Learnings from Bijnor- Uttar Pradesh

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Overview

City profile
Creating Infrastructure for Treatment (Treatment of FSS)
CSE’s intervention
Creating conducive environment
Streamlining Desludgers (Collection & Transport of FSS)
Operational challenges costs
Learnings
Bijnor city lies 12 KM west of River Ganga. It is the district headquarter.

The Bijnor lies on 236 m above sea level. The climate is warm and temperate in Bijnor.

- ODF: 2018
- ODF +: 2020
- ODF++: 2021

The city has 24 MLD STP (UASB based). Receiving average of 20-22 MLD

On the STP premises a 20 KLD co-treatment unit currently receiving average of 6-8 KLD

Total population (based 2011 census), estimated current= 235000

Area 11.61 sq.km

25000 households

Household size

Average rainfall

Administrative wards
Co-treatment-Project Highlights

Capex: Rs 41.42 lakh
Opex: Rs 1.5 lakhs/annum

Funding agency: National Mission for Clean Ganga
Executing agency: Uttar Pradesh Projects Corporation Limited
Technical support: Centre for Science and Environment

Duration of construction: 3 months + 1 month trial period
Coordinates: 29°22’25.2”N 78°06’15.3”E

Technology: Solid-liquid separation at sludge drying beds followed by liquid treatment at reactor via STP inlet (Scientifically)

Area of co-treatment unit: 225 m²
Capacity: 20 KLD
Location

[Map and location details]
Process

Dried Sludge → STORAGE → REUSE/DISPOSAL

SLUDGE DRYING BED ➔ FS pumping ➔ SUMP WELL ➔ HOMOGENIZATION TANK ➔ SCREENING ➔ Faecal Sludge (FS)

Leachate of FS ➔ Existing STP Components ➔ INLET OF STP/SCREEN/GRIT CHAMBER ➔ UASB REACTOR ➔ AERATED LAGOON ➔ POLISHING POND ➔ Treated Effluent ➔ REUSE/DISPOSAL
20 KLD Co-treatment Unit
24 MLD STP
Scenarios 2017 to 2020

Wastewater generated in the city reaches to Sewage treatment plant through tapping into main sewers. (taken 80% as it is being intercepted and collected)

All households have IHHL.

Few areas had toilets connected directly to open drains (hence 3% WW in offsite)

Notes: 2017

- No sewer and no wastewater treatment as STP was under construction
- Poor sanitation infrastructure
Creating Conducive Environment

City Sanitation Taskforce creation
- A city-level coordination platform
- A multi-stakeholder and multi-sectoral body

Engagement with Desludgers
- Agreements-On costs of Desludging; Compliance of Regulations
- Incentivize and recognition (Desludgers)

Capacity building and IEC
- ULB staff and Sanitation workers
- Citizen`s engagement

Creation of Regulatory framework: FSSM Bye-laws
- Drafting and circulating in the city council
- Gazette Notification
MoU between CSE and Nagar Palika Parishad Bijnor

Capacity Building
Streamlining Desludgers (Collection & Transport of FSS)

Rapid Registration Camp

Private Desludgers Registered

Agreements with private desludgers arranged by
Streamlining Desludgers (Collection & Transport of FSS)

- Regular decanting at the treatment facility is crucial for the plant's normal functioning
- Desludgers act as a backbone to any FSSM project
- Their regularization is essential
- Engagements with them should be on a regular basis;
  - helps in understanding the scenario;
  - loop holes in management;
  - Creates a environment of ownership among private player
- Dynamic desludging fees
- Welfare of private players
- Broadening their engagement with ULB
Initiatives on different components of Mason's Trainings Desludgers Trainings Sanitation Value Chain
FSSM Bye-laws approved in City Council-2021

Gazette Receipt

Incentives schemes discussion with desludgers
Scientific co-treatment is a conscious procedure of adding FSS to STP modules by understanding the boundaries of treatment in STP.

Scientific co-treatment differs from the current practices of the directly adding FSS to the inlets of STPs without any pre-treatment.

Characterization of Faecal Sludge and Septage to understand the organic load to be added in STP.

Understanding of non biodegradable and biodegradable particulate matter and solid content in FSS.

Scenario of collection and conveyance in the city and then designing feasibility assessment study of the STP.
Operational Expenditure and Challenges

Handover of the co-treatment Unit was done to Bijnor ULB after due inspection on ULB’s end. Operational purpose basic work includes the following:

Cleaning of the steel screens regularly.
Maintaining the record register.
Transfer of FSS from homogenization tank to Sludge Drying Bed vis sewage sump.
Cleaning the premises.
Dried sludge for Reuse.
Nagar Palika Parishad Bijnor has employed a worker to do above task who is responsible for above task except transfer of Dried Sludge. The dried sludge is transferred to composting site once in a month by help sanitation workers of the municipality.

Cost incurred by ULB in Operation of the co-treatment includes:
- Salary of the worker (single) employed (~10k/month)
- Cost of transferring dried FSS from the plant to compost site. (500 per trolley load)
- Average Dried FSS removed is 5-7 trolleys in a month.
• Strategizing Septage treatment: Plan consciously with focus on maximum safe management of FSS as early as possible.

• Regularizing and engaging private players in all stages: Private desludgers play the key role in sustaining the FSM project.

• Early engagement with them brings understanding and trust between city officials and private desludgers.

• Willingness of different stakeholders to take part in sustainable sanitation. Heavy infrastructure and heavy funding projects are center of interests. Small infrastructure projects lose central attention.

• Model containment systems: Septage management at source requires correctly designed septic tanks. Building bylaws must be followed stringently for compliance in this direction.
Officials from Swachh Bharat Mission-Grumin, Rajasthan, senior consultants from UNICEF-India, and waste specialists from Jaipur visited in May 2023.
Notes: 2022

- All the desludgers licensed and registered; Sensitized; regularly engaged; introduced to government schemes; Incentives schemes

- All the households emptied on demand the FS reaches to treatment

- Co-treatment infrastructure commissioned

- Waste-water reaching through tapping and interceptions. (take wastewater or SN in drains and sewers is reaching to treatment as it is being intercepted and treated)

- Bye-laws gazette- completed
THANK YOU