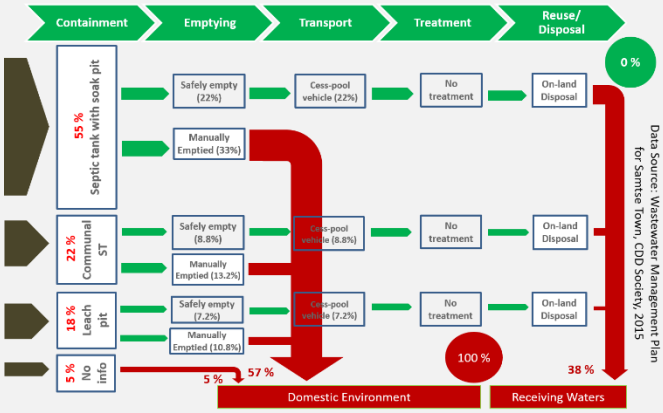
Faecal Sludge Treatment Plant, Samtse town, Bhutan



Shit Flow Diagram- Samtse, 2015

PROJECT BRIEF

The town of Samtse, Bhutan does not have an underground drainage (UGD) system, most of the households depend on onsite sanitation infrastructure, such as septic tanks, leach pits and pit toilets for sewage collection.

The FSTP implementation by Ministry of Works and Human Settlements (MoWHS) aims to introduce a treatment facility to the town, that is an integrated and holistic approach to manage faecal sludge.

PROJECT OUTCOMES

- To ensure efficient treatment and disposal of faecal waste due to the absence of UGD.
- To safely dispose the faecal sludge.

PROJECT SPECIFICATIONS:

Kind of Project : FSTP

Funding Implementing Agency : MoWHS

Supporting Organization : BORDA

Construction Cost : 1.8 Million Nu.

Year of Commissioning : June 2017

SILENT FEATURES

Source of faecal sludge : Leach pits, septic tanks, community septic tanks

Design capacity: 3000 Liters/Day

Population covered: 7,500

Influent quality : BOD 20,000 mg/l

COD 40,000 mg/l

MODULES ADOPTED

SCREEN CHAMBER

Pore size: 20mm

Size of chamber: (1.25×0.8×0.3) m

PLANTED SLUDGE DRYING BED

Volume: 81 m^3

Area of construction: 108 m^2

INTEGRATED SETTLER AND ANAEROBIC FILTER

Volume: 1.5 m^3

Area of construction: 16.5 m^2

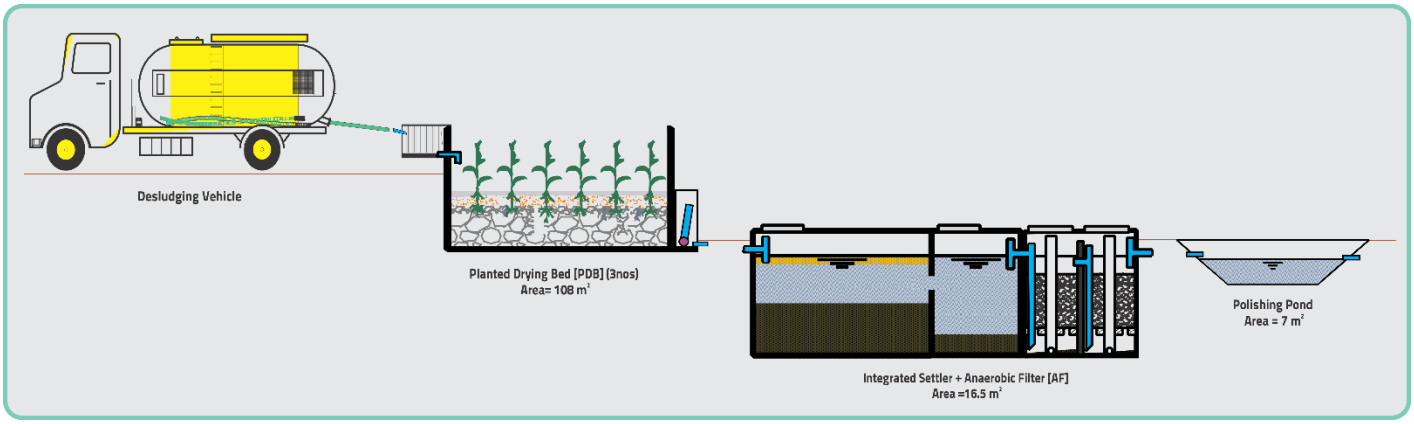
Number of Chambers: 4 (2+2)

POLISHING POND

Volume: 4 m^3

Area of construction: 7 m^2

BUILT UP AREA OF FSTP : 170 m^2



SYSTEM IN BRIEF

The faecal sludge will be conveyed to the proposed treatment location through a cesspool vehicle. The principle processes of this FSTP are screening, dewatering and stabilization of faecal sludge, supernatant treatment and pathogen removal. The FSTP modules for the faecal sludge treatment are : Screen Chamber, Planted Sludge Drying Bed (PDB), Integrated Settler and Anaerobic Filter chambers, and Polishing Pond.

OPERATION AND MAINTENANCE

Regular O&M activities are carried out by trained operator.

Operation tasks

1. Cleaning of screen chamber
2. Regular flow checks in all modules

Maintenance tasks

1. Removal of dried sludge from PDB every 3 years
2. Harvesting of plants in PDB
3. Desludging of Settler every 2 years
4. Cleaning of polishing pond every 6 months

REUSE OPTIONS

Reuse of treatment by – products

1. The treated effluent from the polishing pond is reused for landscaping

PERFORMANCE OF FSTP

Sample points	COD (mg/l)	BOD (mg/l)	TSS (mg/l)	E. Coli (CFU/100ml)
Date of sampling - To be conducted after 6 months from the date of commissioning				
PDB in				
Settler in				
Polishing Pond in				
Polishing Pond out				