ORIENTATION TO FAECAL SLUDGE AND SEPTAGE MANAGEMENT

NFSSM Alliance

THE NFSSM ALLIANCE

The National Faecal Sludge and Septage Management (NFSSM) Alliance was convened in January 2016 to build consensus around faecal sludge and septage management.

The Alliance with support from the Bill and Melinda Gates Foundation works in close collaboration with the Ministry of Housing and Urban Affairs and helped design a national policy on FSSM.

The Alliance comprises of numerous national and international organizations across the country working towards sanitation solutions for India.

VISION

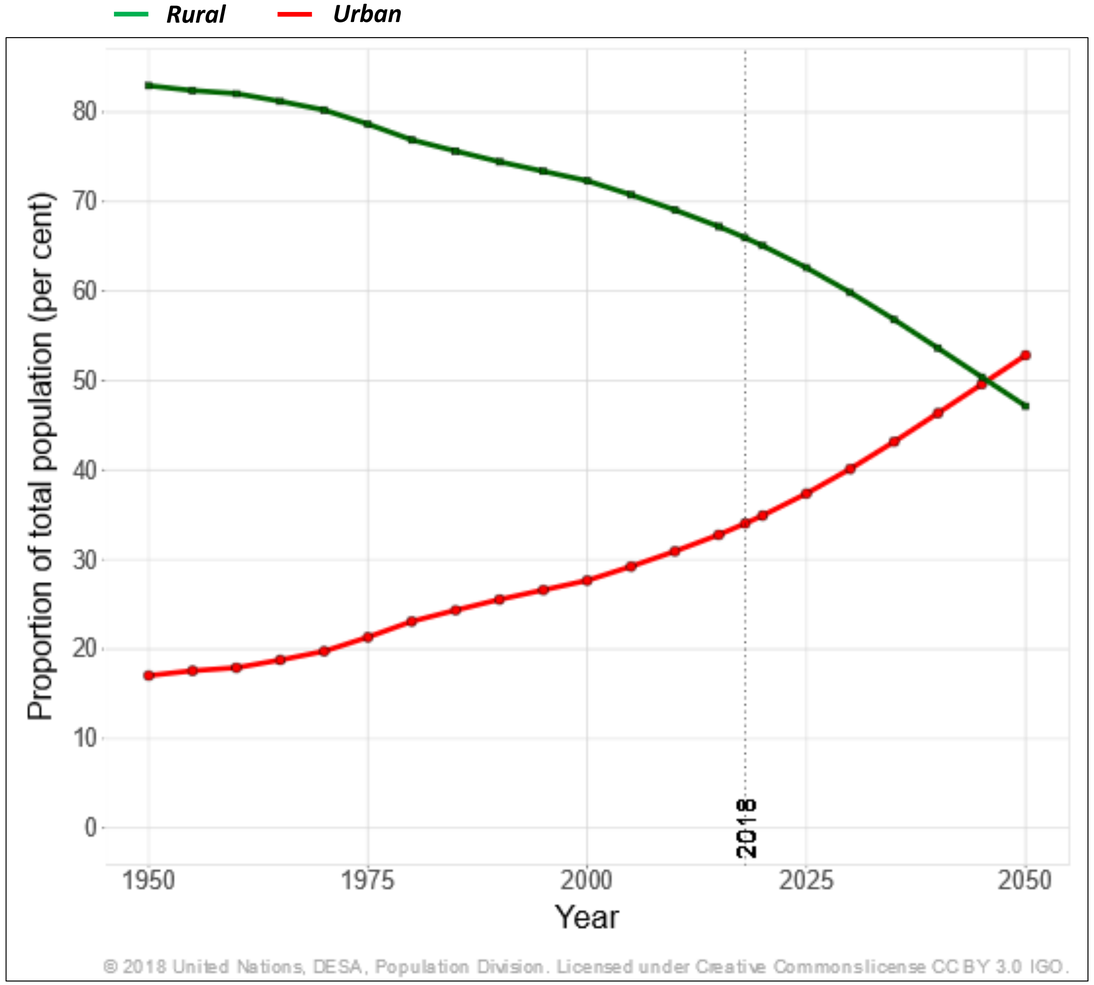
Create an enabling environment that amplifies scaling of safe, sustainable and inclusive FSSM through knowledge, partnerships and innovative solutions by 2024.

GUIDING PILLARS

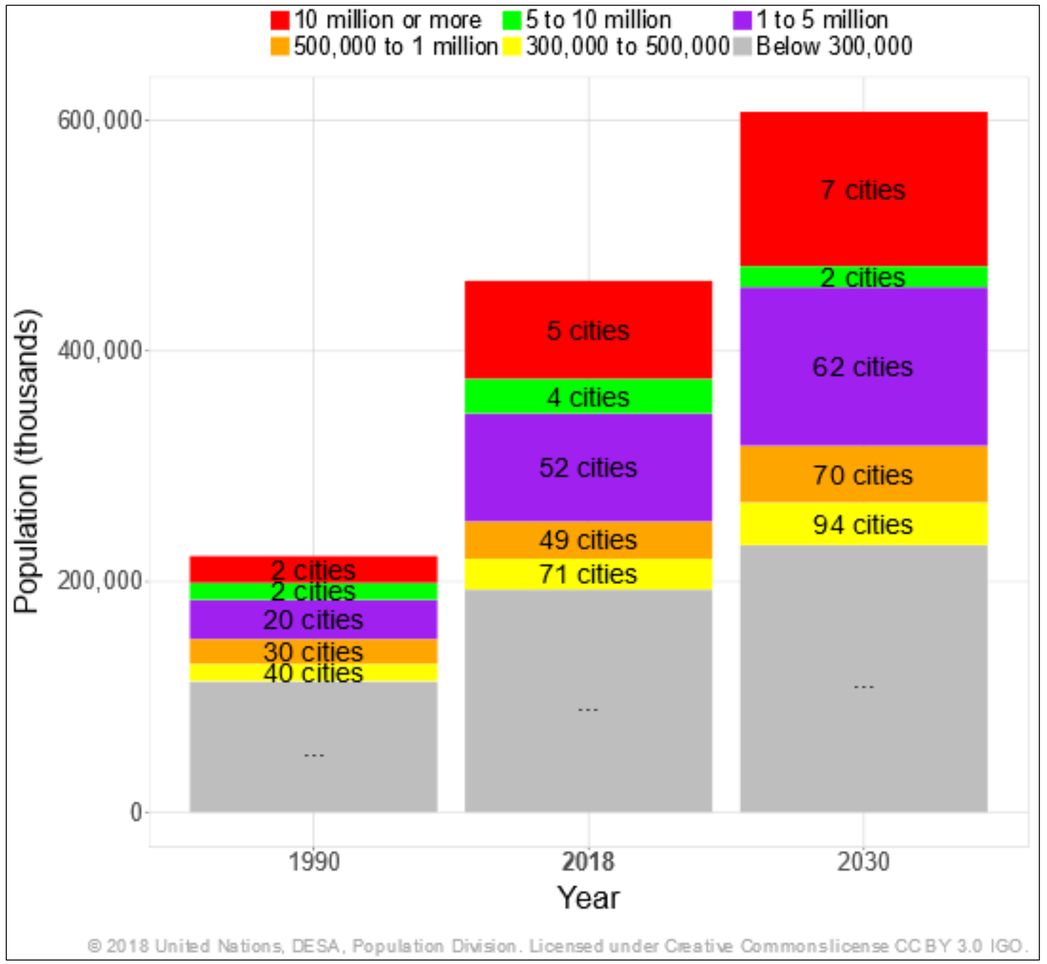
INCLUSIVITY
INFRASTRUCTURE AND TECHNOLOGY
SYSTEM STRENGTHENING AND CAPACITY BUILDING
BEHAVIOUR CHANGE COMMUNICATION
POLICY

INDIA - URBAN SCENARIO

Percentage of population in rural and urban areas



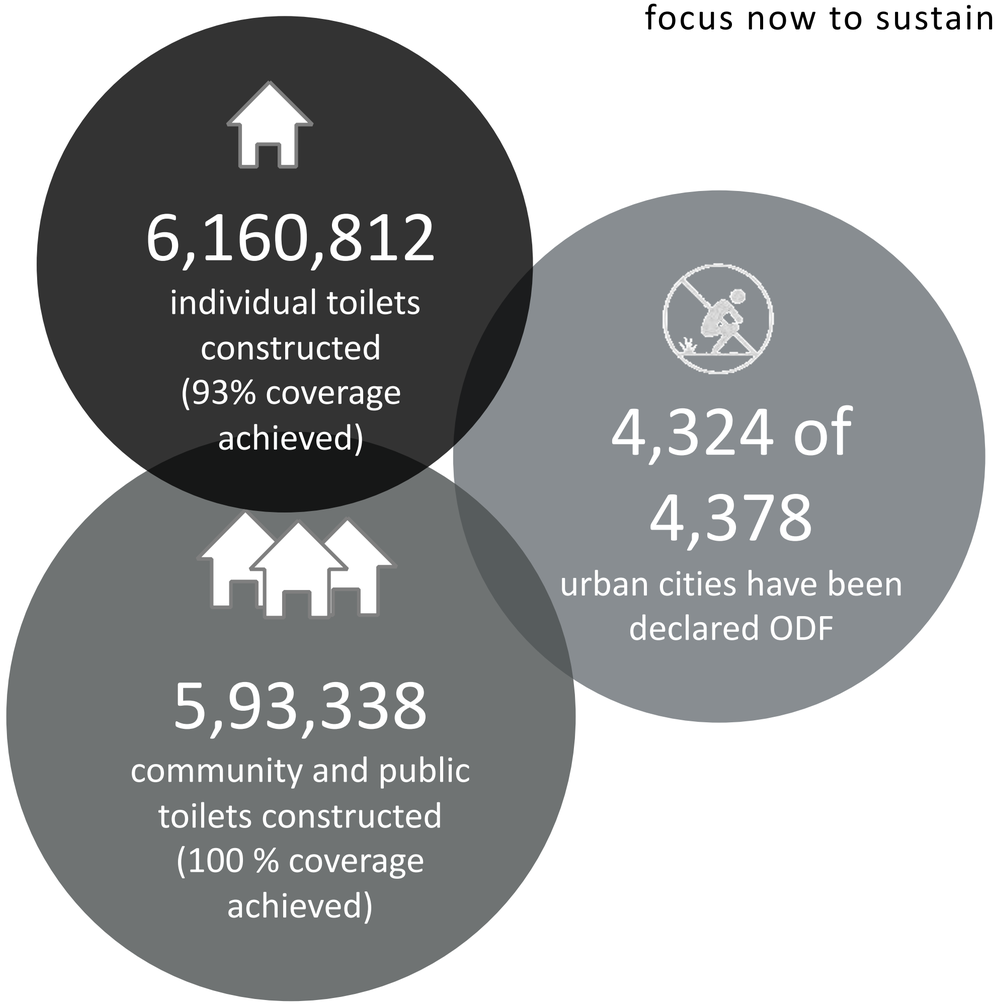
Urban population by size class of urban settlement

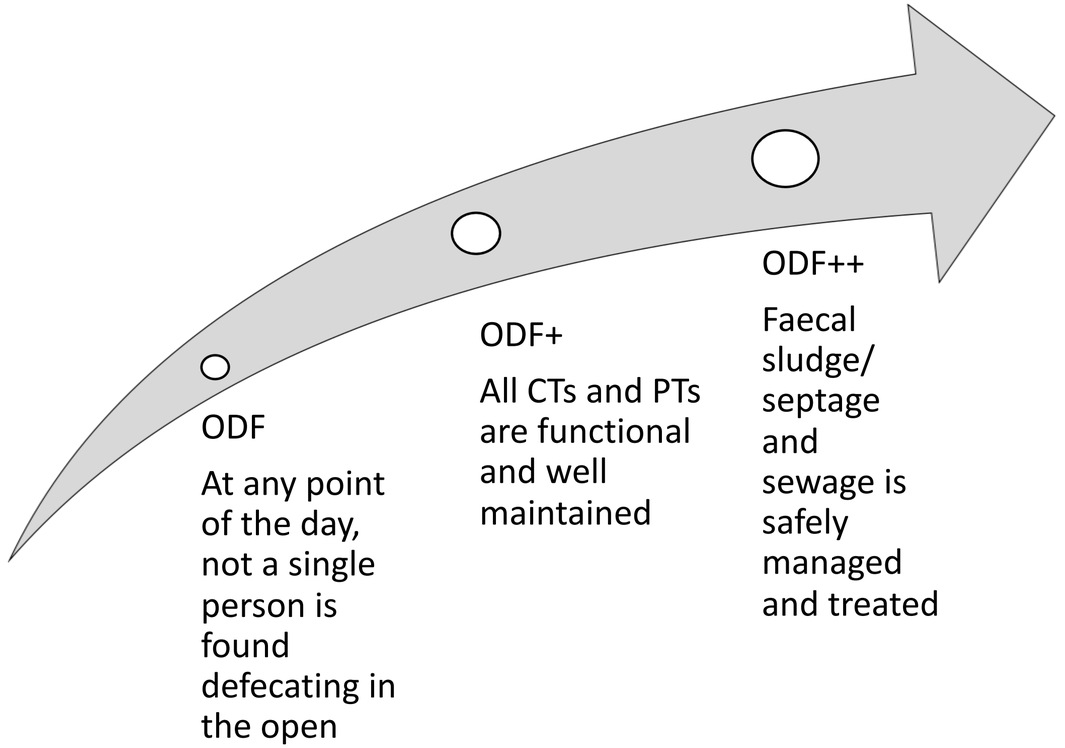


The graph in the left shows that percentage of population residing in the rural areas is decreasing and by 2045 more than 50% of the population in India will be living in urban areas. It is expected that in less than a decade, India will have seven cities with more than 1 crore population and 62 and 70 cities with population between 10 to 50 lakh and 5 to 10 lakh respectively.

SANITATION ACHIEVEMENTS

The Swachh Bharat Mission is addressing toilet access successfully. Need to focus now to sustain the SBM Momentum and fully achieve SDG 6.2

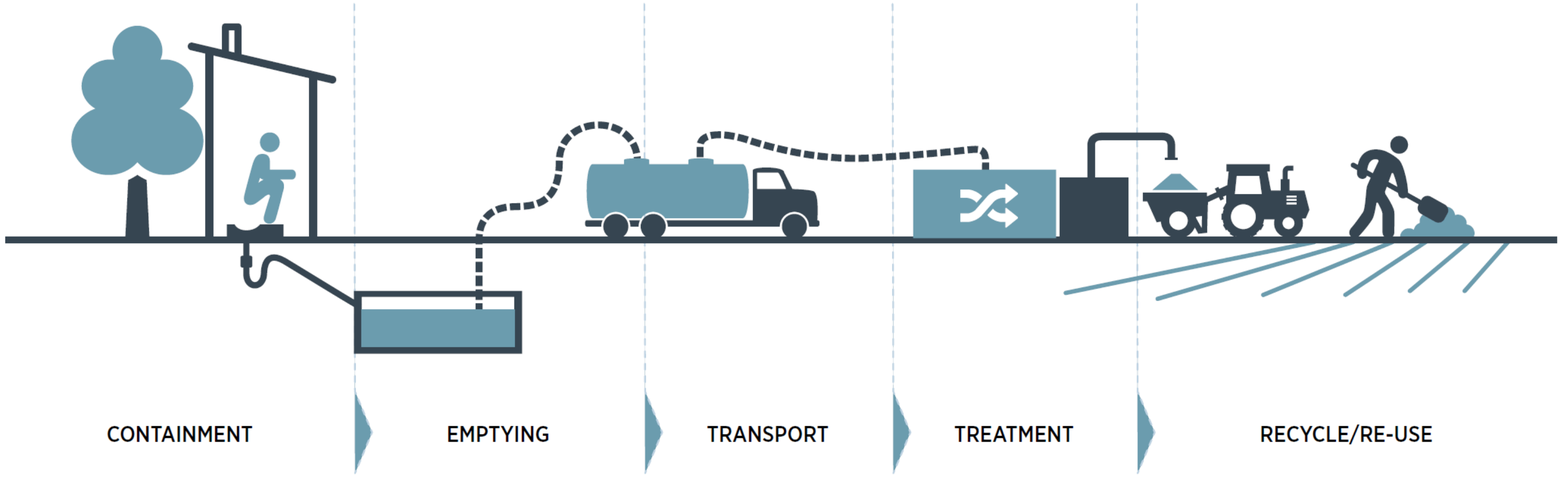




Journey from ODF to ODF+ and ODF++ has begun

Source: SBM Urban MIS; National Annual Rural Sanitation Survey 2018-19

SANITATION SERVICE CHAIN- CURRENT STATUS



ON SITE SANITATION (OSS) DEPENDENCE

About 67% of urban HHs have Onsite Sanitation Systems (OSS) likely to increase to 70% by 2020 [CDD estimate]

THE BURDEN ON SAFE WATER

Nearly 70% of faecal sludge is untreated in India, and 38,791 MLD untreated sewage (62% of total sewage) is discharged directly in water bodies [CPCB report]

THE BURDEN ON AGRICULTURE

79% water used for irrigation would fail faecal coliform standards in Ganga Catchment [UN Environment, 2019], while demand for water for irrigation increases

Key Facts

30 million of 79 million urban HHs (nearly 40%) with septic tanks, **have no clear method for sewage disposal** (WaterAid, 2016)

Diarrhoeal diseases (most of them due to poor sanitation services) **contribute to 20% of deaths** in children under the age of 5 (USAID, 2010)

Lack of proper and functional service chain causes an **estimated loss of US$ 54 Billion** to India annually.

NEED FOR FAECAL SLUDGE AND SEPTAGE MANAGEMENT (FSSM) IN INDIA

Low Cost, High Impact

Advantages of Non-Sewered Sanitation:

- Requires low investment & operations as compared to Sewered Sanitation
- It is water saving and does not need large scale infrastructure
- Cost-effective solution for treatment and reuse

Even the **CPHEEO manual** defines the high capital and O&M costs of centralized STPs as hurdles for small towns, and mentions: **STPs remain a highly resource inefficient technology with high capital and O&M costs, thereby prohibiting widespread adoption in all sizes of urban areas in the country.**

Open Discharge of Faecal Matter

One truck of faecal sludge and septage carelessly dumped = **5,000 people defecating in the open!**

1 Gram of Faeces may contain:
100 parasites eggs
1000 Protozoa
1,000,000 Bacteria
10,000,000 Virus

Lack of Services leads to manual scavenging

Since 2017, one **manual scavenger has died** on the job **every five days!**

FSSM AS A SOLUTION

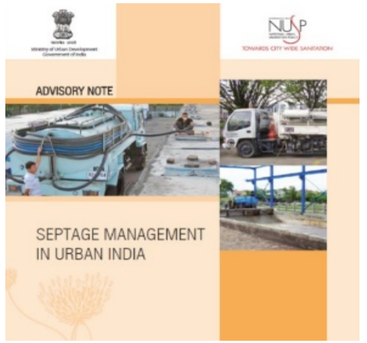
What are the Challenges?

- Only **33%** of the latrines are connected to a piped sewer network
- Only **20%** of the waste generated in the urban areas is currently treated
- India is expected to experience the **second highest rate of urbanization** by 2030 indicating further sanitation challenges

What is the Solution?

- One of the proven approaches to tackle the sanitation challenge pertaining to liquid waste management is faecal sludge and septage management
- FSSM takes a service-chain based approach, which comprises safe containment, conveyance, treatment, disposal/reuse of faecal waste

FSSM on the National & International Agenda



TRAJECTORY OF FSSM IN INDIA

2008
India launched a National Urban Sanitation Policy (NUSP) but did not consider FSSM

2016
NFSSM Alliance supported MoUD for a Primer and Rapid Assessment Tool for FSSM budgeting by ULBs.

Devanahalli builds India's first FSTP

2017
Launch of India's first National Policy on FSSM in collaboration between the Alliance and MoUD, signed by 100 cities

DECEMBER 2017
1,846 (42%) of cities across India declared Open Defecation Free (ODF)

2018
19 out of 36 States and Union Territories published policies or operative guidelines on FSSM.

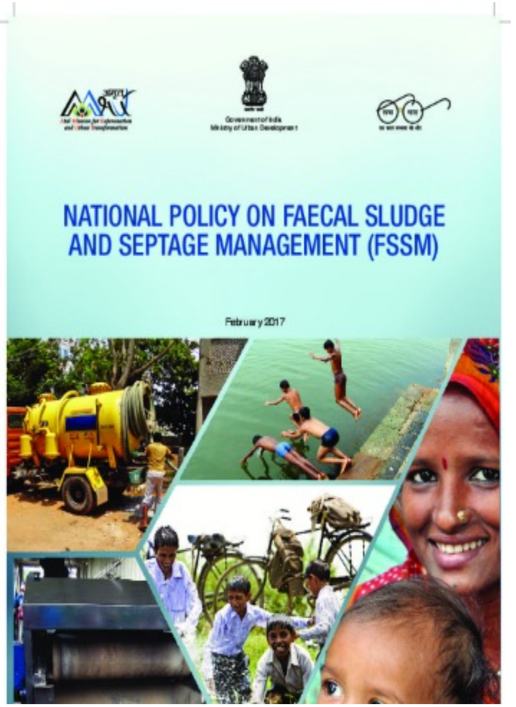
22 FSTPs operational.

2019
442 towns in India announce or issue tenders to set up FSTPs.

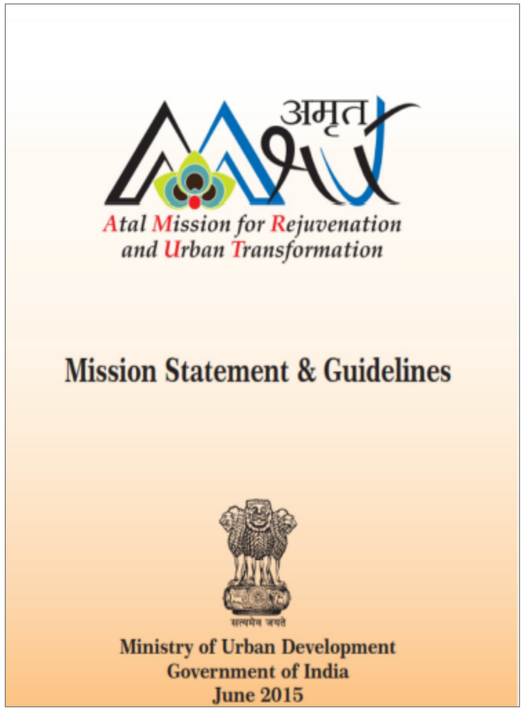
National Urban Sanitation Policy (NUSP) revisions with FSM submitted to MoHUA.

MoHUA for integrated FSSM in Swachh Survekshan indicators

EMERGING EMPHASIS ON FSSM



National Policy on FSSM

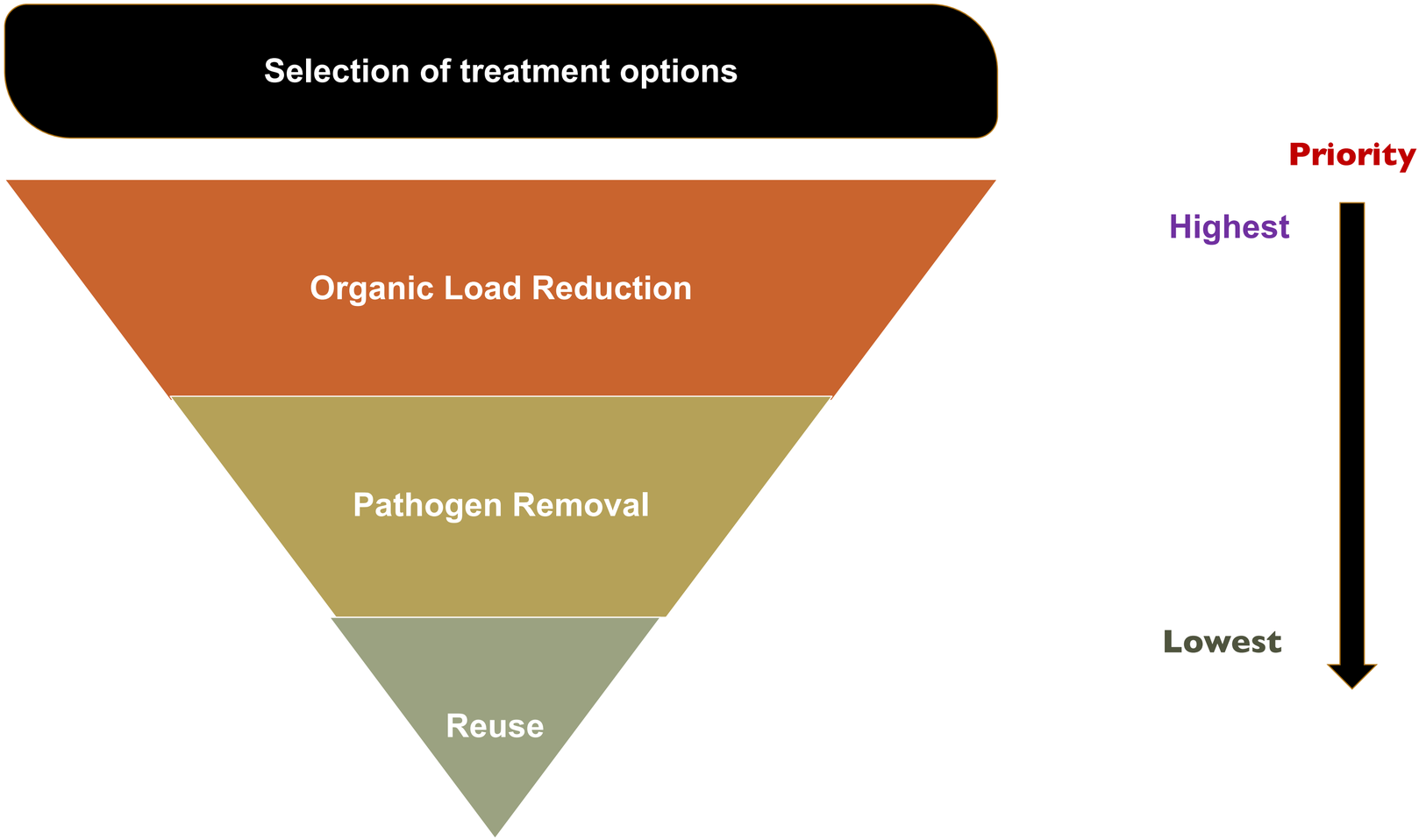


Financial allocations for FSSM under AMRUT

Emphasis on FSSM in Swachh Survekshan

MoHUA endorsed FSSM Training Modules

TREATMENT OBJECTIVES



TREATMENT OPTIONS: CONSIDER THIS ANALOGY

- Long term – own House
- Short term – Rent
- Temporary – Hotel, Tent

- Long term – Standalone treatment plant
- Short term – Co-treatment, Co-digestion
- Temporary – Safe disposal - Trenching

TREATMENT OPTIONS: CONSIDER THIS ANALOGY

Parameters	 Selecting a house	 Selecting a treatment system
Availability of Capital funds	Bank balance	Program, State budget, etc.
Maintenance cost	Income of Household members	Income of ULB or budget for O&M
Availability of spares parts and consumables	Local market, Plumber etc.	Suppliers, skill set
Robustness	Accommodation of guest	Variability in FS quality and quantity
Specification to standards	Local building codes	Pollution control board specifications
Valuable products	Good neighbours, calm environment	High value end products

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SELECTION OF TREATMENT MECHANISM

Performance

- Effluent wastewater and solid:
- Meet the discharge / reuse standards

Local context

- Characteristics of sludge (de-waterability, solids concentration, stabilization, spread ability)
- Quality & Frequency of the sludge received at treatment facility
- Climate
- Land availability
- End-use

O&M requirements

- ULB has human resources and can finance O&M
- Availability of skilled persons for more complex technology

Cost

- Investment
- O&M
- Affordability for households and ULB

FSSM UPTAKE IN INDIAN STATES

5 STATES WITH A TOTAL POPULATION OF OVER HALF A BILLION HAVE INITIATED FSSM

Maharashtra: FSSM planned in 100 towns

Tamil Nadu: FSSM planned in 285 towns

Odisha: FSSM planned in 114 towns

Uttar Pradesh: FSSM planned in 31 towns

Andhra Pradesh: FSSM planned in >140 towns

LESSONS AND BEST PRACTICES

POLICY AND STRATEGY

- State Scale Up and Investment Strategy
- Institutional Arrangements, Norms and Regulations for FSSM at State Level

OPERATIONAL SUSTAINABILITY

- Integration of FSTP operations with local livelihood- integrating SHGs in routine operation and management
- Scheduled Desludging of Septic Tanks, Cluster Operations Systems

REPLICATION

- Capacity Building of all Stakeholders
- Creating Awareness through Advocacy, Workshops
- Recognizing Government Champions and advocating for larger political buy-in

STATE APPROACH – TAMIL NADU

Phase Wise Scaling-up plan for FSSM in ULBs

Suggested Phase- wise coverage for ULBs for FSSM

Phase I&II

Co-treatment at STPs in all ULBs

Phase III

Municipalities with Solid Waste Management (SWM) Sites

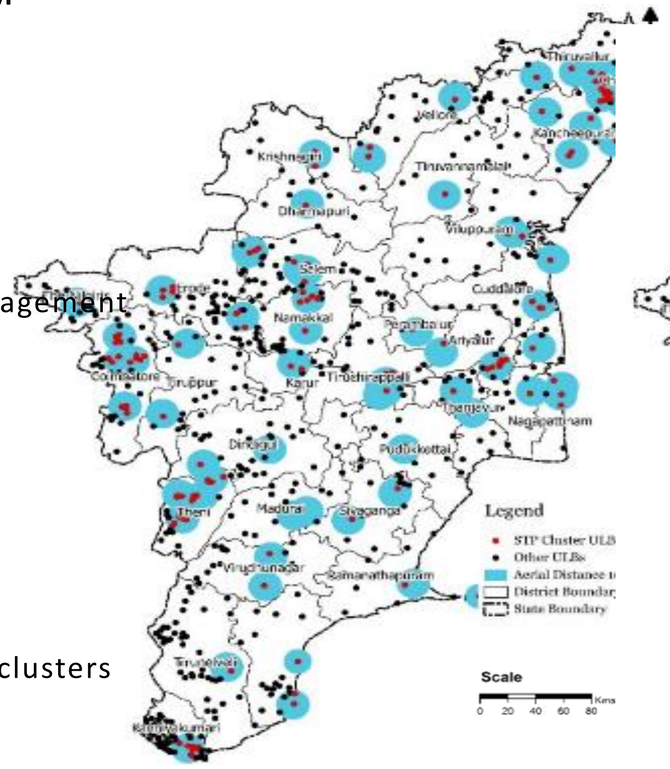
Phase IV

Town Panchayats land secured within Resource Recovery Parks

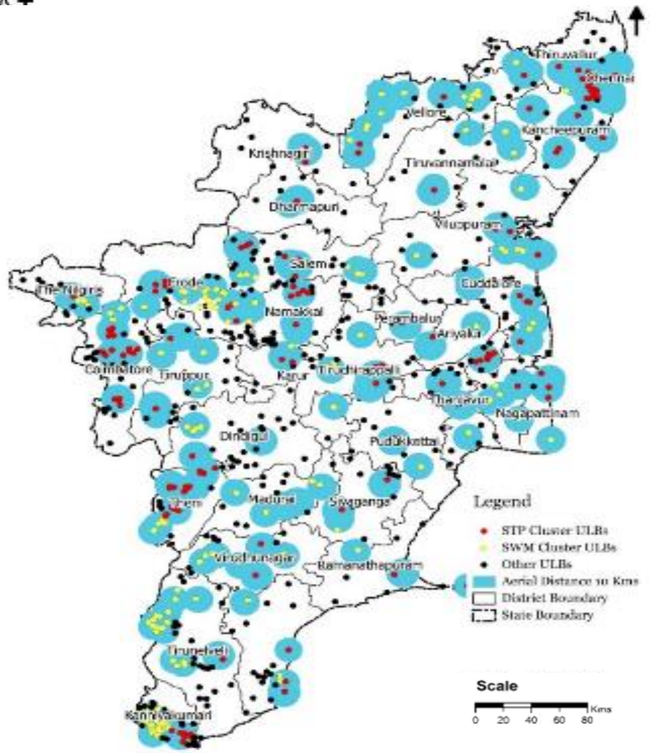
Phase V

ULBs not falling in any of the above clusters

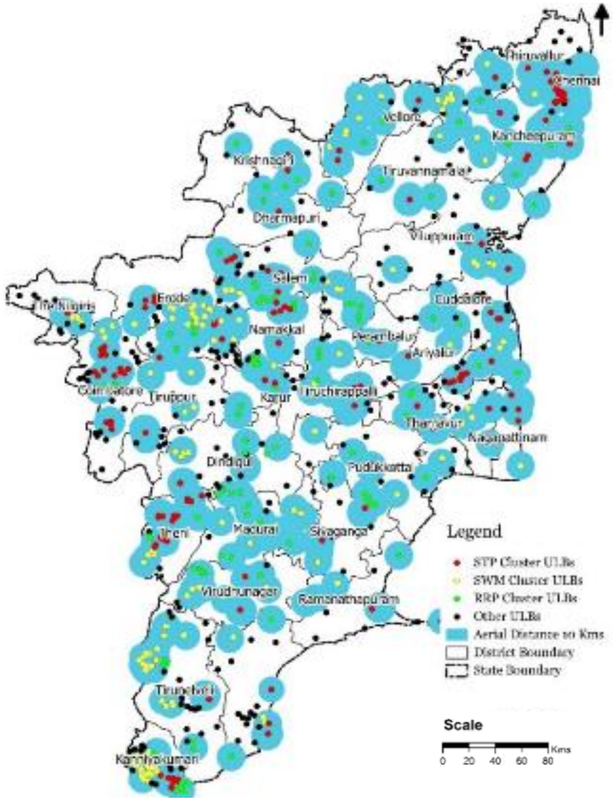
PHASE I&II



PHASE III

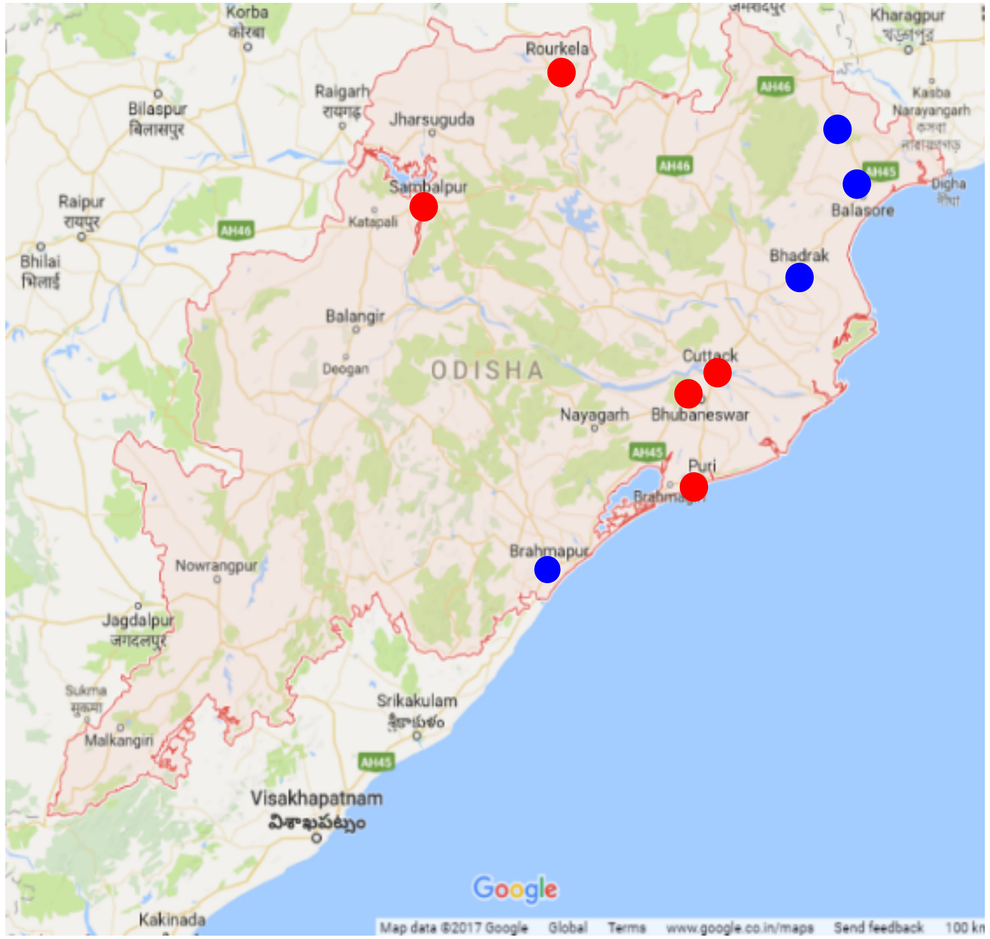


PHASE IV



	STP Cluster ULBs		Other ULBs		SWM Clusters		RRP Clusters
	Aerial distance 19 km		District Boundary		State Boundary		

STATE APPROACH – ODISHA



Sewerage + Septage

Septage

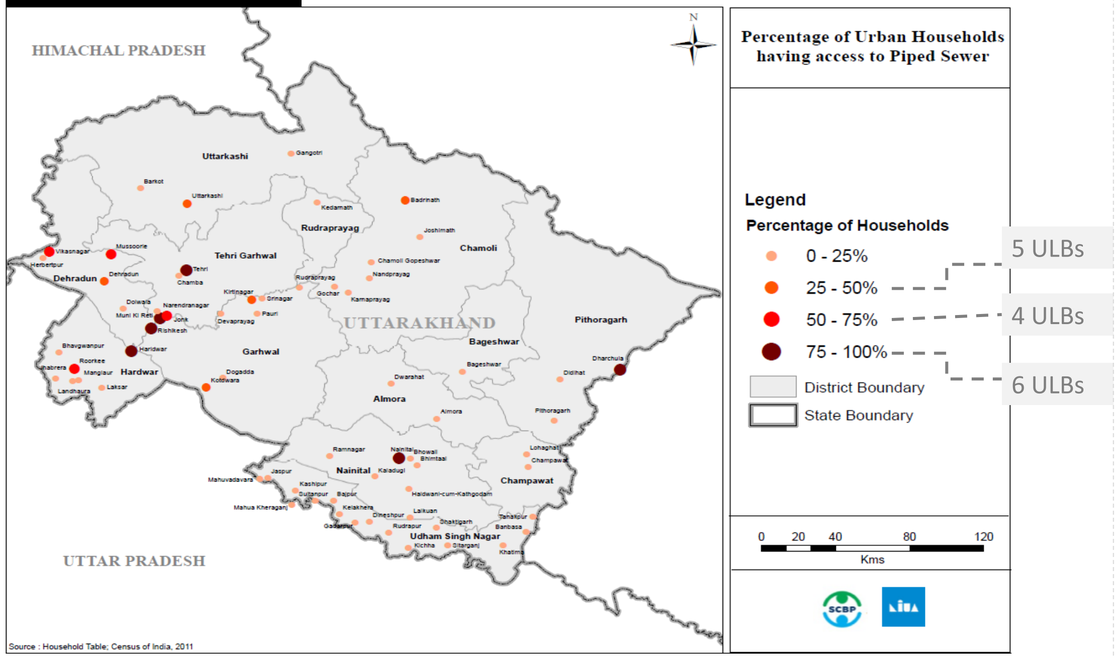
- Improved sanitation facilities for ~60% of urban population residing in nine large towns and two Project Nirmal towns of Odisha
- Usage of funds through AMRUT and Project Nirmal to construct FSTPs in the 11 large towns
- 50% cost sharing basis between the Union Government and State Government for AMRUT towns
- The projects includes O&M for five years for AMRUT towns and one year for Project Nirmal towns

Scaling up FSTPs to all 114 urban areas announced by Odisha Government

Population Range	Number of Towns	Population (Millions)	%
100,000 & more	9	3.08	45
25,000 to 100,000	105	3.80	55
Total	114	6.88	100

STATE APPROACH – UTTARAKHAND

Only 15 out of 92 ULBs have partial sewer network!



- Uttarakhand generates a total of 311MLD wastewater of which only 105MLD is being treated currently.
- Unutilized STP capacity to be used to treat faecal sludge generated by households having onsite sanitation systems.
- Co-treatment of faecal sludge with wastewater at 4 different STPs will increase the treatment coverage by 10-12%.
- There are 55 ULBs with FS generation of 3KLD or less where other low-cost treatment to be explored.

Treatment Potential through FSSM & Co-treatment (increase from 22% to 68%)

Current Situation	Amount in KLD
Total FS generation in Uttarakhand	726
Current Treatment through STPs	158
Current FS treatment	22%

Type of Solution for ULBs	Treatment capacity per ULB (KLD)	No of ULBs	Total Treatment capacity (KLD)	Increase in Potential treatment %
Co-treatment at Dehradun STP	170	1	170	**18%**
Co-treatment at Srinagar	7	7	116	**16%**
Co-treatment at Pittoragarh	14			
Co-treatment at Nainital	9			
Co-treatment at Haridwar	53			
Co-treatment at Mussoorie	6			
Co-treatment at Rishikesh	22			
Co-treatment at Tehri	5			
DRE for Herbetpur	2	3	6	**1%**
DRE for Champavat	2			
DRE for Chinyasilaur	2			
DRE for ULBs where sludge generation is < 3KLD	69	52	69	**9%**
FSTP Rudrapur - Proposed under AMRUT	40	6	52	**7%**
FSTP Doiwala	12			
FSTP Haldwani	59		123	**17%**
FSTP Kashipur	37			
FSTP Jaspur	11			
FSTP Kicha	16			
Total Potential for FS treatment in the State			536	**+ 68%**
Increase in Potential for FS treatment in 2 years (2020 & 2021)				**+ 26%**

FSSM WAY FORWARD

Faecal Sludge and Septage Management (FSSM) as an integral component of Urban Sanitation for all Towns and Cities

- State FSSM Policy, Strategy and Investment Plan ready.

- Capacity Building support to ULBs and Para State Agencies on FSSM
- Enabling State level Policies, Norms and Regulations

- Scheduled or demand desludging of Septic Tanks.
- Explore Co-treatment of Septage with STPs and setting up new FeSTPs to treat septage

- Focus on both treatment and Re-use of treated solid and liquid waste

PRESENTATION CREDITS

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BBC Media Action (India)

All Members of the NFSSM Alliance

Compiled by SCBP Team at NIUA

THANK YOU!

NFSSM Alliance