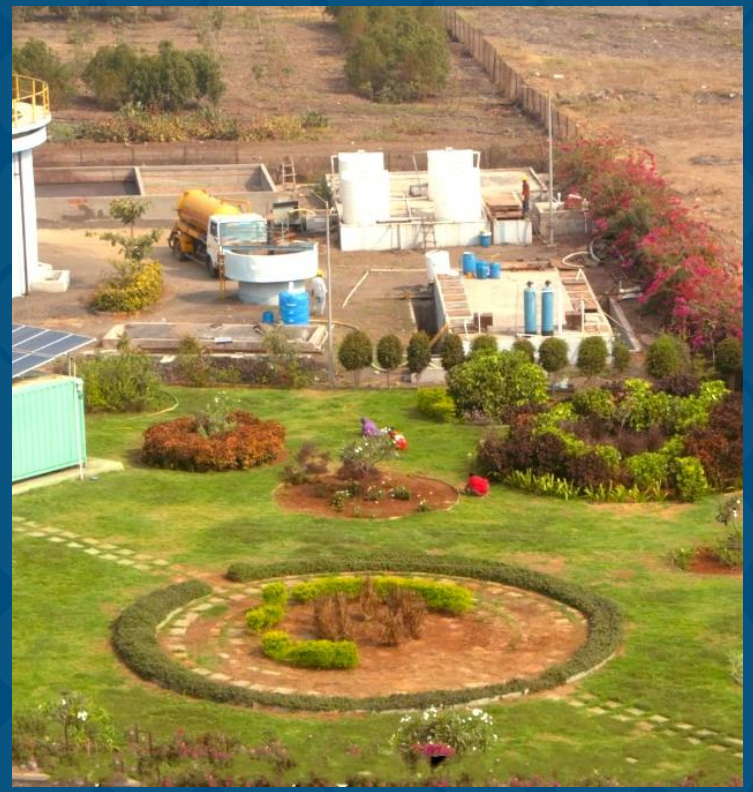
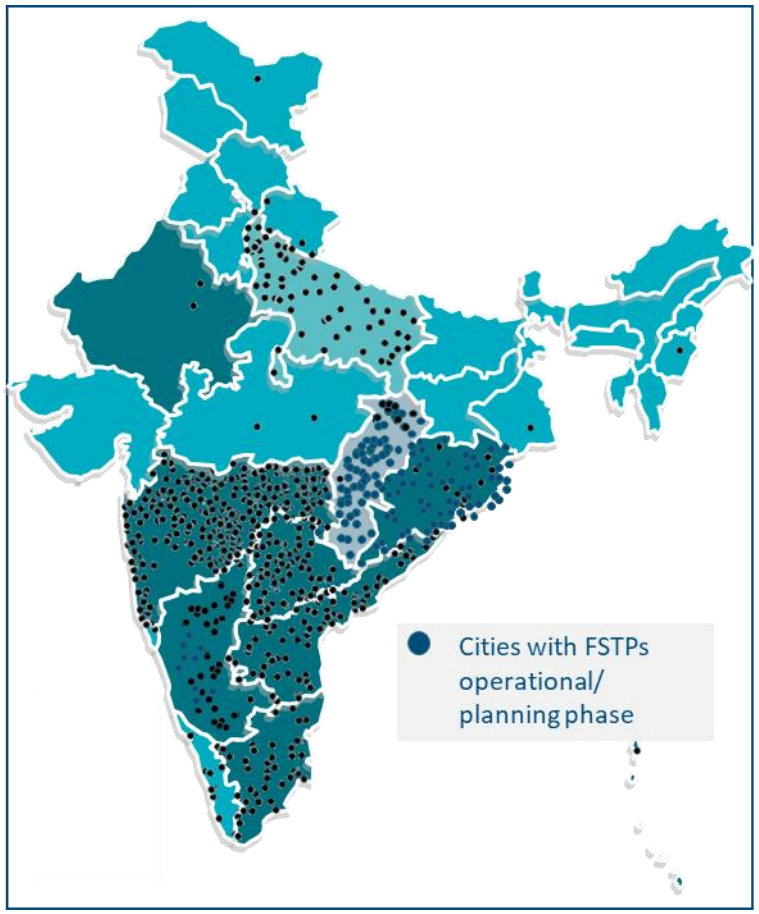
Urban forest and FSTP used-water reuse in Sinnar

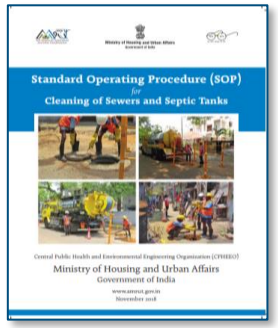
Center for Water and Sanitation (CWAS), CRDF, CEPT University

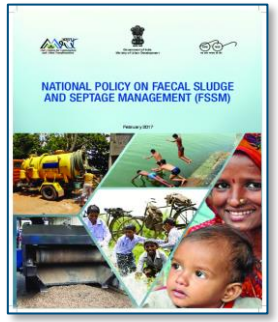
30th August 2022



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







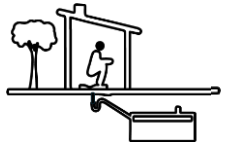
- Only 40% of urban population in India is serviced with sewerage systems **whereas 60% dependent on-site sanitation systems** like septic tanks
- Over the **past five years FSSM** has received increasing attention and a **national FSSM policy** has been adopted.
- Government of India has undertaken 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.

Source: MoHUA,GoI. (2020). Advisory On On-site And Off-site Sewage Management Practices. Retrieved from https://scbp.niua.org/?q=content/advisory-site-and-site-sewage-management-practices-cpheeo-goi-0

Sinnar – From urban laboratory to a light house city

- A medium sized city in Maharashtra, India with a population of 72,000
- Representative of 4000+ small and medium cities of India

FSSM activities undertaken from 2014. . .



Increase in own toilets with safe onsite containment systems

Scheduled emptying of septic tanks

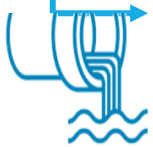
Faecal Sludge and Septage treatment facility (FSSTP)

And many more…

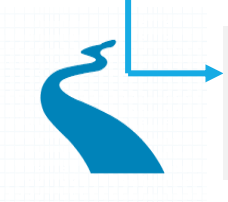
Improvement in groundwater and river water quality due to scheduled desludging

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

- Reduction in **Nitrogen, TSS and Organic loads** in **septic tanks effluent** after desludging them



- Reduction in 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

Scheduled desludging generated higher volumes of treated used water and sludge

70 KLD UASB+SDB solar powered FSTP

Avg fecal sludge treated 45-50 KLD

By-products after treatment at FSTP

Treated water (20 KLD)

Possible onsite and offsite reuse options: FSTP landscape, ground water recharge, urban forestry, public toilet cleaning, industries, road side plants, building construction, etc.

Dried Sludge (Nominal)

Plant additives on site and in farmlands, bricks and pavers etc.

Physical

- Land Availability
- Quantity of TWW
- Quality of TWW
- Distance of Reuse from FSTP

Finance

- Capital Cost
- O&M cost

User Perspective

- Human contact
- Demand

Sinnar decides to reuse treated used water for development of garden and urban forest

Before

After

- **8000 square** meters of urban forest and landscaped area in midst of barren land.
- More than **1400 trees of 16+ species are** planted
- All treated **water** is used for **watering the plants** through a **drip irrigation system**
- The treated **sludge is used as fertilizers at the urban forest or taken away by farmers.**
- The **quality** of the treated products are **regularly monitored** through testing the samples.

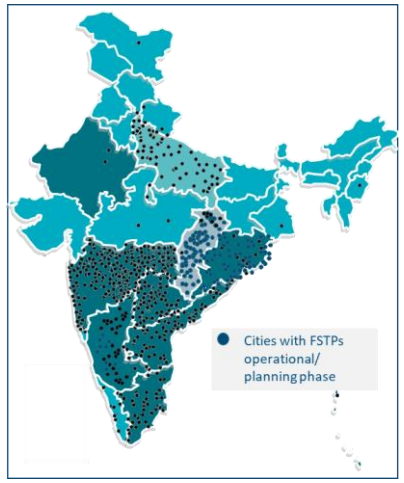
A women's Self Help Group was engaged for maintaining the garden and the urban forest

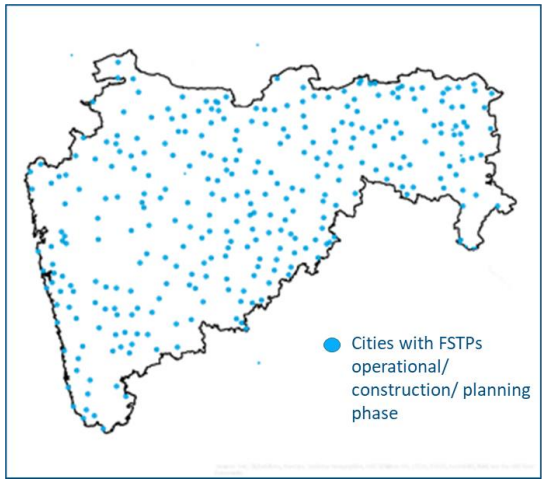
- **Self Help Group (SHG)** is a financial intermediary committee composed of 10-25 local women.
- SMC engaged an SHG for maintenance of garden and urban forest through a **contract** and **paid on a monthly basis**.
- SMC supported the SHG with **handholding support and trainings**
- Formally engaging the SHGs have **empowered** them and have large social impacts.

Improved FSSM services with reuse of treated water positively impacts the environment

- ~ **20 Million+ Litres** of fresh water has been saved as a result of reusing treated used water
- The urban forest and landscape has helped to sequester **CO2 equivalent to 17,000kg**
- Solar FSTP has reached a **net energy positive stage** and helps to **mitigate CO2 emission equivalent to 6.3 metric ton/annum.**
- Urban forest has helped to **sustain healthy biodiversity and added aesthetic value to the FSTP**

Great potential for scaling up the learnings from Sinnar in other cities of India





Benefits of treating wastewater from FSTPs and its reuse potentials contributing to SDG 6

- National level initiatives such as **'Swachha Bharat Mission 2.0'** mandates provision of scheduled desludging service as a part of ODF++ protocol
- **1000+ FSTPs** in planning or implementation phase in India, **300+ FSTPs** alone coming up in Maharashtra.
- **Resource recovery** and use of **clean energy** if adopted in these cities would contribute towards **achieving SDG 6**.

Thank you!

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World Water Week

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