field observations into recommendations for loading of drying beds, as well as for future FSTP design, management and operation procedures.
- To develop long-term systematic monitoring of FSTP treatment performance.
- To understand the operational dynamics (i.e. technical, financial, management and social aspects) of existing FSTPs.

Expected Outputs

The planned two-year-long research project is expected to have the following key outcomes:

- Recommendations for design and operation of FSTPs with drying beds.
- Methodology for long-term monitoring of FSTP treatment performance.
- A comparative study of FSTP operational dynamics between different climatic zones and geographic locations.
- Recommendations for sustainable FSTP management.
- Financial comparison of capital and operating costs of the studied FSTPs.



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