



Govt. of Odisha



# SEPTAGE TREATMENT FACILITIES IN ODISHA



Faecal Sludge and Septage Management (FSSM) is of immense importance considering the health and environmental impact of ground and surface water pollution caused by disposal of untreated faecal matter. Treatment of faecal sludge/septage before disposal or reuse is crucial for successful FSSM. The onsite sanitation system may fail if the collected sludge/septage is not properly treated in a suitable treatment system and disposed. Among the major initiatives being undertaken by the Government of Odisha across the sanitation value chain are the setting up of Septage Treatment Plants (SeTPs) in 9 AMRUT towns namely Bhubaneswar, Cuttack, Puri, Berhampur, Balasore, Bhadrak, Baripada, Sambalpur, Rourkela and 2 Nirmal towns Anugul and Dhenkanal in Odisha through AMRUT, State and BMGF funds covering more than 60% of the urban population of the State. The SeTPs are being established under AMRUT scheme at a cost of Rs 22.9 crore. Being implemented by the Odisha Water Supply Sewerage Board (OWSSB), six plants have been completed and the rest are in different phases of completion for operation.



## Bhubaneswar

### *Salient Features*

- Capacity: Full-scale SeTP of 75 KLD capacity
- Area: 2.47 acres
- Project Cost: 3.54 crore
- Population to be served: 2,10,000
- Plant Status: : Commissioned and functional since June 2018



### *Highlights*

- First-of-its-kind SeTP in India which treats both solid and liquid parts of septage in integrated way
- Landscaping and plantation undertaken in 1.3 acre of the SeTP area for aesthetics
- Solar plant of 10 KW capacity installed at the SeTP



## Sambalpur

### ***Salient Features***

- Capacity: 20 KLD
- Area: 2.0 acres
- Population to be served: 48,700
- Plant Status: Trial run ongoing



## Rourkela

### ***Salient Features***

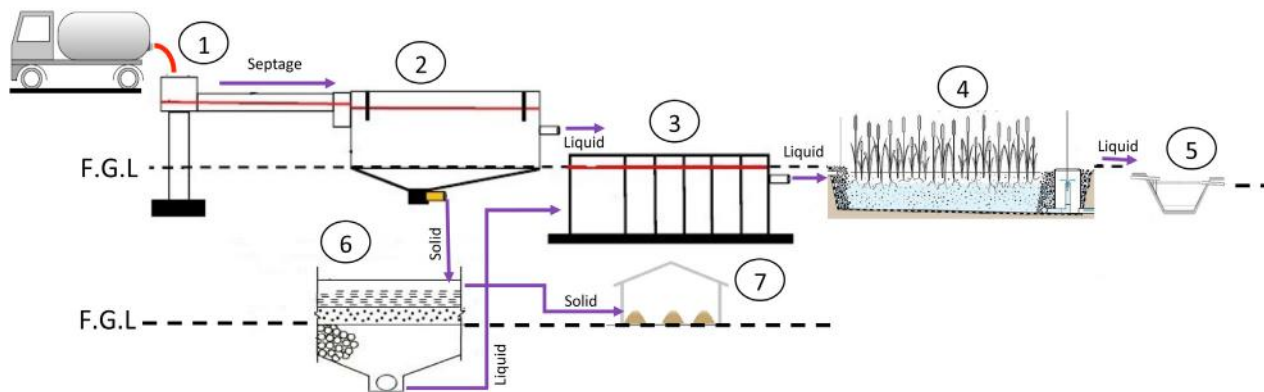
- Capacity: 40 KLD
- Area: 2 acres
- Population to be served: 97,500
- Plant Status: Trial run ongoing



## Berhampur

### ***Salient Features***

- Capacity: 40 KLD
- Area: 1.6 acres
- Population to be served: 95,700
- Plant Status: Trial run ongoing



S L	Modules	Description
1	Receiving Chamber with screen	Receives septage from cesspool emptier and screens solid waste from septage
2	Settler Cum Thickener	Separates solid and liquid fraction from septage
3	Anaerobic settler+Anaerobic Baffle Reactor+Anaerobic filter	Removes settleable solid and anaerobic digestion of liquid fraction of septage
4	Planted Gravel Filter	Removes BOD and nutrients through aerobic process
5	Polishing Pond	Collects effluent treated water from PGF for further reduction of bacteria. Water from pond will be used for plantation inside SeTP
6	Sludge Drying Bed	Used for dewatering and drying of the digested sludge
7	Sludge Storage Yard	Collects and stores treated sludge from drying bed for disposal/composting

## Technology

The SeTPs in Bhubaneswar, Sambalpur, Rourkela and Berhampur are designed to treat the liquid part of the septage using DEWATS technology. This is a gravity flow based system, where septage collected through cesspool emptier trucks is discharged to receiving chamber from where it flows to different units by gravity. The technology requires least mechanical and electrical interventions to run the process and is cost effective as compared to other technologies.



## Puri

### *Salient Features*

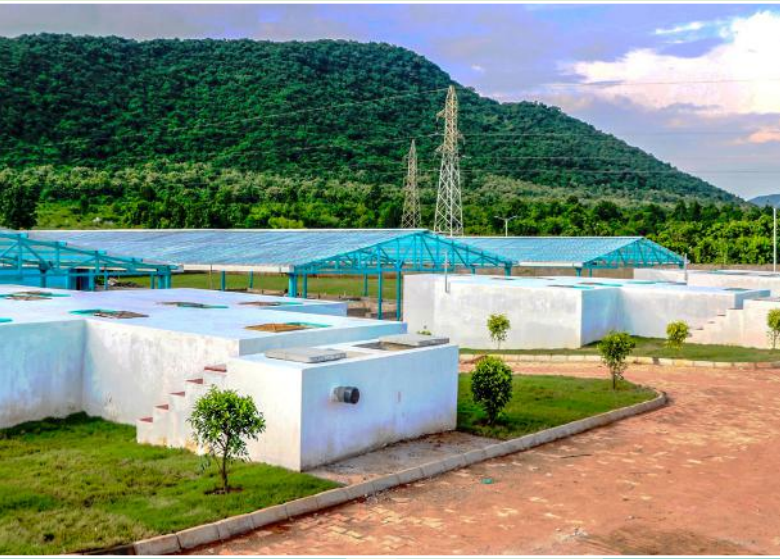
- Capacity: 50 KLD
- Area: 1000 sq.m
- Project Cost: 1.74 crore
- Population to be served: 1,21,000
- Plant Status: Commissioned and functional since October 2017



## Technology

Puri is the first among the AMRUT cities in Odisha to have the SeTP completed. The 50 KLD Septage Treatment Plant (SeTP) employs co-treatment for septage management. The solids presents in the septage are separated in a setting-cum-thickener tank and taken to the sludge drying bed for drying and disposal. The liquid part of the septage is treated in the 15 MLD STP located adjacent to the SeTP.

The SeTP is co-located with the existing STP and is designed to work on co-treatment process, where effluent from settler-cum-thickener is pumped to STP for treatment and the settled sludge is taken out to the sludge drying bed.



## Dhenkanal

The Faecal Sludge and Septage Treatment Plant (FSTP) in Dhenkanal is a collaborative project between the Govt. of Odisha, Practical Action and Bill and Melinda Gates Foundation (BMGF).

**Technology:** The entire treatment plant other than the tertiary treatment is designed to operate based on gravity model avoiding wear and tear of equipment leading low operation costs.

### Components

- Screening chamber
- Stabilization reactor
- Sludge drying beds
- Anaerobic Baffle reactor and Anaerobic filter
- Planted gravel filter
- Sand and carbon filter
- UV disinfection
- Solar pasteurization unit
- Sludge storage house

### Salient Features

- Capacity: 27 KLD
- Area: 1.5 acre
- Design capacity: 27 cumecs
- Effluent Capacity: 800<10 mg/1
- Budget: 2.85 crore
- Population to be served: 1,10,015
- Plant Status: Trial run ongoing

### Highlights

- Solar Pasteurization Unit
- UV disinfection
- Solar panels used for running pumps
- Easy operations and completely closed system
- Gravity based system

# Benefits of Septage Treatment Facilities in Odisha

- The SeTPs will help reduce considerably indiscriminate disposal of untreated sludge & septage in the open as well as in the water bodies thus reducing pollution
- The user-friendly Operation and maintenance (O&M) such as minimum/zero energy consumption minimises O&M costs
- No human contact with faecal sludge and septage
- Minimal odour during entire process from transportation to treatment
- Gravity based system, based on natural and biological treatment, with no use of chemicals or electricity
- The low-cost technology, operation and maintenance demonstrates a scalable and sustainable model for septage management in India
- Landscaping, plantation and solar panelling makes the SeTP environment friendly and appealing
- Landscaping in the vacant area of the plants reuses the treated wastewater and the sludge
- Efforts are on with the Departments of Forest and Horticulture to explore the feasibility of usage of treated dried sludge in agriculture and horticulture

