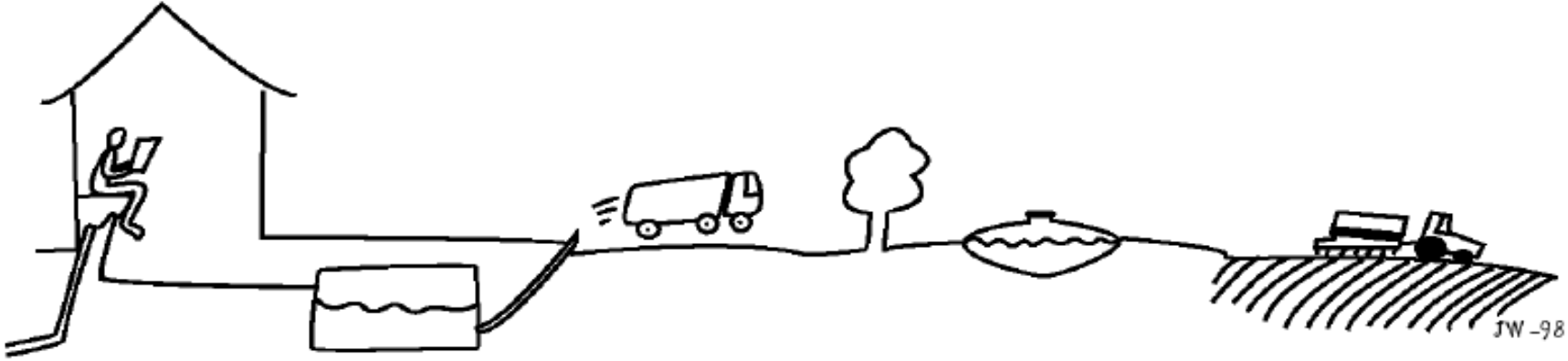
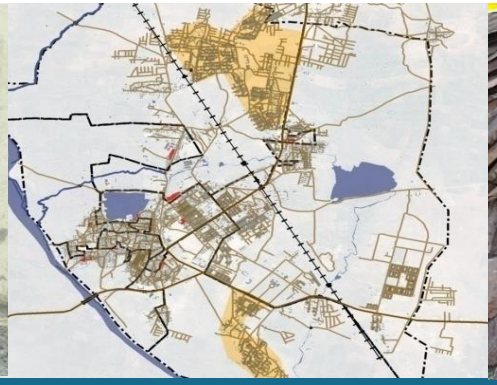






Urban Sanitation Activities

pas performance assessment system

PAS Project, CEPT University, Ahmedabad

Key facts

18.6% URBAN HHs HAVE **NO** LATRINE FACILITY

32.7% OF URBAN HHs HAVE ACCESS TO **PIPED SEWER** SYSTEM

38.2% HHs HAVE **SEPTIC TANKS**

6% OF HHs DEPEND ON **PUBLIC TOILETS**

12.6% OF HHs RESORT TO **OD**

79% OF Wastewater is **UNTREATED**

No Latrine Facility – emerging questions

18.6% URBAN HHs HAVE NO LATRINE FACILITY




12.6% OF HHs RESORT TO OD

Reasons for not having on-premise toilets

Are there **Financial Issues ?**

Are there **Legal Issues ?**

Are there Space Constraints ?

Onsite sanitation and FSM – emerging questions

38.2% URBAN HHs HAVE SEPTIC TANKS

Are septic tanks linked to soak pits

Are they built as per Codes / Specifications ?

How often are they cleaned ?

Where does the effluent flow ?

What happens to the SLUDGE?

Sanitation system in urban India

Sanitation system	Gujarat	Maharashtra	Other states
Total urban population (million)	23.0	45.5	148.4
Total no of cities	167	252	1145
Sanitation system in cities			
Fully sewage system (no, %)	1 (0.6%)	0 (0%)	4 (0.4%)
Fully onsite sanitation system (no, %)	105 (62.9%)	220 (87.3%)	865 (75.5%)
Mixed sanitation system (no, %)	61 (36.5%)	32 (12.7%)	276 (24.1%)

76.1 % of cities in **India** are dependent on **on-site sanitation systems** and

23.6% are dependent on **mixed sanitation systems**

National Urban sanitation Policy (NUSP)

The NUSP 2008 aims to provide universal sanitation services in urban India

Access	• **Providing 100% access to improved sanitation in urban India by 2025 to make cities open defecation free**
Collection and Conveyance	• Extending coverage and ensuring proper functioning of sewerage systems • **Promoting proper disposal and treatment of sludge from on site installations**
Treatment and reuse	• Promoting recycle and reuse of waste for non potable applications • Ensuring safe collection and disposal of waste
Awareness	• **Generating awareness about sanitation and its linkages to public and environmental health**
Institutional changes	• Strengthening ULBs to provide sustainable sanitation services delivery • Mainstream planning and implementation related to sanitation • Strengthening policy and regulatory framework particularly for onsite sanitation/FSM

Increasing priority of government . . .

"I don't know if people will appreciate my talking about dirt and toilets from the Red Fort but I come from a poor family. I have seen poverty and the attempt to give dignity to the poor starts from there. I, therefore, have to launch a ***`clean India'*** *campaign from 2nd October this year and carry it forward in 4 years. I want to make a beginning today itself and that is – all schools in the country should have toilets with separate toilets for girls. Our parliamentarians utilizing* ***MPLAD fund*** *are there. I appeal to them to spend it for constructing toilets in schools for a year. The government should utilize its budget on providing toilets. I call upon the corporate sector also to give priority to the provision of toilets in schools with your expenditure under* ***Corporate Social Responsibility****. This target should be finished within one year with the help of state governments and on the next 15th August, we should be in a firm position to announce that there is no school in India without separate toilets for boys and girls."*

Narendra Modi

Prime Minister of India

August. 15, 2014

At India's 68th Independence Day speech, New Delhi

Increasing priority of government . . .

"I am known to be a Hindutva leader. My image does not permit to say so, but I dare to say. My real thought is —

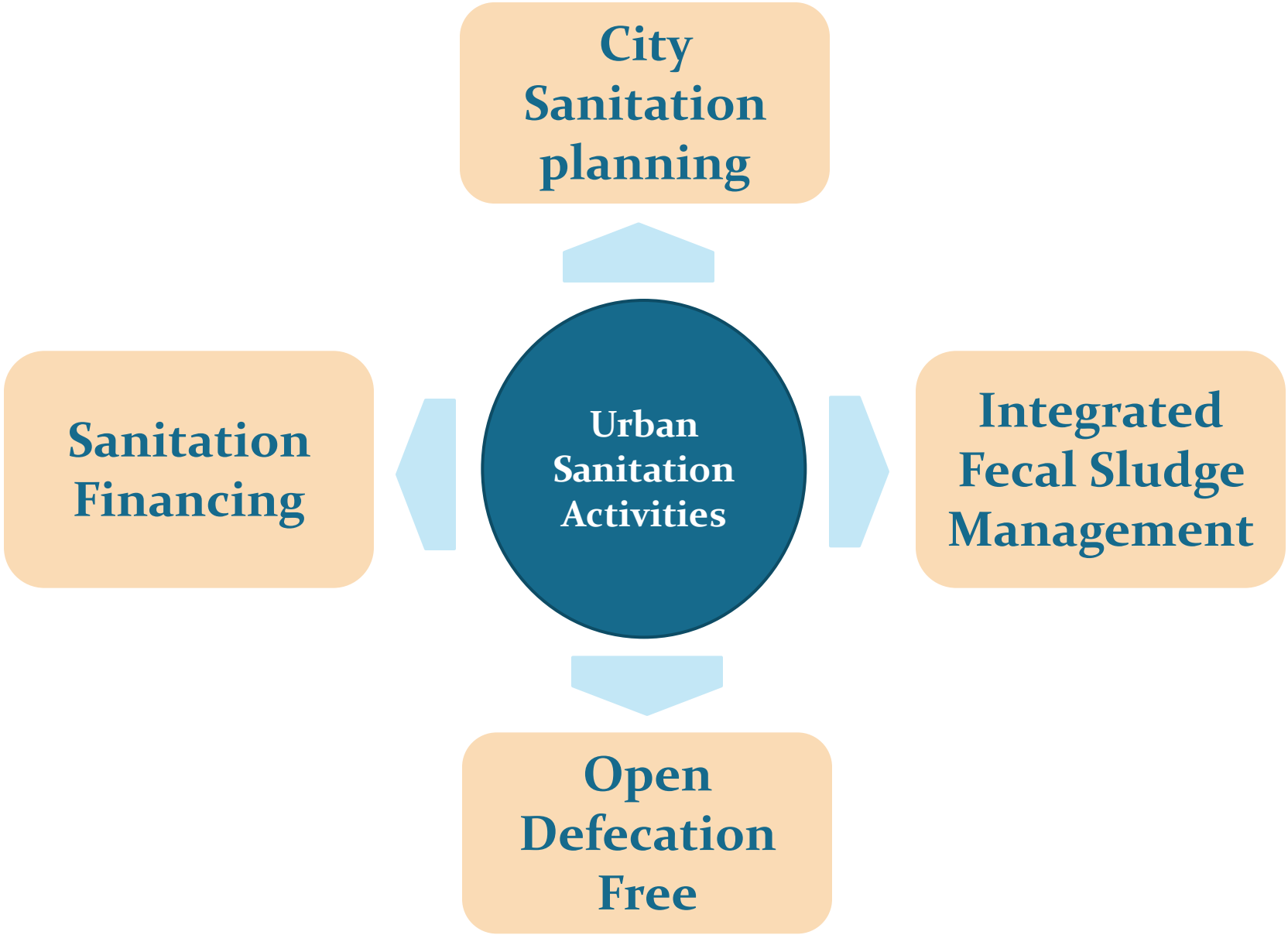
Pehle shauchalaya, phir devalaya"

Narendra Modi, Prime Minister of India
At a function organized in New Delhi for the youth; October, 2013

"The need for sanitation is of utmost importance. Although the Central Government is providing resources within its means, the task of total sanitation cannot be achieved without the support of all. The Government intends to cover every household by total sanitation by the year 2019, the 150th year of the Birth anniversary of Mahatma Gandhi through ***Swatchh Bharat Abhiyan"***

Arun Jaitley, Finance Minister of India,
Para 30, Union Budget, 2014-15

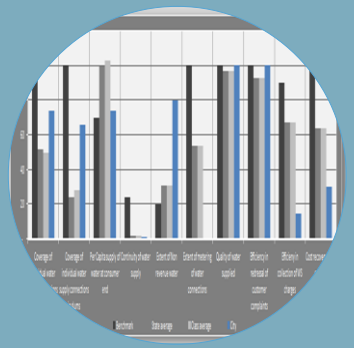
Urban Sanitation Activities under PAS Project

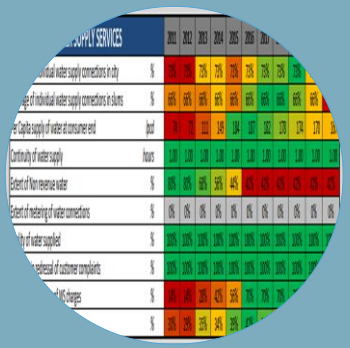


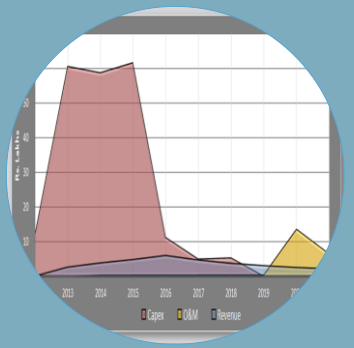
City sanitation planning

Key Focus of CSPs

*To prepare a **City Sanitation plan** which focuses **on universal access to sanitation** through **outcomes based option rather than technology based option** and to develop proposals which are **financially feasible for ULB***







Sanitation Assessment

Sanitation assessment using performance indicators and peer comparison to assess situation across the sanitation ladder.

Plan Options

Assess technology options and process changes needed to develop citywide plan options.

Assess impact on sanitation performance and capital /O&M costs

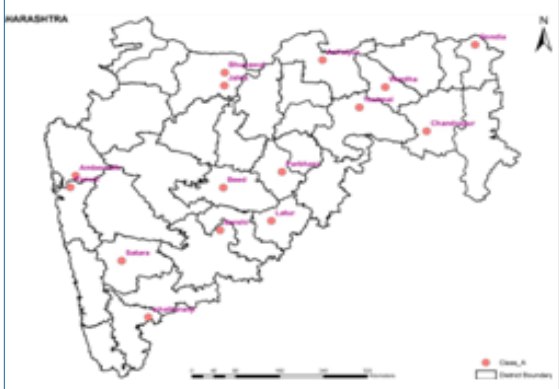
Financial Assessment

Assess municipal finances to develop a feasible financing plan. Explore creative financing through SIBs/DIBs, microcredit, debt and PPP options

CSP– Support to Class A municipalities

- Support in development of PIPs to 15 Class A cities in Maharashtra.
- Focus on making these cities **open defecation free (ODF) and exploring 24x7 water services.**
- Financial assessment to help with phasing and assessing financial viability
- Draft reports discussed with all 15 ULBs

15 Class 'A' Cities in Maharashtra



PIP Phase 1

15 class 'A' ULBs in Maharashtra

Focus on

24 x 7 Water supply

Open Defecation Free City

Division	City	Population (2011)
Konkan	Ambernath	2,67,834
Konkan	Panvel	1,80,000
Pune	Barshi	1,18,475
Pune	Satara	1,20,079
Pune	Ichalkarnaji	3,30,474
Nashik	Bhusawal	1,87,750
Aurangabad	Beed	1,86,444
Aurangabad	Latur	4,90,261
Aurangabad	Parbhani	3,07,000
Aurangabad	Jalna	2,85,349
Amravati	Achalpur	1,12,293
Amravati	Yavatmal	1,16,714
Nagpur	Chandrapur	3,56,000
Nagpur	Wardha	1,06,439
Nagpur	Gondia	1,32,889

Issues related to Individual Toilets

Lack of space

High initial capital cost to be borne by State government/ ULB/ beneficiary

Tenure issue is the biggest hurdle in providing individual toilets in slum settlements

Toilet build under scheme used as storeroom due to lack of hygiene awareness

Toilet not connected to any network as many programs do not provide subsidy for septic tank construction cost

Issues related to Community Toilets

No water / electricity provision in Community toilets

Poor maintenance and cleaning

Non attendance or shortage of workers to maintain toilets

Un hygienic conditions around Community toilets

Inappropriate location of Community toilets

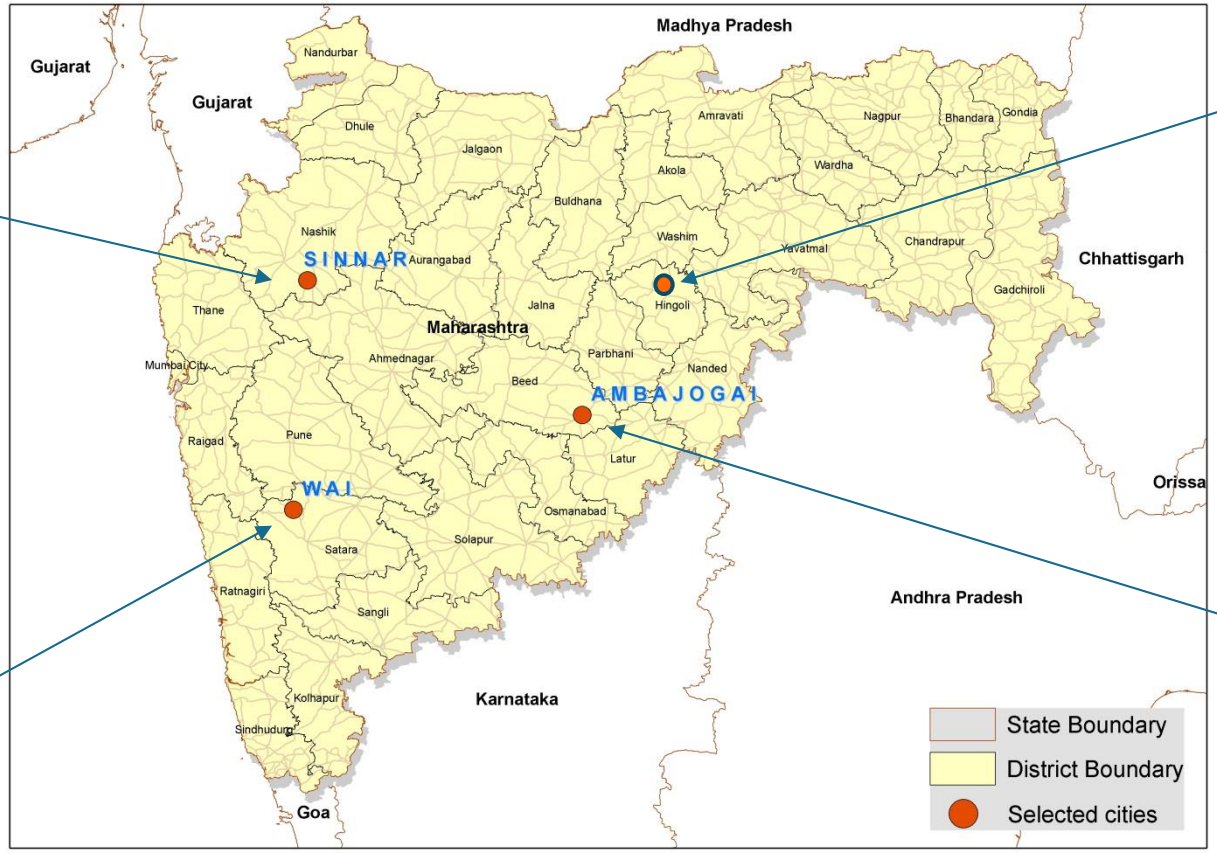
Affordability issues to use Community toilets

CSP– Support to small and mid-sized cities

These cities were selected by the Maharashtra Jeevan Pradhikaran and the Water Supply and Sanitation Department of Maharashtra for the development of City Sanitation Plans (CSPs) with the support of CEPT University

Sinnar
Located in the Nashik district, with a population of ~65,000 that has more than doubled in size since 2001 mainly due to expansion of city boundaries and an industrial and manufacturing boom in nearby Nashik.

Wai
Located in the Satara district, 90 km away from Pune, with a population of ~36,000. Wai has grown slowly at 1% per year since 2001.

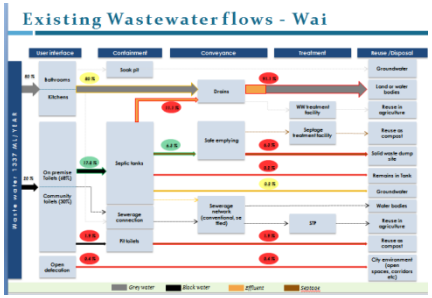


Hingoli
Located in the Hingoli district, the town has a population of ~85,000.Its primarily a pilgrimage destination

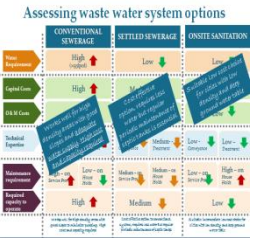
Ambajogai
Located in the Beed district, the town has a population of ~74,000 that has grown at 3% p.a. since 2001. Its growth has been lead by tourism and education.

Source: Census of India 2011

Key activities undertaken in preparation of CSP



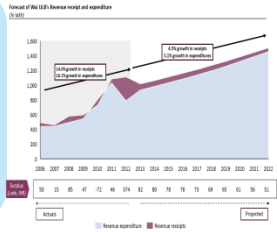
Assessment of Sanitation situation in cities across various sectors



Development of sanitation options

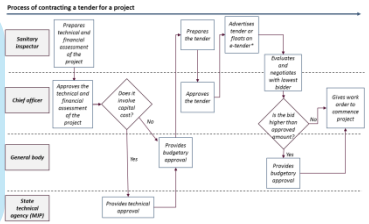
Key activities

Analysis of city budgets



Continuous stakeholder engagement

Institutional Capacity assessment



Key outcome:

A City Sanitation plan through which Universal access to Sanitation is achieved and the option is financially viable for ULB

City Sanitation plan options for the cities

Access	Collection	Conveyance	Treatment	Disposal/Reuse

Option 1: Citywide settled sewerage system (INR ~284 million investment)

1 **Citywide Settled Sewerage System**

Refurbishment of selected old community toilets

Construction of

wastewater treatment facility[2]

Reuse for agriculture and irrigation

2 **Citywide Onsite Sanitation System**

Option 2: Citywide onsite sanitation system with treatment (INR ~129 million investment)

3 **Mix of Settled Sewerage and Onsite Sanitation system**

interceptor sewer[2]

and irrigation

Centralized and Decentralized solutions . . .

National River Action Project (NRAP) scheme

Short listing the solutions based on local priorities

	Urgency of sanitation gap	*Fit with local priorities*	*Ability to implement in the short-run*	*Ability to finance within its own funds*	***City rationale for choosing solution***
1 **Own toilets + septic tanks**	✓	✓	✓		• Wai and Sinnar pay ~INR 1-2 million for cleaning community and public toilets, and still face issues such as poor quality of maintenance, theft and vandalism • Individual toilets are not always feasible due to space and cost constraints; group toilets are more affordable and accessible, and shift maintenance burden on the households • Toilets can be constructed relatively quickly in the short-run
2 **Integrated fecal sludge management**	✓	✓	✓	✓	• Most households in all three cities depend on septic tanks, which are cleaned infrequently and release untreated effluent into drains • Fecal sludge management is relatively low cost, and can be implemented in the short run from the ULB's own funds
3 **Settled sewer attached to DEWATS**	✓	✓			• Ambajogai city was already focused on building a conventional sewer system in the center of the city • The city wanted a low cost option for the remaining three clusters

Source: Assessment based on interactions with the city stakeholders

Way forward in CSPs – Based on local priorities

Areas for intervention

Access | Collection | Conveyance | Treatment | Disposal/Reuse

1

Own Toilets + Septic Tanks
(Wai and Sinnar)
Construction of own toilets, individual or shared by 2-4 households, along with attached septic tanks

2

Integrated fecal sludge management
(Wai, Sinnar and Ambajogai)
Regular (in a 3-year cycle) collection and disposal of fecal waste from septic tanks, along with the necessary refurbishment of septic tanks, construction of a treatment facility for septage and reuse of treated septage

3

Settled sewers attached to DEWATS
(Ambajogai only)
Conveyance of wastewater through non-conventional sewers to a decentralized wastewater treatment facility for the newly developing clusters and reuse of treated wastewater

Open Defecation Free

Key Focus

Achieving universal access to toilets by developing strategies for making cities 'Open Defecation Free'

Determinants of OD rates:

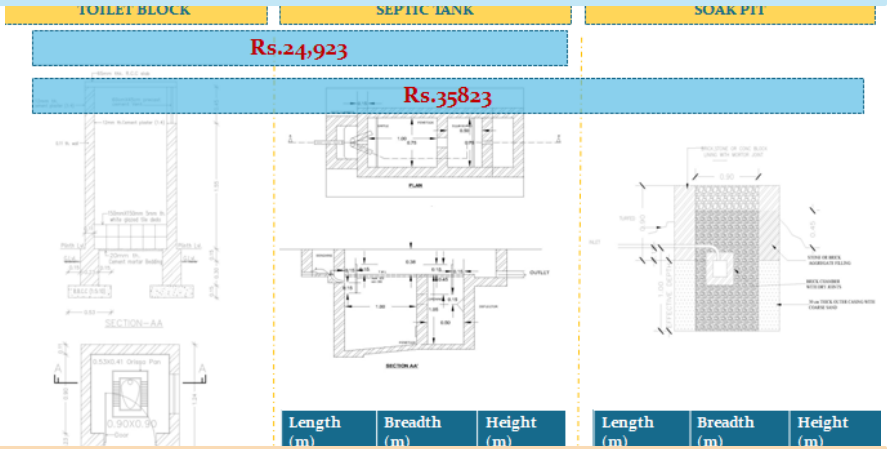
- **Access to on-premise toilets** is a key determinant in **lowering OD rates**
- **Adequate water supply** is also a key determinant

Possible Solutions to reduce Open defecation

Community Toilets

Are they appropriate solution ??

Individual Toilets



But are they affordable to all ??

Shared / Group Toilets

Adequate sanitation at home: Adequate sanitation facilities at home are those that effectively separate excreta from human contact, and ensure that excreta do not re-enter the immediate environment. Each of the following sanitation facility types is considered as adequate sanitation for monitoring progress toward the household sanitation targets, if the facility is shared among no more than 5 families or 30 persons, whichever is fewer, and if the users know each other:

- A pit latrine with a superstructure, and a platform or squatting slab constructed of durable material. A variety of latrine types can fall under this category, including composting latrines, pour-flush latrines, and VIPs.
- A toilet connected to a septic tank.
- A toilet connected to a sewer (small bore

Shared facilities are acceptable if:

1. Shared among less than 30 users or 5 families
2. Users know each other

Addressing the twin issues of space and affordability

*Group Toilet is a toilet **shared by 2 to 4 families** residing in the close proximity. It is collectively owned by the families and use is controlled by them. Repair and maintenance of shared toilets is managed by the families.*

*Households that **do not have space for construction of a toilet** within their premises can construct a toilet that can be shared by up to 4 households, depending on the availability of common space in the proximity. This will **also save on funds** that each household will have to put in for construction of a toilet.*

Improved Sanitation.. !

Shared / Group toilet benefits compared to other facilities

Criteria	Type of toilet facility			Advantages of group toilets
	Personal toilets	Group toilets	Community toilets	
Space efficiency	◔	◕	●	• Group toilets require less space on a per HH basis
Cost efficiency	◔	◕	◔	• Since 2-4 HH pool their resources, group toilets are more cost effective than personal toilets
Level of cleanliness	●	◕	○	• As households feel more ownership over group toilets, they are likely to keep them cleaner than community toilets
Cost savings for the ULB	●	◕	○	• Group toilets are privately owned and the burden of O&M costs shifts from the ULB to the households
Ease of Access	●	●	◔	• Group toilets are likely to be located closer to households than community toilets
Safety and User friendly	●	●	◔	• Group toilets are safer for the elderly, women and children as compared to community toilets, that are often located at a distance and lack electricity

While individual toilets are the most preferred solution, in situations where space and affordability pose serious constraints, group toilets may be a cost and space efficient way of providing improved sanitation facilities in Wai and Sinnar

Source: Report by the WHO-UNICEF committee to develop new targets for post-2015 beyond the Millennium Development Goals (MDGs), Research Paper- Public versus Individual Household Latrines- UNICEF-LSHTM

Demand led own toilet scheme in cities

Support to Wai & Sinnar for developing Demand Based Own Toilet Schen

- Each household to be provided with a subsidy of INR 5000 per household for individual toilets or toilets shared by up to four households
- In our surveys, households expressed a willingness to contribute between INR 4000 – 6000 upfront for a toilet
- Given this willingness to pay, households will be able to afford a toilet if ~3 – 4 of them share a toilet

Scheme details	Number of households sharing a toilet			
	Households (Subsidy - INR 5,000/HH)			
	1	2	3	4
Cost per toilet (in INR)[1]	~30,000	~30,000	~30,000	~30,000
Subsidy per toilet provided by the ULB	5000	~10,000	~15,000	~20,000
Effective cost per HH	~25,000	~10,000	~5,000	~2,500

1. Estimated willingness to pay upfront per household is ~INR 4000 – 6000[2] implying that 3-4 households can come together to afford a toilet directly
2. An assessment is being made of potential for consumer financing through micro-finance institutions, commercial banks, credit cooperatives, and self-help groups

Note: (1) Based on standard government schedule of rates and local contractor estimates, estimate includes cost of superstructure and septic tank (2) Based on 2013 focus group discussions with ~30 households each in Wai and Sinnar

Unlocking the latent demand through ULB subsidy scheme…

Implementation in Phases…

1. Dissemination of scheme and receiving applications

7 Days — Introduce and Disseminate the scheme

1. Ward level meetings headed by the councilors
2. Through Newspapers
3. Advertisements at public places
4. Announcements

3 Days — Set up inquiry desks (ID) at prabhag level / city level

1. 5 inquiry desks at 5 prabhags (1 desk= team of 2) **OR** one desk at ULB office
2. Provide detailed information about the scheme to the citizens

45 working Days — Give out application forms

1. Interested households to collect application forms from ULB office
2. ULB staff to maintain records in the given format

Submission of filled and signed application forms

1. Households to submit applications along with required documents. ULB to collect same and maintain records

2. Shortlisting of beneficiary

10 Days — Assess and shortlist applications

1. ULB to collate/ computerise data in the given format and develop a city level data base on applications received
2. ULB to assess applications through deskwork to categorise/shortlist on the basis of their authenticity/ feasibility

25 Days — On ground inspection of shortlisted applications

1. ULB to inspect on ground- possibility of construction of a toilet with septic tank as per given specifications/ standards

5 Days — Finalise list of approved applications

1. ULB to finalise list of approved applications based on deskwork and actual inspection

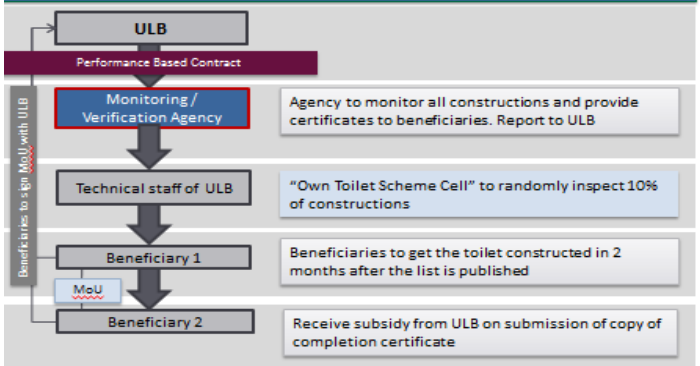
5 Days — Publish list of approved applications

1. ULB to declare list of approved applications/ display at ULB office and publish in the newspapers that it is displayed at the ULB office

3. On-ground Implementation

The scheme can be results-based, with the involvement of an external verification agency

Result based partial subsidy



Subsidy will be granted only if toilet is constructed within two months after the list is published

Cities have passed resolutions to implement the “own toilet scheme”

वाई नगरपरिषद,वाई सर्वसाधारण सभा ठराव क्रमांक ३ दिनांक २६-०२-२०१४

ठराव क्रमांक ३

विषय - अखिल भारतीय स्थानिक स्वराज्य संस्था मुंबई यांनी वैयक्तिक आणि गट शौचालया संदर्भात केलेल्या सर्व्हेक्षणानुसार योजना राबविणे बाबत निर्णय घेणे.

ठराव - अखिल भारतीय स्थानिक स्वराज्य संस्था मुंबई यांनी वैयक्तिक आणि गट शौचालया संदर्भात वाई शहरातील कुटुंबांचे सर्वेक्षण केले असून सन २०११ चे जनगणने नुसार २४३५ कुटूंबाना वैयक्तिक शौचालये नाहीत सदरची कुटूंबे ही ४२ सार्वजनिक शौचालयावर अवलंबून आहे. नगरपरिषदेचे २६४ सीट सार्वजनिक शौचालय आहेत. घरामध्ये शौचालय नसल्यामुळे नागरीकांना संसर्गजन्य साथीची लागण होणेची जास्त असते. या करिता घराघरात शौचालय असणे आवश्यक आहे. नगरपरिषदेचे वतीने गट शौचालय व वैयक्तीक शौचालय योजना राबविणे आवश्यक आहे. या ठरावाव्दारे असा निर्णय घेणेत येत आहे की, वाई शहरातील उघडयावरील शौचास कोणीही बसू नये या करिता ज्या अनुसूचित जाती, जमाती व इतर जातीचे कुटूंबाकडे शौचालयाची व्यवस्था नाही अशा कुटूंबापैकी ज्या कुटूंबाकडे शौचालयासाठी जागा असेल व ते शौचालय बांधणेस तयार असतील तर शौचालयाची व्यवस्था करणे करिता प्रत्येक कुटूंबाकरिता रु.५०००/- देणेस या ठरावाव्दारे मंजूरी देणेत येत आहे. तसेच अनेक कुटूंब एकत्र येवून गट शौचायल बांधलेस त्यासाठी सुध्दा प्रत्येक कुटूंबासाठी र.रु.५०००/- प्रमाणे मानधन देणेस या ठरावाव्दारे मंजूरी देणेत येत आहे. सदरची वैयक्तिक व गट शौचालयाची योजना अखिल भारतीय स्थानिक स्वराज्य संस्था मुंबई यांचे मार्फत व त्यासाठी या संस्थेचे लागेल ते सहकार्य घेणेस या ठरावाव्दारे मंजूरी देणेत येत असून, या संस्थेची या कामाबद्दलची जी काय फी असेल ती नगरपरिषद निधीतून अखिल भारतीय स्थानिक स्वराज्य संस्था मुंबई यांचेकडे भरणेस या ठरावाव्दारे मंजूरी देणेत येत आहे. या कामासाठी पात्र कुटूंबाची निवड त्या अखिल स्थानिक स्वराज्य संस्थेकडून करुन घेणेस या ठरावाव्दारे मंजूरी देणेत येत आहे.

सूचक - मा.श्री.दत्तात्रय उर्फ बुवा भगवान खरात सही XXX

अनुमोदन - मा.सौ.मनिषा सचिन जावळे सही XXX

ठ. स. मंजूर
सही XXX

अध्यक्षा
वाई नगरपरिषद वाई

सत्यप्रत

मुख्याधिकारी
वाई नगरपरिषद, वाई

(नमुना क,नियम ५ व ३९ पहा)

MUNICIPAL COUNCIL (म्युनिसिपल कौन्सिल,सिन्नर)
MINUTE – BOOK (मिनिट बुक)
मे. सर्वसाधारण सभा कार्यवृत्ताचे पुस्तक
Patr 2 (भाग २ रा)

Date & time of meeting सभेची तारिख व वेळ (1) (१)	(Subject of motion) प्रस्तावाचा विषय (2) (२)	(Wording of moting) प्रस्तावाचा मजकुर (3) (३)	Name of proposer and seconder प्रस्ताव सुचविणाराचे व त्यास अनुमोदन देणा-याचे नांव (4) (४)	(Amendment,if any) सुधारणा कोण्त्याही असल्यास (Wording) मजकुर (5) (५)	Name of 1) Proposer 2) Seconder सुचविणारा अनुमोदन यांची नावे (6) (६)	Number of Votes given दिलेल्या मतांची संख्या For बाजुने (7) (७)	Against विरुध्द (8)(८)	Final resolution after the votes on amendments Wording मजकुर (9) (९)	Serial No. अ.क्र. (10)(१०)
दिनांक – २३/०६/२०१४ वेळ – सकाळी ११.००	विषय क्र. ३) अखिल भारतीय स्थानिक स्वराज्य संस्था व युनिर्व्हसल सिटि यांनी संयुक्तरित्या सुचित केलेल्या गट शौचालय बांधणे बाबतच्या प्रस्तावावर विचार विनिमय करुन निर्णय घेणे.	२०११ च्या जनगणनेनुसार, सिन्नर मधील ४८६९ कुटुंबांकडे वैयक्तिक शौचालये नाहीत. यापैकी काही कुटुंबे सिन्नर नगरपरिषदेकडून देखभाल केल्या जाणाऱ्या वस्ती पातळीवरील शौचालयांवर मोठ्या प्रमाणावर अवलंबून आहेत. वस्तीपातळीवर शौचालयाच्या एका आसनाचा वापर सरासरी १७ कुटुंबे करतात, परंतु साधारण १६५८ एवढी कुटुंबे अजूनही उघड्यावर शौचास जातात. विविध संशोधन अभ्यासांनुसार हे दाखवून देण्यात आले आहे की, अतिसार, जंतूसंसर्ग इत्यादीसारखे आरोग्याचे धोके हे सार्वजनिकरीत्या देखभाल केल्या जाणाऱ्या सामुदायिक शौचालयांच्या ठिकाणी अधिक असतात. परंतु, वैयक्तिक किंवा गट शौचालयांच्या वापरामुळे हे आरोग्याचे धोके कमी होतात. (गट शौचालय= एकमेकांना चांगले ओळखणा-या २ ते ४ कुटुंबांमध्ये एक शौचालय). जागा व आर्थिक क्षमता यांच्या अभावामुळे कुटुंबांकडे वैयक्तिक शौचालय नसल्याचे आढळून येते. या समस्येवर तोडगा काढण्यासाठी सिन्नर नगर परिषदेने शहरामध्ये गट शौचालयांची बाढेल. या ठरावाद्वारे सिन्नरमध्ये "गट/ स्वतःचे शौचालय योजना" राबविण्यास मान्यता देण्यात येत आहे व वर नमूद केल्याप्रमाणे रु. 5,000/- प्रति कुटुंब ही अर्थसहाय्याची रक्कम नक्की करण्यात येत आहे. तसेच चालु वर्षात पहिल्या 100 पात्र कुटुंबांना हे सहाय्य देण्यात येईल व त्याप्रमाणे न. प. तर्फे निधीची तरतूद करण्यात येईल असे ठरविण्यात येत आहे. अंमलबजावणी यंत्रणा व योजनेसाठी कुटुंबांची पात्रता यावर तपशीलवार चर्चा होणे गरजेचे आहे. विरोधी गटनेते श्री. विजय जाधव यांनी असे सुचविले की सिन्नर शहरातील अतिक्रमणीत घरासाठी सदरची योजना देता येणे शक्य आहे का याबाबत चर्चा करुन निर्णय घेणेत यावा.	सूचक :- सौ कपोते रा.रा. अनुमोदन :- श्री गोजरे बा.पा.			सौ.जाधव मं.अ. सौ.कानडी शि.सु. श्री पाचळे म.मा. श्री जाधव सौ.घोरपडे म.रा. सौ.झगडे शु.सं. श्री लोंढे ह.ग. श्री भगत म.कृ. सौ कपोते रा.रा. सौ.गाडे सु.सं. सौ.बर्डे वि.श. श्री. नाईक शै.ब. श्री गोजरे बा.पा. श्रीमती देशमुख अ.हे.		सर्वानुमते मंजुर	५५३

२४/२/२०१४

अध्यक्ष
सिन्नर नगरपरिषद

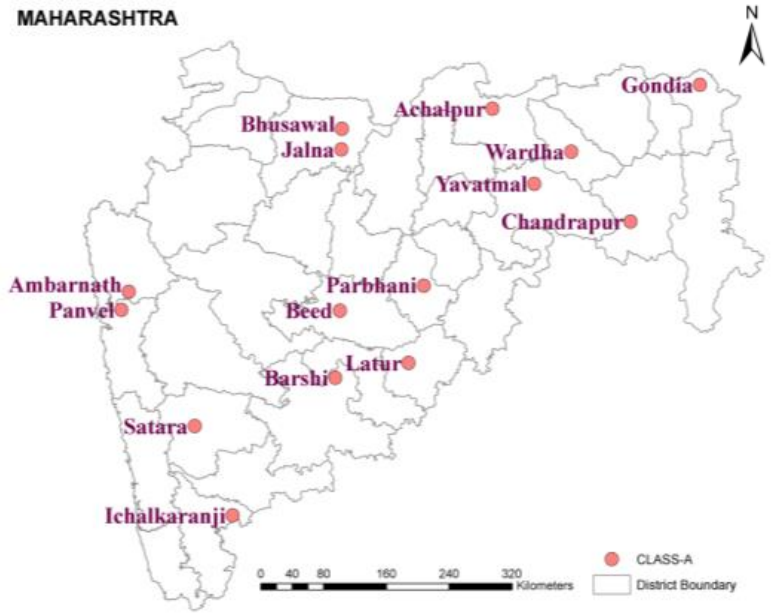
Scheme Implementation has started …

Received applications from HHs for "Own toilet scheme"

Awareness Generation activities :

- Creating awareness for **Demand based Own Toilets scheme** in Wai
- **20 Banners and more than 100 posters** displayed across the city- on CTs, near temple, at crossing, etc.
- Organizing **community level meetings** and presentations
- Utilizing **large gathering events** like Ganpati for conducting such meetings
- **Announcements in Rickshaws**
- Distribution of **Hand-outs** to locals
- Plans to conduct skit/ prepare video

Support to small & medium towns for achieving ODF status



Support in development of **PIPs to 15 Class A** cities in Maharashtra. Focus on making these cities **open defecation free (ODF) and exploring 24x7 water services.**

Organized a **workshop with 20 cities** to discuss **actions needed, challenges, financial requirements** and role of elected representatives **for achieving ODF**

Way Forward :

Self help groups (SHGs)	*Micro-finance institutions (MFIs)*	*Credit societies*	*Commercial banks*	*Housing finance companies (HFCs)*
• Groups of 5-10 women of similar socio-economic background, that make loans to members at low interest rates • Loans … supplemented with borrowing from banks	• Provide loans to economically weaker sections who do not have access to traditional banki… • Lo… activities but could also be given for consumption. A periodic repayment needs to be made which is usually enforced through a peer liability model	• Autonomous association of people united volu… a jointly-owned and controlled enterprise • The members make deposits and in turn loans are given out to those in need at reasonable rates of return	• Comm… finance … viduals and business enterprises • The lending is usually secured thorough a collateral but can also be unsecured • Repayment follows an EMI model with a defined rate of interest	… companies (HFCs) are financial institutions one of whose primary businesses is housing loans • HFCs vary in the stringency of collateral requirements, but several players cater to low income populations

To explore different types of credit providers for financing toilets

Source: Reserve Bank of India, National Housing Bank, Monitor Inclusive Markets, "Building houses, Financing Homes", 2010

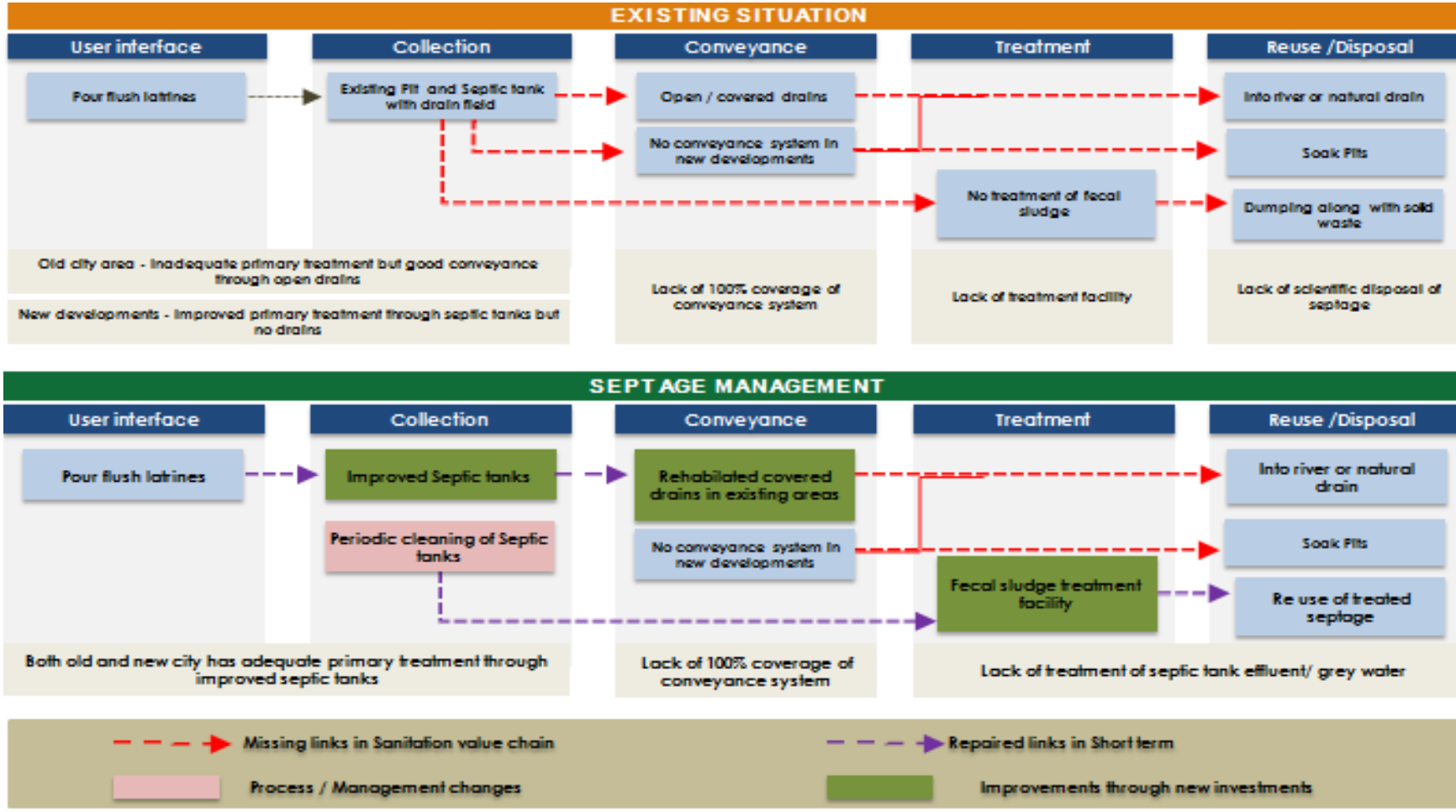
Integrated Fecal Sludge Management
(IFSM)

Emerging focus and attention to FSM

Key Focus

Improving onsite waste water management in the cities through low cost improvement actions

Improving the condition.....



Recommendations as per MoUD Advisory

Key Elements of Septage Management Plan

Desludging of Septic tanks

- **De-sludging** of septic tanks - using **mechanical devices**
- **De-sludging frequencies** of septic tanks once every **2 to 3 years**, or when the tank becomes one third full
- Periodical desludging also helps **reduce the pollution levels in the effluent**
- **1-2 inch of sludge** should be **left in tank** to **facilitate** future **decomposition**
- **Regular desludging** activities **require well-organized** community and **public/private service providers**
- **Tanks** should **not be scrub** cleaned or **washed with detergent**

Transportation

- **Vehicles** are available in different **capacities** from **2,000 to 12,000 litres**.
- Small scale vacuum trucks called **Vacutug** are recommended **for areas inaccessible** to large vehicles
- The **no. of** cleaning **machines** - based on frequency of **cleaning**, **distance** of location **of treatment facility** and local conditions
- A **Transportation Plan** should be formulated which **should include**:
  - **Scheduling** and routing for **trucks**
  - **Customer** service **protocols**
  - **Locating** tanks and cleanouts with **proper pumping** equipment operation and worker safety
  - Transportation requirements, including rules of the road
  - **Disposal procedures** at the treatment facility
  - **Routine service** of equipment
  - **Recordkeeping** for all tanks pumped and wastes discharged at the disposal facility

Treatment / Reuse / Disposal

- Treatment at **existing sewage treatment plants**
  - Septage addition at the **nearest sewer** manhole
  - Septage addition **at the STP**
  - Septage addition to **sludge digesters/sludge drying beds**
- Treatment at **independent septage treatment plants**
  - **Space is not a constraint** : Lime treatment, Sludge drying beds, Anaerobic baffled reactor, stabilization pond, Constructed wetland, co-composting with solid waste
  - **Space is a constraint** : Mechanical Dewatering system
- Properly **treated sludge** can be **reused** to reclaim parched land by application **as soil conditioner**, and/or as a **fertilizer**

Regulation and Monitoring by the ULB and Awareness Generation

Planning and Implementation of Septage Management Schemes

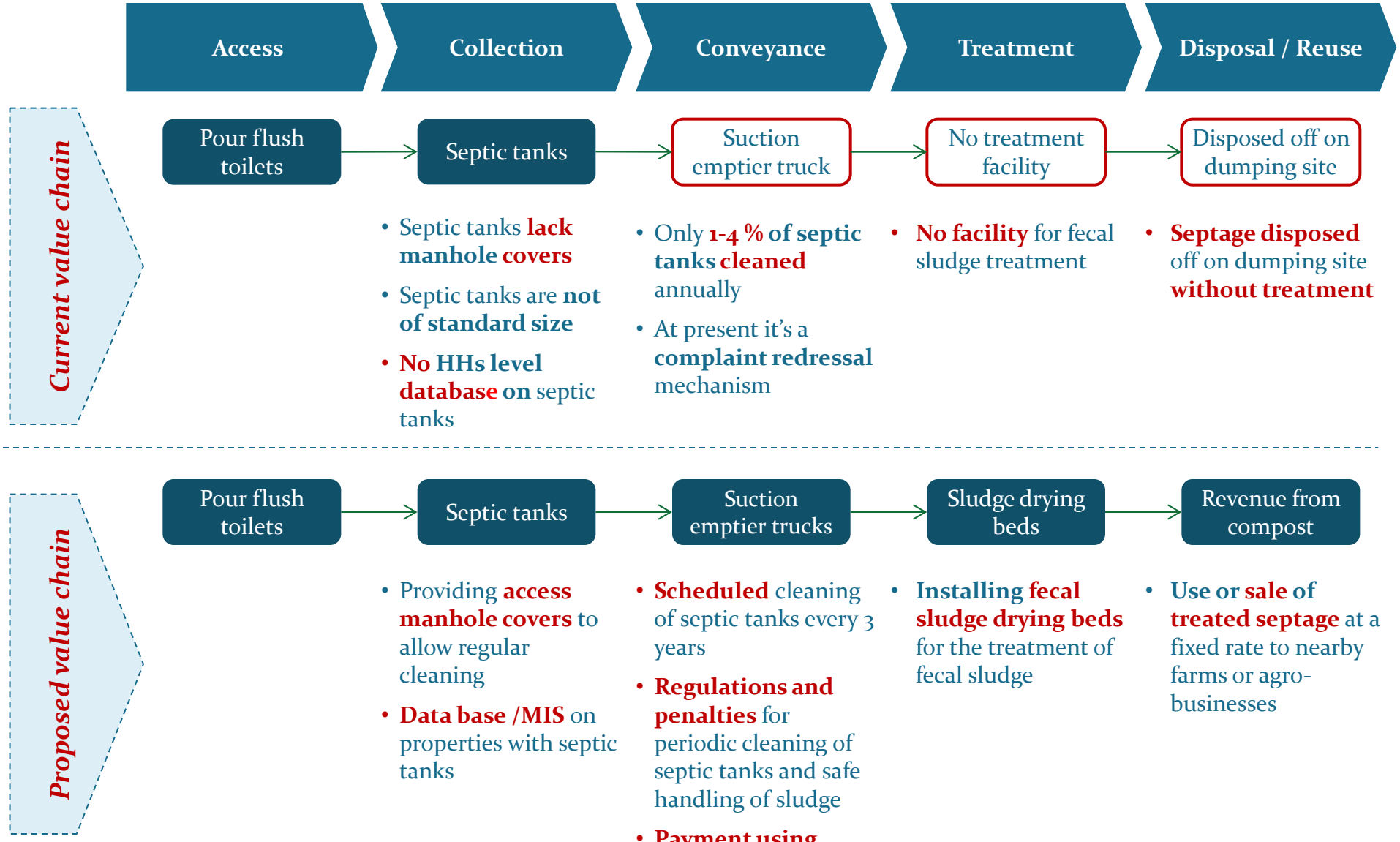
ASSEST CREATION

- **Refurbishment** of existing **septic tanks** and **provision** of septic tanks to **unsanitary toilets**
- **Choose technology** for septage treatment: **prepare design** of **septage treatment and disposal facility** (STDF) along with **O&M costs**
- Conduct **techno-economic feasibility** of the **STDF**
- Implement **construction** of **septage treatement and disposal facility**
- **Purchase** mechanical equipments (trucks with **vacuum tank**) to regulate the emptying frequency of septic tanks in the city

SOFTER ITEMS

- Formulate draft **regulations** for **septage management**
- **List out** the municipal, private and other **septic tank cleaning agent** active in the city and **empanel** private service providers
- **Collect data** on the households and other properties with **on-site arrangements** in the city
- **Identify** catchment-wise **land** for septage **treatment facility** and prepare a **schedule** for **emptying trucks**
- Launch **awareness campaign**
- Initiate **training and capacity building**

Support to cities for developing an end-to-end IFSM solution



Key activities being supported for IFSM in cities

Refurbishment of Septic tanks

Majority of the septic tanks had their tops sealed

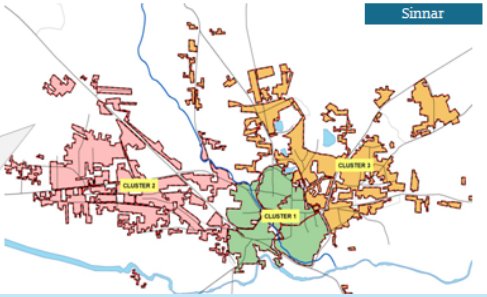
Schematic diagram of providing access manhole

- Providing a top R.C.C access manhole cover of 60 cm x 45 cm
- The cost of installing one such cover will be Rs. 500 – 800
- This is required to provide proper access for emptying the septic tanks

FSM Zones and Operations required

Wai requires 1 more additional suction emptier truck

~1760 septic tanks need to be cleaned annually on scheduled basis



Sinnar requires 3 more additional suction emptier truck

~2800 septic tanks need to be cleaned annually on scheduled basis

Awareness campaign

Treatment options for Septage

Rationale for selecting sludge drying beds – based on a review /assessment of treatment options

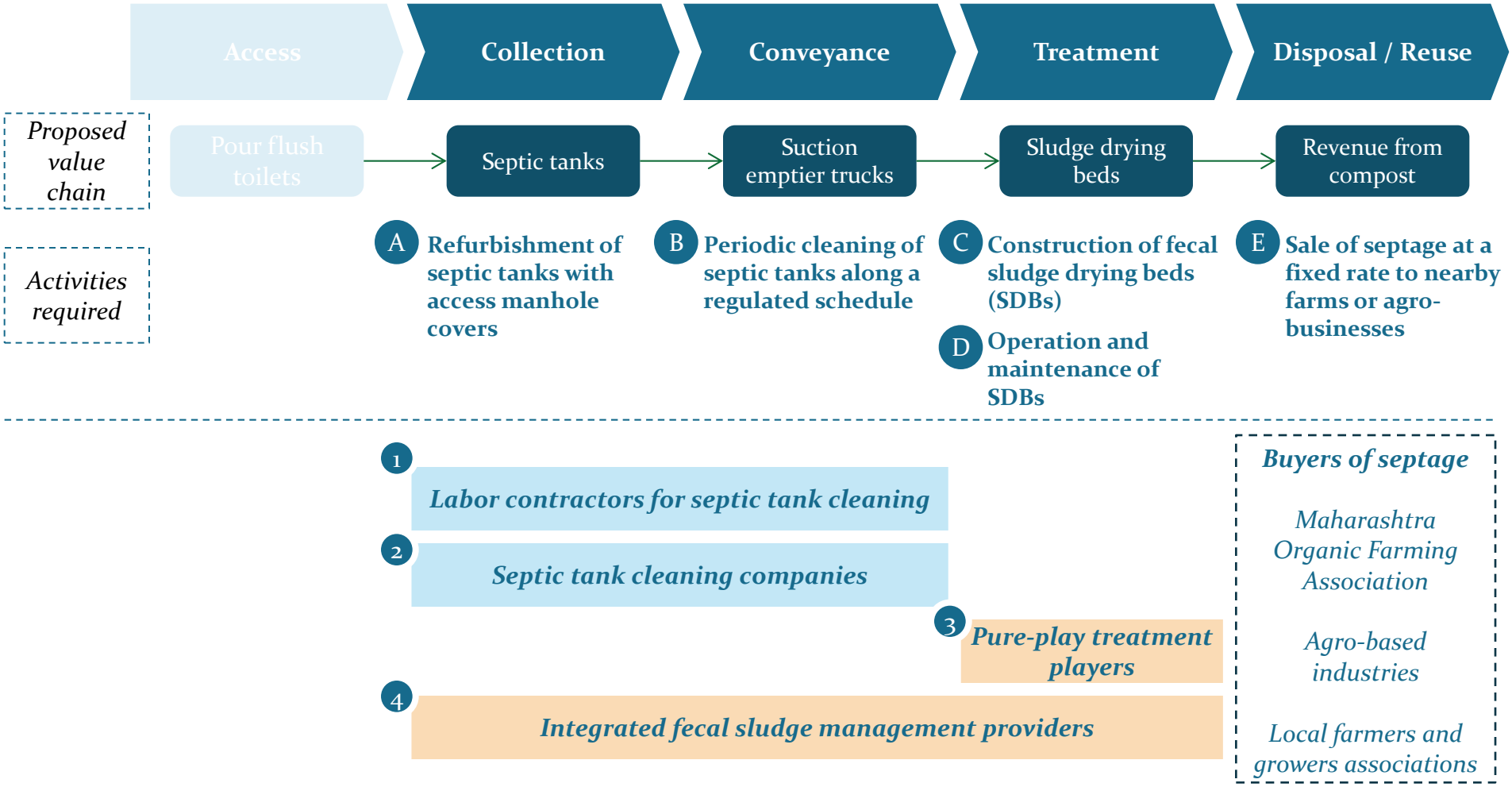
Technology Option	Input	Output	Energy requirement	Land required	Capital cost	O & M cost
Unplanted Sludge drying bed (SDB)	• Fecal sludge	• Treated sludge	Non-mechanical	◑	◔	◔
Planted Sludge drying bed	• Fecal sludge	• Treated sludge • Forage	Non-mechanical	●	◑	◔
High Rate Sludge digester	• Fecal sludge	• Treated sludge • Biogas	Mechanical	◔	●	●
Mechanical Dewatering of sludge	• Fecal sludge	• Treated sludge	Mechanical	◑	●	●
Co-Composting	• Fecal Sludge • Organic waste	• Compost	Non-mechanical	●	◔	◔
Anaerobic bio-gas reactor	• Fecal sludge • Black water • Organic waste	• Treated sludge • Biogas	Mechanical	◔	◑	◑

Unplanted sludge drying beds are an efficient method for the treatment of fecal sludge and require low investment in capital & O&M

Regulations and Monitoring by ULB

- ULBs has to **formulate their own Bye-laws** and **Rules** for **management of septage**
- The Rules **should address**:
  - **Design of septic tanks** (adapted to local conditions) and methods of **approval of building plans** to **comply with rules**
  - **Periodicity of desludging**, and **O&M** of **septic tank**
  - **Operating procedures** for **desludging** including safety procedure
  - **Licensing** and reporting of **private**
  - Methods and locations of transport, treatment and disposal
  - **Levying tariffs or cess/ tax** etc. for septage management
  - **Penalty clauses** for untreated discharge (households & desludging agents)
  - Special **provisions** for **new real estate** developments
- **Inspection** of **on-site system** and **desludging of septic tanks** should be **carried out** by the **ULB.**

Way forward : Identifying private player for IFSM



Source: Field visits, online business listings

Way Forward: Developing possible Contract structures for IFSM

Contracts	Source of revenue	Ownership of asset	Payment method	Contract length and value
1A Refurbishment and cleaning of septic tanks + O&M of SDBs	*ULB*	Private player	Recurring fixed fee with Fixed fee per unit for refurbishment	2-3 year, ~INR 32-36 lakhs in Sinnar , ~INR 15-17 lakhs in Wai and ~INR 12-14 lakhs in Ambejogai annually
1B Construction of SDBs	*ULB*	ULB	Overall fixed fee on a pre-decided schedule	~ INR 40-45 lakhs in Sinnar ,~24-28 lakhs in Wai and ~6-10 lakhs in Ambejogai lasting the time period of construction
2A Refurbishment and cleaning of septic tanks	*ULB*	Private player	Recurring fixed fee with Fixed fee per unit for refurbishment	2-3 year, ~INR 27-32 lakhs in Sinnar , ~INR 11-13 lakhs in Wai and ~INR 10-12 lakhs in Ambejogai
2B Construction and O&M of SDBs	*ULB*	ULB	Overall fixed fee on a pre-decided schedule + recurring fixed fee for O&M	12-18 months, Construction cost plus ~5-6 lakhs annually for O&M in Sinnar and ~4-5 lakhs in Wai
3A Integrated contract involving refurbishment, cleaning of septic tanks, construction and O&M of SDBs	*ULB*	Trucks – Private SDBs- ULB	Recurring fixed fee for cleaning and O&M with Fixed fee for Construction and Fixed fee per unit for refurbishment	Payment for refurbishment, cleaning and O&M as in 1A above; payment for construction as in 1B above

Risk assessment and mitigation measures . . .

Decentralized Wastewater Management

Supporting city for DEWATs

Name of selected cluster:	Label in map:
Kranti Nagar	A
SRT Hospital Area	B
Barula Talab	C
Area behind Yogeshwari College	D
Mouli Nagar Area	F

TECHNICAL OPTIONS

OPTION 1 :

Septic tank + Soak pits
+
Septage management

OPTION 2 :

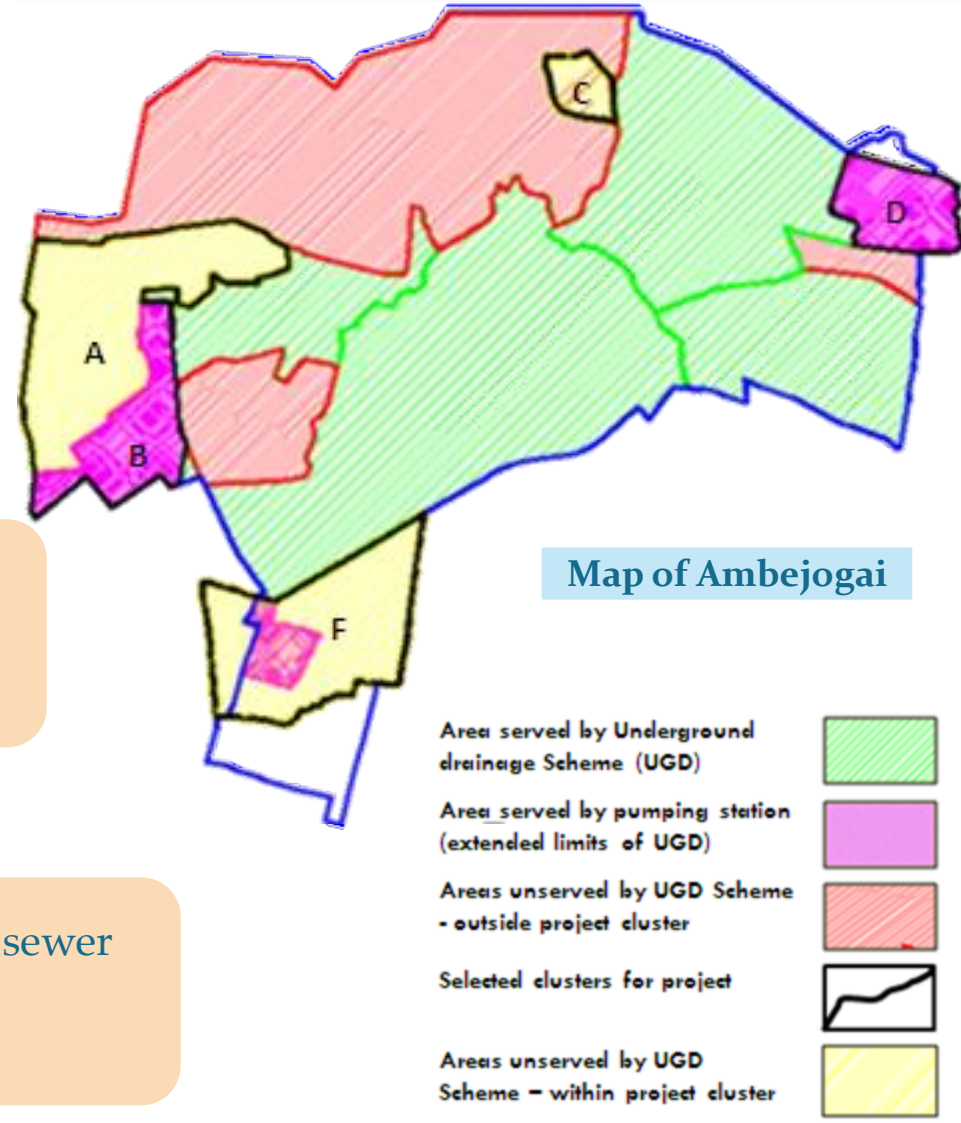
Septic tank + Settled sewer + DEWATs + Septage management

OPTION 3 :

Simplified sewer
+
DEWATs

OPTION 4 :

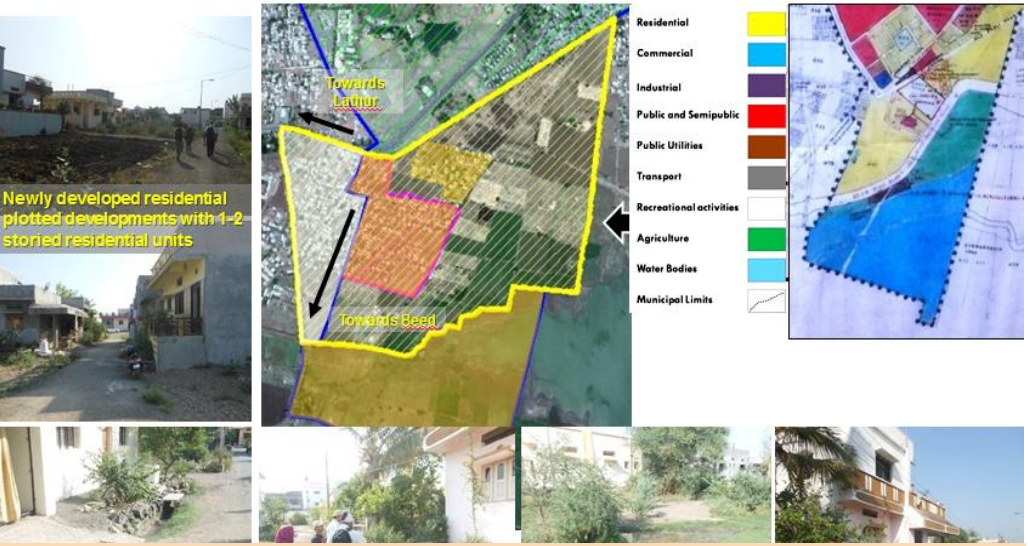
Conventional sewer
+
STP



Map of Ambejogai

Comparing the capital and O & M cost for each technical solution

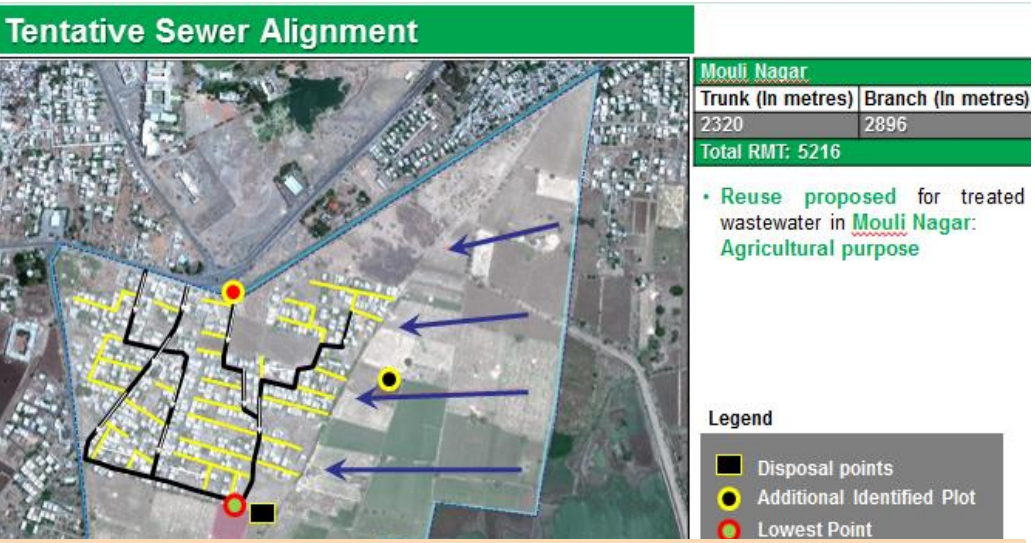
Key activities supported for DEWATs in cities



Wastewater profiling of the clusters

WW mgmt concept / Cluster Application	Wastewater management Option 1 (ST+SP+SMP)	Wastewater management Option 2 (ST+Settled Sewer+DEWATS+SMP)	Wastewater management Option 3 (Simplified Sewer+DEWATS)	Wastewater management Option 4 (Conv. Sewer+STP)
Mouli Nagar	Suitable Option – 3	Suitable Option – 2	Suitable Option - 1	14.4% coverage o Conventional sewe system
Kranti Nagar (Lal Nagar Slum settlement)	Suitable Option - 1	Suitable Option – 3	Suitable Option - 2	Not proposed fo this area
Behind Yogeshwari College	Suitable Option - 1	Suitable Option – 3	Suitable Option - 2	A pumping statio has been propose to cover this area
				A pumping statio

Assessing suitability of options



Designing the system

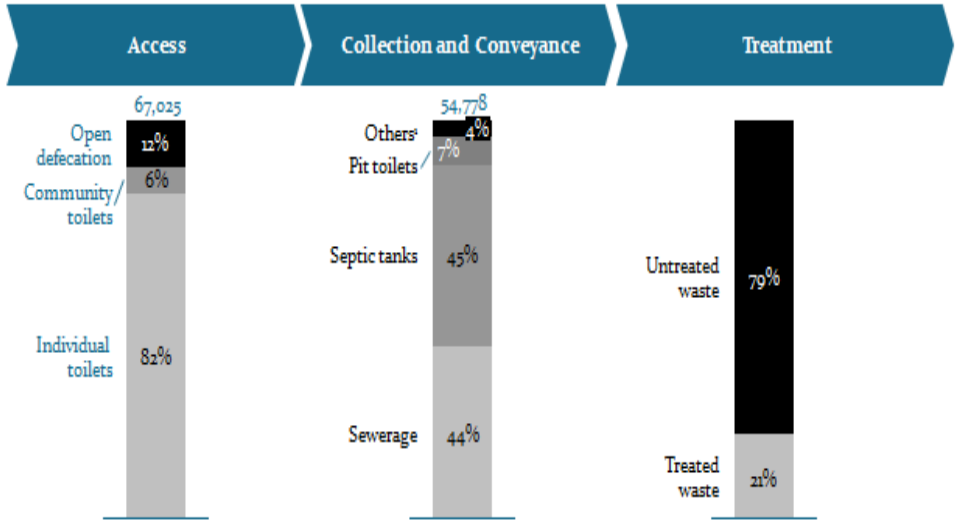
WW mgmt concept / Cluster Application	Wastewater management Option 1 (ST+SP+SMP) ****	Wastewater management Option 2 (ST+Settled Sewer+DEWATS+SMP***)	Wastewater management Option 3 (Simplified Sewer+DEWATS)	Wastewater management Option 4 ** (Conv. Sewer+STP)
Mouli Nagar	CAPEX: 128 Lakh Annual OPEX: 12 Lakh Area Required: 700 SQ.M.	CAPEX: 353.66 Lakh Annual OPEX: 3.83 Lakh Population Served: 11585	**CAPEX: 374.59 Lakh Annual OPEX: 4.96 Lakh Population Served: 11585**	CAPEX: 228.92 Lakh Annual OPEX: 24.58 Lakh Population Served: 9552
Kranti Nagar (Lal Nagar Slum settlement)*		CAPEX: 299.89 Lakh Annual OPEX: 2.84 Lakh Population Served: 5887	CAPEX: 332.26 Lakh Annual OPEX: 4.27 Lakh Population Served: 5887	CAPEX: 0 Annual OPEX: 0
Behind Yogeshwari College		CAPEX: 249.68 Lakh Annual OPEX: 2.53 Lakh Population Served: 3514	CAPEX: 276.84 Lakh Annual OPEX: 3.73 Lakh Population Served: 3514	CAPEX: 287.83 Lakh Annual OPEX: 25.53 Lakh Population Served: 3514
SRT Hospital (residential)		CAPEX: 195.66 Lakh Annual OPEX: 2.73 Lakh Population Served: 2471	**CAPEX: 212.5 Lakh Annual OPEX: 3.9 Lakh Population Served: 2471**	CAPEX: 313.07 Lakh Annual OPEX: 33.6 Lakh Population Served: 2471
TOTAL		**CAPEX: 1098.89 Lakh Annual OPEX: 11.93 Lakh Population Served: 23457**	**CAPEX: 1196.19 Lakh Annual OPEX: 16.86 Lakh Population Served: 23457**	**CAPEX : 829.82 Lakh Annual OPEX: 83.71 Lakh Population Served: 15537**

Comparison of options

Sanitation Financing

Key Focus: *Exploring innovative financing options*

There are large gaps in sanitation in urban India, especially in access to toilets and treatment of waste



Access to type of sanitation for HH in urban India *(in '000 HH)*

Methods of disposal of waste by HH with personal toilets in urban India *(in '000 HH)*

Analysis of treatment of waste water in urban India[2]

37 million people practice open defecation in urban India

28 million people with individual toilets use unsanitary methods of disposal of waste

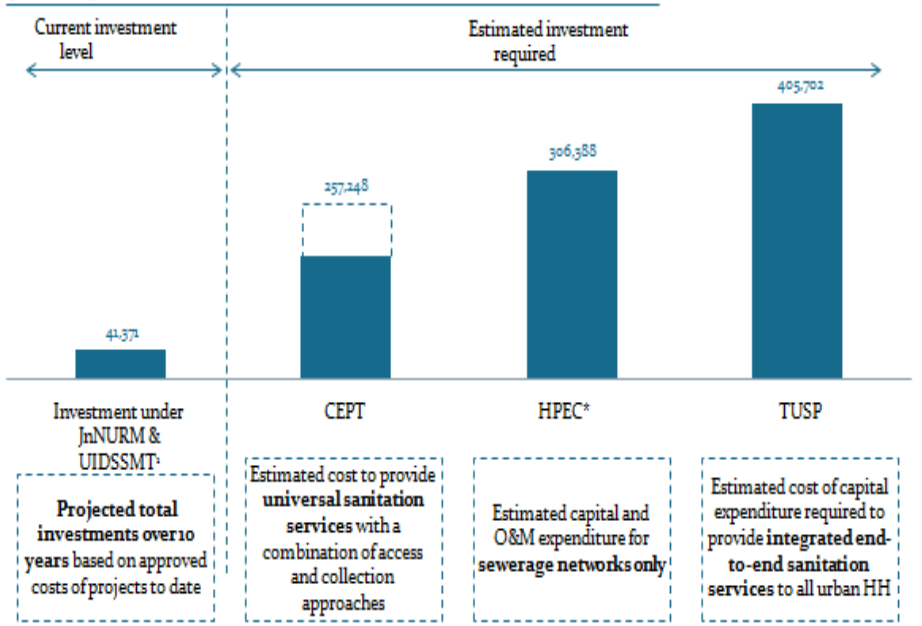
30,004 MLD untreated wastewater is discharged in water bodies or on land

Note: (1) Others includes primitive methods of C&C such as pour flush toilets-other systems, night soil disposed intro open drain and latrines serviced by humans and animals, (2) "Status of Sewage Treatment in India" report by Central Pollution Control Board of India (CPCB), 2005

Source: Based on Census of India 2011

Existing funding under government schemes such as JNNURM and UIDSSMT is unlikely to meet investment requirements to achieve universal sanitation

Comparison of planned and required investment in sanitation in urban India for a 10 yr. period
(INR. In Cr.)



Projected total investments over 10 years based on approved costs of projects to date

Estimated cost to provide **universal sanitation services** with a combination of access and collection approaches

Estimated capital and O&M expenditure for **sewerage networks only**

Estimated cost of capital expenditure required to provide **integrated end-to-end sanitation services** to all urban HH

Flagship government schemes such as JnNURM and UIDSSMT have invested heavily in sewerage projects, however yearly investments will need to be much higher in order to meet requirements

Note: (1) Projected investments under JnNURM and UIDSSMT assumes that the approved cost will be spent in 10 year period

Escalation at 6% added to HPEC estimates based on 2009-10 prices

Source: CEPT data, Dalberg analysis

Large Sanitation Gaps... !

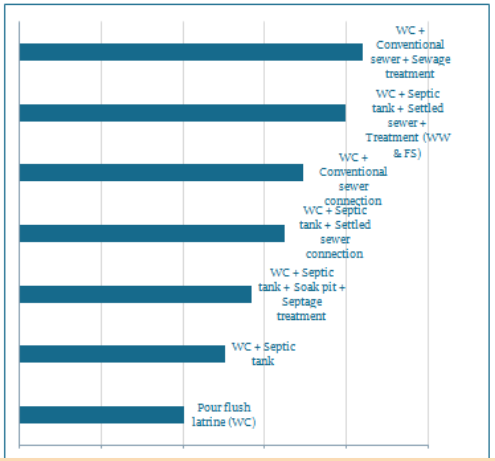
Existing Funds unlikely to meet investment requirement

need to explore other sources of financing..

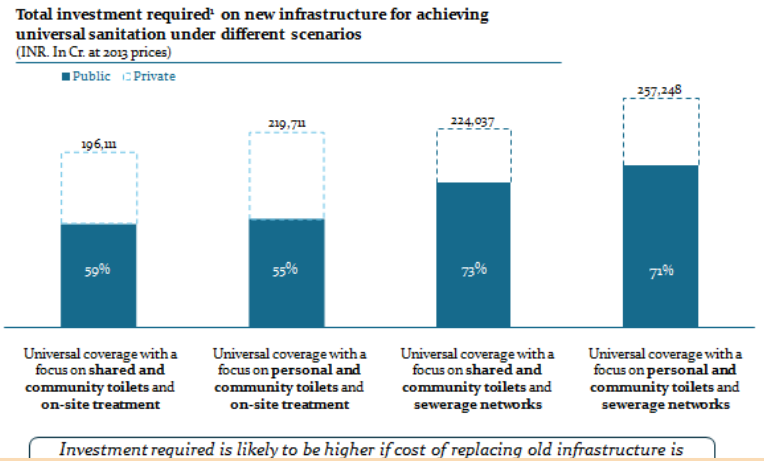
Estimates for investment requirement

National level estimates for achieving universal sanitation

- Program costs will depend on choice of technology (access, conveyance and treatment)
- Cost estimates may vary as per local conditions (soil, topography, terrain)
- Settled sewer and Treatment of waste water (WW) and fecal sludge (FS) may be an attractive alternative to conventional sewer

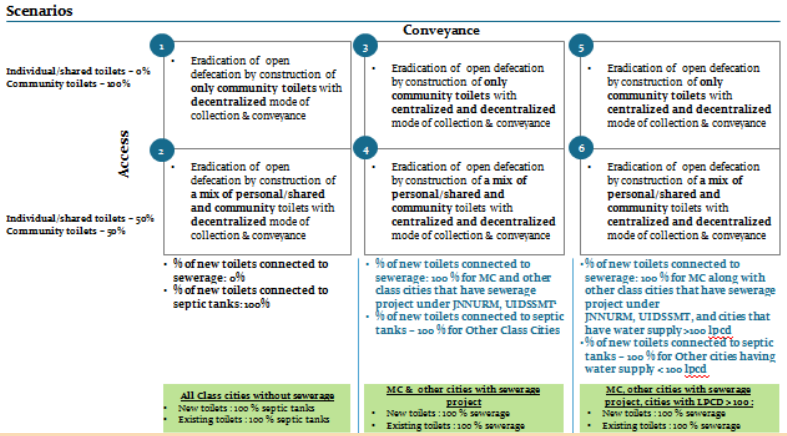


Based on technical solutions...

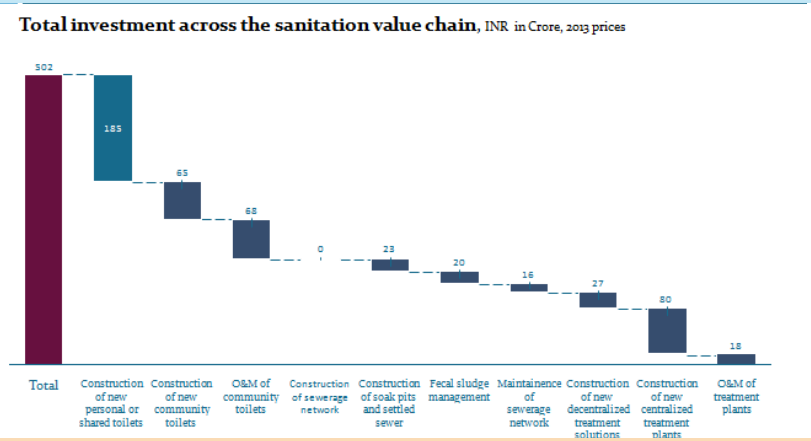


Estimates for onsite / sewer option

State level estimates for achieving universal sanitation



Scenario's...



Estimates for onsite / sewer option

Ideas on addressing affordability constraint. . .

- **Partial subsidy** through a **demand based scheme** at city level can address affordability concerns to some extent

- Household surveys suggest that most households that lack own toilets will **require access to credit** to build a toilet. There is some willingness to take a loan to build a toilet

- How do we get **potential lenders to lend in a city** that develops a local city level program?

Key Activities : Exploring credit providers for financing

Selfhelp groups (SHGs)	*Micro-finance institutions (MFIs)*	*Credit societies*	*Commercial banks*	*Housing finance companies (HFCs)*
• Groups of 5-10 women of similar socio-economic background, that make loans to members at low interest rates • Loans are financed through member contributions supplemented with borrowing from banks	• Provide loans to economically weaker sections who do not have access to traditional banking • Loans are usually given for income generating activities but could also be given for consumption. A periodic repayment needs to be made which is usually enforced through a peer liability model	• Autonomous association of people united voluntarily to meet their common economic needs through a jointly-owned and controlled enterprise • The members make deposits and in turn loans are given out to those in need at reasonable rates of return	• Commercial banks accept deposits and make loans to individuals and business enterprises • The lending is usually secured thorough a collateral but can also be unsecured • Repayment follows an EMI model with a defined rate of interest	• Housing finance companies (HFCs) are financial institutions one of whose primary businesses is housing loans • HFCs vary in the stringency of collateral requirements, but several players cater to low income populations

Credit providers for financing own toilet scheme

Assessment of credit providers across various dimensions

Reach towards target population	• Do these institutions cater to our target population of households who lack access to own toilets? • Are there significant barriers to membership or loan application that could affect their ability to serve these populations?
Local presence	• Do these providers have existing business operations in Wai and Sinnar? • If not, are they interested in entering these towns?
Prior history and future interest in toilet loans	• Do these institutions have a previous history of providing loans? • If not, what is their level of interest in providing such loans?
Capacity to make toilet loans	• Do these credit institutions have the financial strength and capacity to make toilet loans of a sufficient size? • Are there any regulatory hurdles to making toilet loans?
Favorability of loan terms	• What are the interest rates offered by these institutions for toilet or personal loans?

Discussions on innovative financing in sanitation...

Workshop with MoUD, GoI

Exploring the possibility of attracting **CSR funds, Social Impact Investors** (using SIBs/DIBs) and strengthen the use of government funding through **results-based funding mechanisms**

Roundtable discussion with NHB

Reviewed the **constraints** in **scaling up** of **lending for household sanitation** and explored **possibility** of setting up a **Development Impact Fund** for Urban Sanitation

Looking at financing instruments for investment in outcomes

Key Sanitation Outcomes	Possible Funding instruments	Governments	Bi and Multilateral donors	Foundations	Corporate CSR	Commercial banks/ FIs	Infrastructure finance companies	MFIs/SHGs	Impact investors	Potential beneficiaries
		Sources of funding								
Open Defecation Free City/ communities	Social impact bonds		✓	✓					✓	
	Performance based challenge fund for cities/ communities	✓	✓	✓	✓			✓	✓	✓
Fully sanitized city (all waste safely collected, treated and reused)	PPP for integrated or unblundled contracts (FSM, public toilets, settled sewers, STPs)	✓			✓	✓	✓			✓
	Social impact bonds	✓	✓	✓	✓				✓	
	Performance based (output based) grants to cities	✓	✓	✓						✓

Combination of traditional and innovative financing instruments

Way forward for innovative financing options

1

Construction of indiv/shared / community toilets financed by MFI

- Shared toilets constructed and operated by micro entrepreneurs in slums
- MFIs fund micro entrepreneurs, who repay loan through revenues from toilet users

2

Adoption of a community for decentralized waste treatment solution by a Corporate (CSR)

- A corporate adopts the treatment of waste of a community (near a plant or area of interest)
- Decentralized technology of waste treatment is adopted (DEWATS) with an NGO as an executing agency

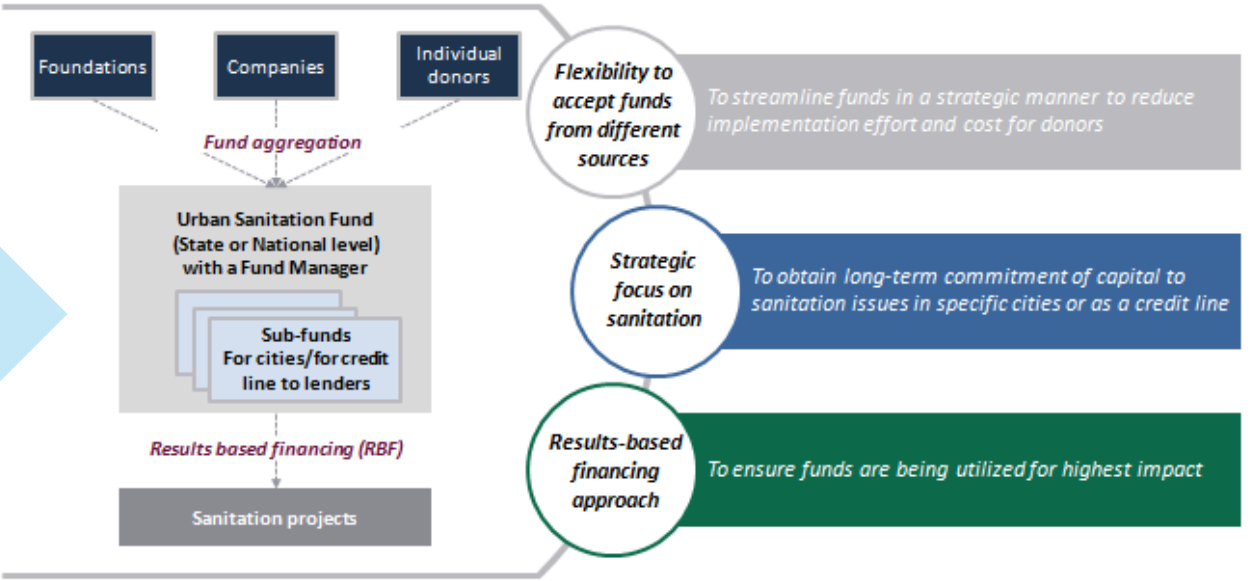
3

Fecal sludge management as a Public Private Partnership (PPP)

- ULBs contract private players for regular cleaning of septic tanks and safe disposal of waste
- The PPP is a performance based grant with payment released after a certain pre-defined outcome has been met

Support new business to supplement current efforts

Sources can be brought together in the form of a results based urban sanitation fund at various levels



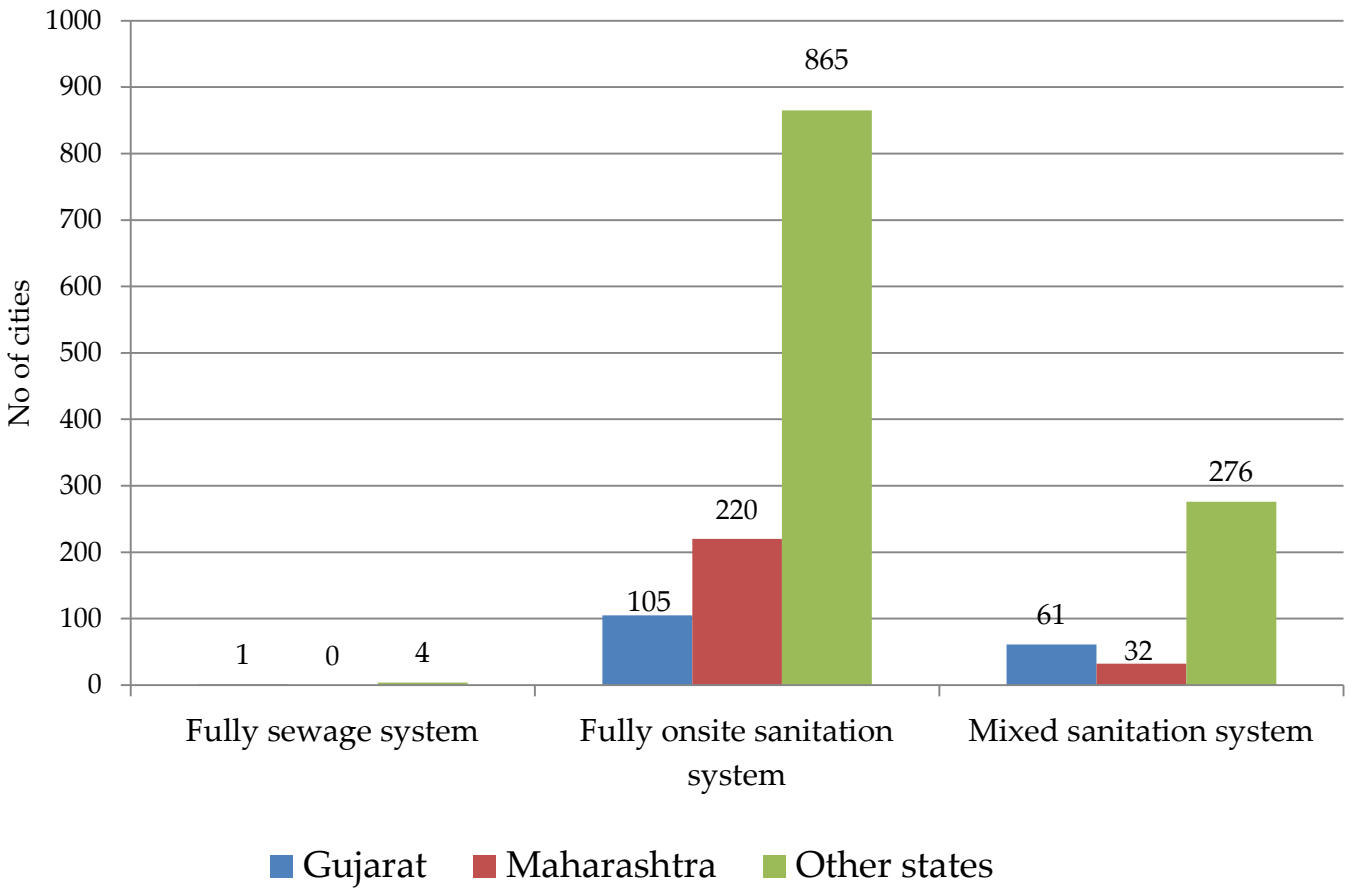
A new version of a development impact fund?

Possible structures at different levels

- **National /state - Development Impact Fund (DIF)**
  - to mobilize debt funds for on-lending at affordable costs
  - to meet the support costs of potential lenders
- **State / City sanitation fund (CSF)**
  - to meet support costs for city governments
  - to provide partial subsidy to households

Indicators for assessing Onsite and Mixed Sanitation systems

Different types of sanitation systems in Urban India



MAJOR DEPENDECY ON ONSITE and MIXED SANITATION SYSTEMS . . .

India

- **76.1 % cities** are fully dependent on **onsite sanitation systems**
- **23.6 % of cities** are dependent on **mixed sanitation systems**

Gujarat

- **62.9 % cities** are fully dependent on **onsite sanitation systems**
- **36.5 % of cities** are dependent on **mixed sanitation systems**

Maharashtra

- **87.3 % cities** are fully dependent on **onsite sanitation systems**
- **12.7 % of cities** are dependent on **mixed sanitation systems**

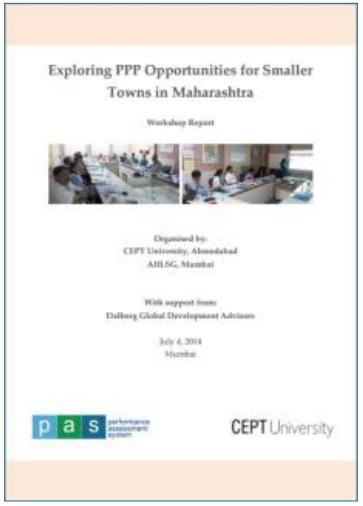
New framework for sanitation assessment

Type of system	Capture	Collection	Conveyance	Treatment	Recycle and Reuse
Conventional underground Sewerage system	1. Coverage of toilets	1. Coverage of sewerage network service 2. Collection efficiency of sewage network		4. Adequacy of sewage treatment capacity 5. Quality of sewage treatment	6. Extent of reuse and recycling of sewage
Onsite system – Septic tank with settle sewer / drains		7. Percentage of properties connected to septic tank	7. Percentage of septic tanks cleaned annually 8. Percentage of septic tanks connected to settle sewer / drains for effluent	12. Adequacy of septage treatment capacity 13. Quality of septage treatment 14. Adequacy of effluent *(from septic tank)* treatment capacity 15. Quality of effluent (from septic tank) treatment	12. Extent of reuse and recycling of treated septage 13. Extent of reuse and recycling of treated effluent *(from septic tank)*
Onsite system – Septic tank with Soak pit			10. Percentage of septic tanks connected to soak pit for effluent disposal 11. Collection efficiency of septage		
Mixed sanitation system (Partial sewerage and onsite sanitation)		12. Weighted average of coverage of each sanitation system	12. Weighted average of collection efficiency of each sanitation system	12. Weighted average of adequacy of each sanitation system 13. Weighted average of quality of treatment of each sanitation system	12. Weighted average of extent of reuse and recycling of each sanitation system

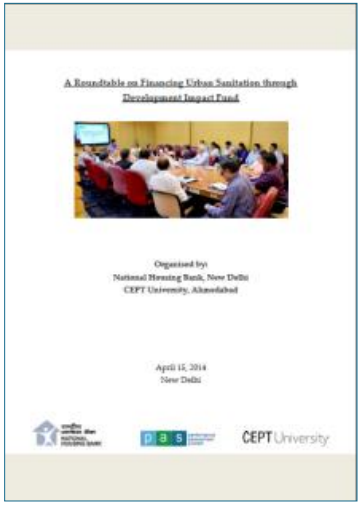
Indicator definition , formula and rationale have been developed…

Policy Research and Papers

Policy Research and Papers on Urban Sanitation

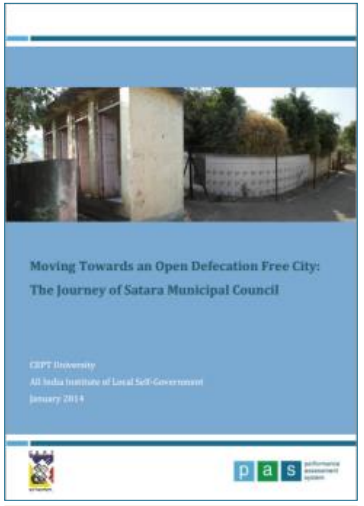


Exploring PPP Opportunities for Smaller Towns in Maharashtra

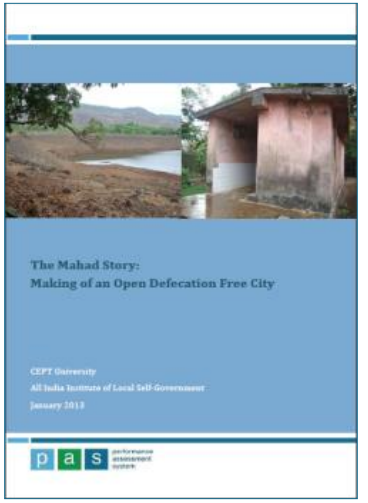


Financing Urban Sanitation through a Development Impact Fund

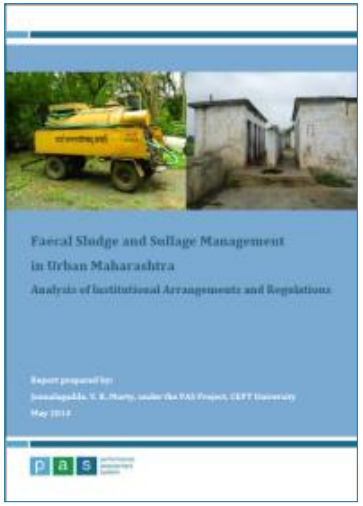
Workshop on Financing Urban Sanitation



Satara — Towards an Open Defecation Free City

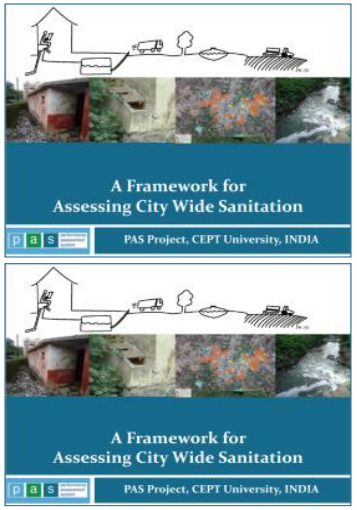


The Mahad Story - Making of an Open Defecation Free City

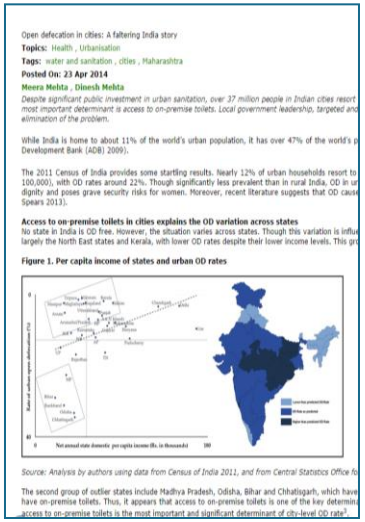


Faecal Sludge and Sullage Management in Maharashtra- Institutional Arrangements and Regulations

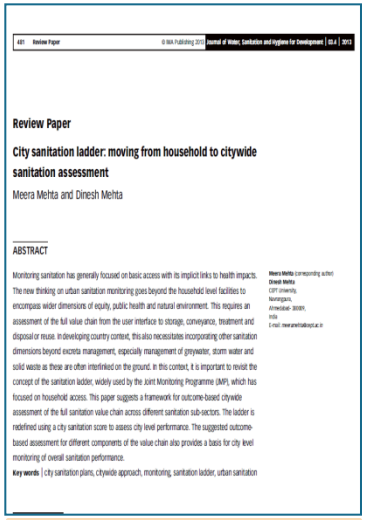
City Sanitation Plans for Small Towns in Maharashtra



Framework for City-wide Sanitation Assessment and Planning



Open defecation in cities: A faltering India story (in Ideas for India)



City sanitation ladder: moving from household to citywide sanitation assessment (IWA)

Thank you

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