



Eco-sensitive FSSM

A Case of Wai and Sinnar in Maharashtra, India

SanCoP 26 : Sanitation and Climate change

19th October, 2021

Aasim Mansuri

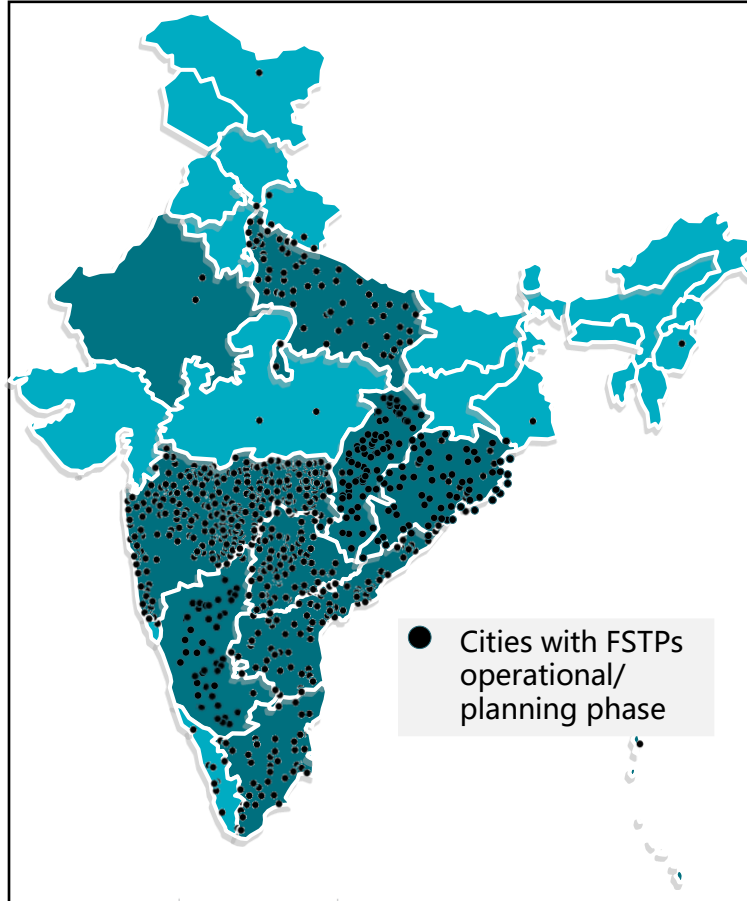
Senior Program Lead,
Center for Water and Sanitation (CWAS)

CWAS CENTER
FOR WATER AND
SANITATION

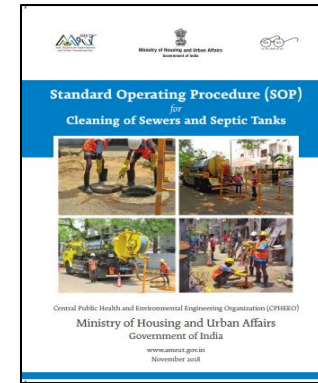
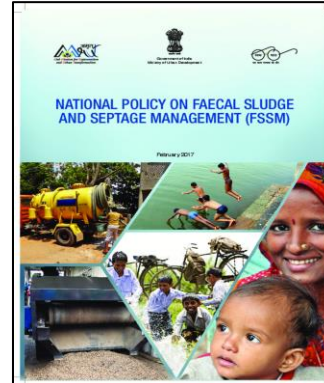
CRDF CEPT RESEARCH
AND DEVELOPMENT
FOUNDATION

CEPT
UNIVERSITY

FSSM is on the priority list of India to attain SDG 6.2 . . .



- Over the **past five years FSSM** has received increasing attention and a **national FSSM policy** has been adopted.
- Government of India has undertaken several policy and program initiatives to support **FSSM activities on a larger scale**.
- **States** are progressing with **statewide FSTP roll out / FSSM plans**.
- ~**1000+ FSTPs** in planning or implementation phase in India.



Wai and Sinnar. . .

From **URBAN LABORATORIES** to **LIGHT HOUSE** cities . . .



- Wai and Sinnar are cities in Maharashtra having 43,000 and 72,000 population respectively.
- **These cities are representative of 4000+ small and medium cities of India.**

FSSM activities undertaken from 2014. . .



Scheduled emptying of septic tanks



Faecal Sludge and Septage treatment facility (FSTP)



Levying a Sanitation tax to support operations



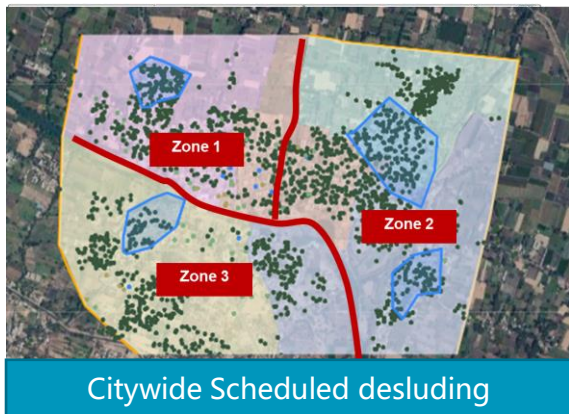
Municipal council commitment and leadership



Equitable Services for Slums and Vulnerable areas

& many more...

Improvement in groundwater and river water quality due to scheduled desludging . . .



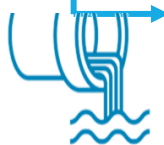
Key highlights :

- **Inclusive service** – all slum / non slum households covered
- **Sustainable finance** through sanitation tax
- **Performance linked annuity model** for engagement with private sector
- **Digital monitoring** systems

Improved performance of septic tanks after desludging resulting in improved drain water quality flowing into river



- Reduction in Nitrogen, Total Suspended solids and Organic loads in septic tanks effluent after desludging them



- Reduced concentration from septic tank effluent helped in reducing the discharge of nitrogen and TSS into the open drains
- 50-60% decrease in the value of TSS and BOD load in desludged areas



- Eventually improving the quality of river water and ground water as the quality of drain water and supernatants are improving

Eco-sensitive FSTPs setup at Wai and Sinnar. . .

Wai, India



Sinnar, India



FSTPs powered by Solar energy . . .

Wai, India

- Consumption of electricity: **1396 Units/month**
- Estimated generation of electricity: **3208 Units/month**
- CO2 emissions mitigated: **16.06 Metric ton/annum**

Potentially **16.06 carbon credits** can be generated

Solar Power generation capacity: 30 KW



Sinnar, India

- Consumption of electricity: **1184 Units/month**
- Estimated generation of electricity: **1258 Units/month**
- CO2 emissions mitigated: **6.3 Metric ton/annum**

Potentially **6.3 carbon credits** can be generated

Solar Power generation capacity: 7.5 KW



Closing the loop through Resource recovery . . .

Wai, India



- **Treated water:** Gardening and Landscaping at FSTP and SWM site
- **Biochar:** Exploring uses as a soil enricher for agriculture
- **Thermal Energy:** Being used internally for pasteurization / Drying / Power generation

Sinnar, India



- **Treated water:** Gardening and greening of the FSTP site; Treated water is being used for adjoining urban forest.
- **Biogas:** Exploring uses in the pantry of the resource centre
- **Treated dry solids:** Used for landscaping

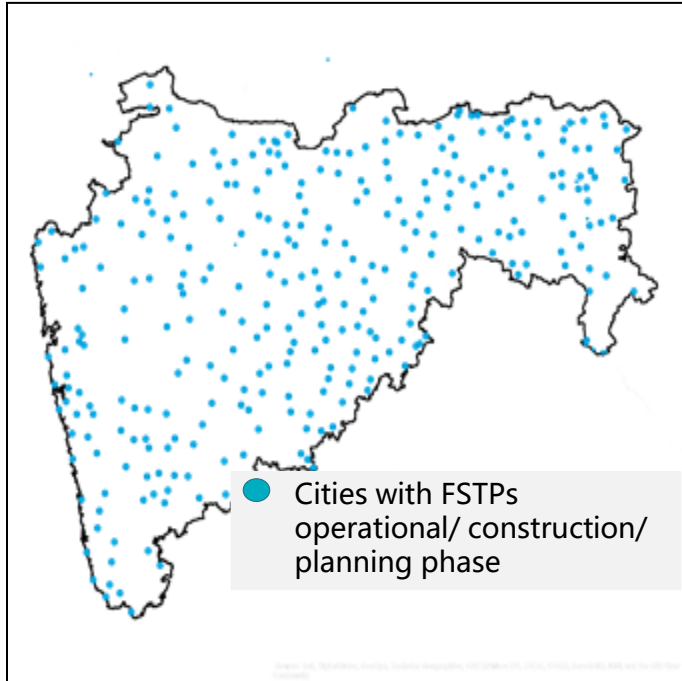
~ 35 Million Litres of fresh water has been saved as a result of reusing treated wastewater from the FSTP till now!!!

Sinnar FSTP and Urban Forest. . . Like Oasis in a Desert. . .



- In Sinnar, **8000 square metres of urban forest and landscaped area** is growing in the midst of an otherwise barren and rocky land. **Managed by women SHG groups**
- The forest compliments the city's Faecal Sludge treatment plant by **using treated water and dried sludge from the FSTP**.
- **More than 1400 trees were planted** and since then they have been growing at a healthy pace.
- The urban forest has already started attracting various species of birds and **is helping to sustain healthy biodiversity**.

Learnings from these cities is being scaled up . . .



- Learnings from these cities is being scaled up across 300+ FSTPs coming up in Maharashtra.
- Resource recovery and use of clean energy will be adopted in these cities.

Partnerships and Collaboration to attain Scale . . .

BILL & MELINDA
GATES *foundation*

HSBC 



Government of
Maharashtra



CWAS CENTER
FOR WATER
AND SANITATION

CRDF CEPT RESEARCH
AND DEVELOPMENT
FOUNDATION

CEPT
UNIVERSITY


NFSSM
Alliance

Thank you

CWAS CENTER
FOR WATER AND
SANITATION

CRDF CEPT RESEARCH
AND DEVELOPMENT
FOUNDATION

CEPT
UNIVERSITY

With inputs from:
Yash Barve

cwas@cept.ac.in
pas.org.in, cwas.org.in

About us

The Center for Water and Sanitation (C-WAS) at CEPT University carries out various activities – action research, training, advocacy to enable state and local governments to improve delivery of services.



pas.org.in
cwas.org.in



pas@cept.ac.in



[pas_project](#)



[pas.cept](#)



pas.org.in/web/ceptpas/pas-e-news
Sign up: tiny.cc/pasenews