



CO-TREATMENT OF SEPTAGE AND SEWAGE

Non-Networked Sanitation Systems for India

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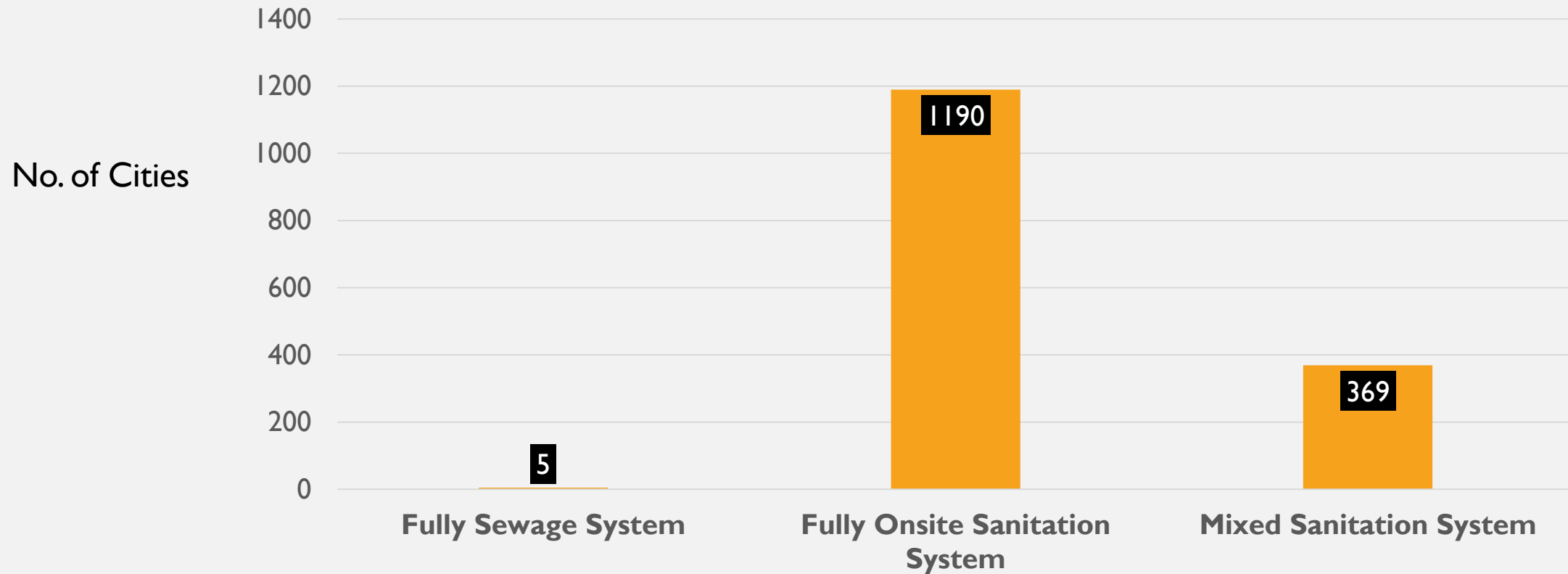
- What is Co-treatment
- Scope of Co-treatment in India
- How is septage different from sewage
- Possible consequences of adding septage to STP
- Options to deal with septage through STP
- Approach for co-treatment
- Experiences from Rajasthan

WHAT IS CO-TREATMENT??

- Treatment of septage (from onsite sanitation facilities like pit latrine and septic tanks) at the sewage treatment plant (STP) is termed as Co-treatment of septage with the wastewater.

SCOPE OF CO-TREATMENT IN INDIA

Different types of Sanitation systems in Urban India



Source: PAS, CEPT University

SCOPE OF CO-TREATMENT IN INDIA

- Only a few cities are known to have 100% sewerage coverage
- Nearly 1200 cities are entirely dependent on Onsite sanitation systems (Septic tank and Pit Latrine)
- 76% of cities in India are dependent on Onsite sanitation systems and 24% on mixed sanitation systems
- These Onsite sanitation systems generates Septage which needs to be treated further before disposing in the environment.

HOW IS SEPTAGE DIFFERENT FROM SEWAGE?

Parameters	Public Toilet	Septic Tank	STP
Total Solids, TS (mg/L)	52,500	12,000-35,000	2000
COD (mg/L)	30,000	10,000	100-700
BOD (mg/L)	7,600	840-2,600	150-400
NH ₄ N (mg/L)	3,300	150-1,200	30-70
Total Phosphorous (mg P/L)	450	150	9-63
Helminth eggs (number/L)	20,000-60,000	4000	300-2,000

POSSIBLE CONSEQUENCES OF ADDING SEPTAGE TO STP

- Septage has high strength, pathogens and high amount of solids as compared to wastewater coming to the STP
 - Increase in the volume of screening and grit requiring removal
 - Increased odor emission at the headworks
 - Increased in scum and sludge production rate
 - Increased organic loading leading to overloading and system failure
- Despite these possible drawbacks, wastewater treatment facilities with spare capacity are a potential resource to be investigated for co-treatment of septage.

APPROACH FOR CO-TREATMENT(DESIGN CRITERIA)

- Quantity of septage received in a day
- No. of trucks arriving at the STP for discharging
- Characterization of septage (BOD, COD, pH, TS, Pathogens ,nitrates and phosphates)
- Design capacity and criteria of STP (peak flow, low flow etc)
- Current operational capacity of the STP
- Characteristics of the wastewater influent
- Effluent discharge standards
- Combined influent characteristics of the wastewater and septage

APPROACH FOR CO-TREATMENT

Addition to the liquid stream

- At preliminary stage (headworks)
- At primary stage
- At secondary stage

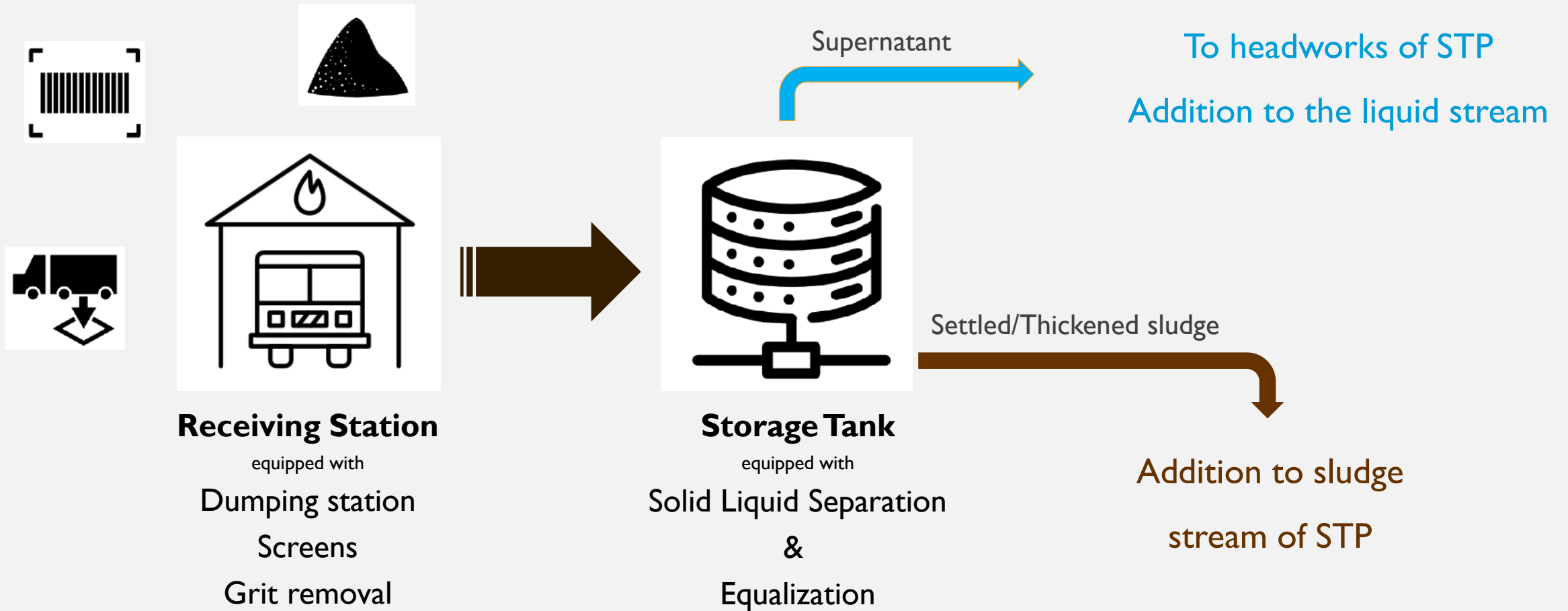
Addition to sludge stream

- At stabilisation stage
- At thickening stage
- At dewatering stage

Addition to both liquid & sludge stream

- Solid-liquid separation at source
- Treated separately; Liquid at the existing STP

SAFE PRACTICE FOR CO-TREATMENT



EXPERIENCES FROM RAJASTHAN

1. STPs are located at 15-20 kms away from the city- Intermediate dumping stations are required
2. STPs are running under capacity (organic as well as hydraulic loading)- Hence Co-treatment is feasible
3. No characterisation of faecal sludge/septage currently- Characterisation is required to decide how much septage can be safely added without hampering the STP performance
4. ULBs do not have information regarding the private operators- Private emptiers should be registered and regulated in a city



THANK YOU