



# Budget Brief Financing Faecal Sludge and Septage Management Services in Maharashtra

June 2019

## Budget Brief

# Financing Faecal Sludge and Septage Management Services in Maharashtra

Under the Swachh Bharat Mission there has been an explicit focus on making cities open defecation free. Government of Maharashtra declared all the 393 cities as open defecation free (ODF) on October 1, 2017. The Government of Maharashtra also recognises this as only the first step. ‘Safe management of sanitation’ was articulated in the ODF sustainability charter that was released by Hon Chief Minister. The charter considers the entire sanitation service chain to ensure safely managed services in cities. It emphasized faecal sludge and septage management as an important component of the sustainability charter.

The Sustainable Development Goals (SDGs) set various targets under goal 6 of “Ensuring availability and sustainable management of water and sanitation for all”. This has also been an integral part of the Maharashtra’s policy framework to make cities ODF, ODF+ and ODF++. A draft FSSM policy and strategy for the state has been prepared. In this context this budget brief explores how this policy on FSSM can be financed. It suggests potential sources of financing capital and operating expenditure for FSSM in Maharashtra.

## 1. FSSM financing requirements

Maharashtra is a highly urbanised state with nearly 60 million population residing in 393 cities. In the last decade urban growth accounted for nearly two-thirds of total population growth in Maharashtra. Nearly 21 million persons in urban Maharashtra across all 393 cities will continue to depend on onsite sanitation. FSSM is a key priority in the state as only 42 out of 393 cities in Maharashtra have sewerage systems, that too with partial coverage. Septic tanks are emptied only when they are full. The septage is disposed in open lands or used in farmlands without any treatment. This practice has adverse effect on ground water and surface water, and eventually health of local population.

**Financing requirements are important for both treatment and conveyance.** To provide full FSSM services across cities in Maharashtra, it is essential to assess financing requirements for the full service chain for safe sanitation. For estimating this, scheduled desludging is taken into account where septic tanks are desludged every three years. For desludging, capital financing requirements are for additional trucks needed. For Faecal Sludge treatment plant, average cost per KLD of FSS treated is used. It is estimated that, nearly 175 cities will be able to do co-treatment in STPs or FSTPs which already exist or are under construction. For the other 218 cities, independent faecal sludge treatment plants (FSTPs)

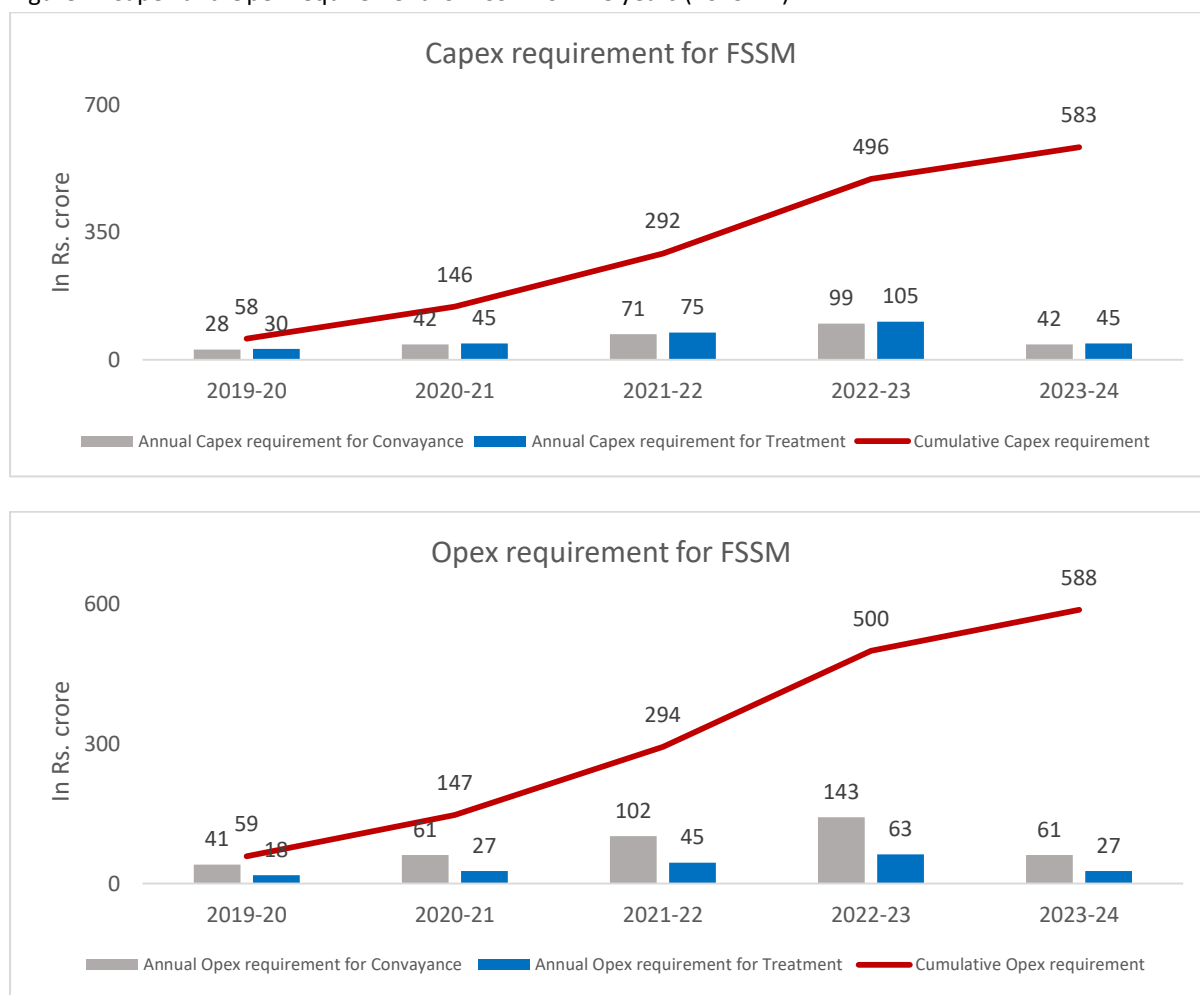
will be needed. Using this approach, Government of Maharashtra's draft FSSM policy estimated total capital expenditure requirements for FSSM for the period 2019 to 2024 to be Rs. 583 crore and the operations and maintenance expenditure of INR 588 crore at 2018 price.

Table 1: Estimated financing requirements for state wide FSSM coverage, 2019-24

	Capital cost for 2019-24 (In Rs. Crore)	O&M cost for 2019-24 (In Rs. Crore)	Total (In Rs. Crore)
Conveyance	283	408	691
Treatment*	300	180	480
Total	583	588	1171

Source: CEPT analysis; \* Note: This cost includes DPR preparation costs, setting up FSTP and site development

Figure 1: Capex and Opex requirement for FSSM for five years (2019-24)



Source: CEPT analysis

It is observed that the financing requirement is significant for conveyance. The high conveyance cost is influenced by larger cities in the state. For these cities, FSS is transported to nearby STPs. On the other hand, the treatment cost is driven by the smaller and medium towns which do not have individual STPs or do not come in the buffer of an existing sewage treatment plant.

This analysis suggests that the focus of FSSM financing should not be only on FSM treatment services, as is generally done in many states. Unless the conveyance is adequately funded, septic tanks will not be regularly emptied, and newly built treatment facilities will remain underutilized. It is estimated that small and medium ULBs would need almost 60% of the overall state's FSSM financing requirements. For large municipal corporations and councils, which can co-treat septage with their own or nearby STPs, almost 70% of expenditure would be towards conveyance.

## 2. Potential sources of financing for state-wide FSSM services

Different sources of finances are relevant across the sanitation service chain. While the toilet construction and maintenance is taken care by the households themselves, desludging service is often provided by local governments or private sector enterprises. On the other hand, treatment infrastructure is mainly funded through public funds.

Overall the financing requirements for FSSM capital investments are not very large. Analysis suggests that these can be mobilized from public finance resources, particularly the expenditure needed for treatment.

Just as sewerage in all states is largely funded by public funds, treatment facility for FSSM must also be funded through public funds. Also as there is no revenue model for reuse of treated waste water, operational expenses must also be met by the public sources to ensure sustainable operations.

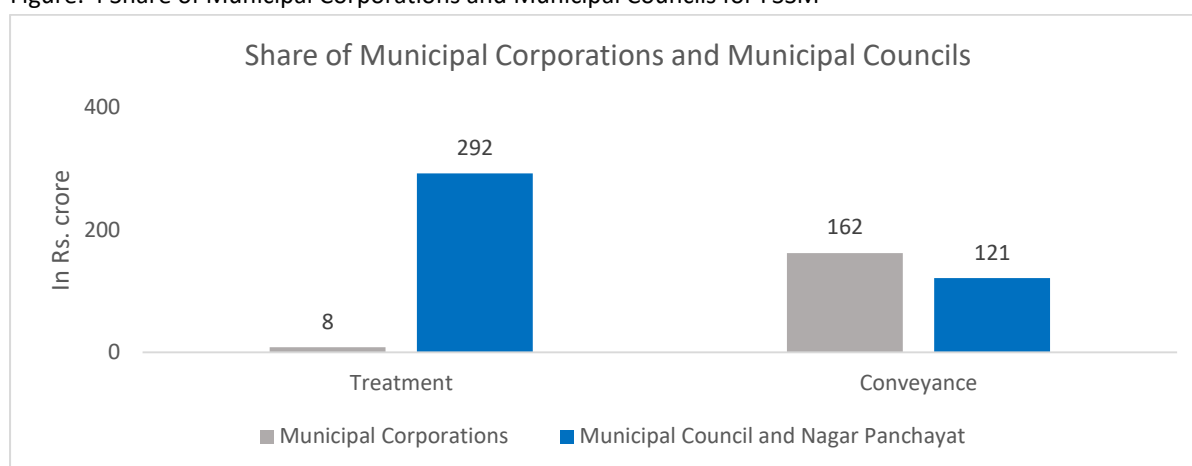
It is observed that most STPs in all states are funded through public funds and so are many other social infrastructure projects. Financing need for building FSTPs is not very high. The state government can easily comply with the annual requirement of 60-100 crore for building the FSTPs.

Figure: 3 Potential sources of Financing across the sanitation service chain



Conveyance capital expenses can be funded largely through private funds using appropriate business models. There are three possible business models: a) demand based services provided by private operator; b) scheduled services provided by private operator through PSP model, and c) scheduled desludging through performance linked annuity model. The conveyance requirement is higher for Municipal corporations in comparison to the Municipal councils and Nagar Panchayats. Government of Maharashtra has, in principle, decided to move towards scheduled emptying services. During consultation workshops, the private operators showed willingness to participate in scheduled desludging. Involving private sector for conveyance would reduce the investment requirement on the government.

Figure: 4 Share of Municipal Corporations and Municipal Councils for FSSM



Source: CEPT analysis

### 3. Potential of public financing for FSSM in Urban Maharashtra

In Maharashtra, the Urban Development Department (UDD) is at the helm of financing UWSS services. The aggregate budget size of key urban water supply and sanitation (UWSS) activity has grown faster than urban population in the last 6-7 years, reflecting the GoM's growing focus on closing the UWSS gap. The share of UDD in the state budget has increased considerably from 2.7% in FY 2012-13 to 8.8% in FY 2019-20, reflecting its pivotal role in disbursement of central and state government scheme related funds for UWSS.

Table 2: Percentage share of Urban Development Department to Total State Budget of Maharashtra

Values in Rs. crore

Items	2012-13 actuals	2013-14 actuals	2014-15 actuals	2015-16 actuals	2016-17 actuals	2017-18 actuals	2018-19 revised	2019-20 budgeted
State Budget	1,57,549	1,76,567	1,98,217	2,14,281	2,56,922	2,86,769	3,73,235	4,04,794
UDD budget	4,394	4,976	6187	11,069	16,965	23,577	34,756	35,756
% UDD budget to state budget	2.8%	2.8%	3.1%	5.2%	6.6%	8.2%	9.3%	8.8%

Source: Maharashtra Budget Documents 2014-20; Maharashtra Urban Development Department Budget Documents 2014-20

The total UWSS finance for FY 2019-20 is projected to be Rs. 3,457 crore. This represents a compound annual growth rate (CAGR) of almost 22% in the last 7 years. In per capita terms, the allocation has increased by five folds from Rs. 349 in 2012-13 to Rs. 1,660 in FY 2018-19. This is mainly due to budget allocation under Government of India's flagship programme such as Swachh Bharat Mission, AMRUT, SMART Cities and NULM.

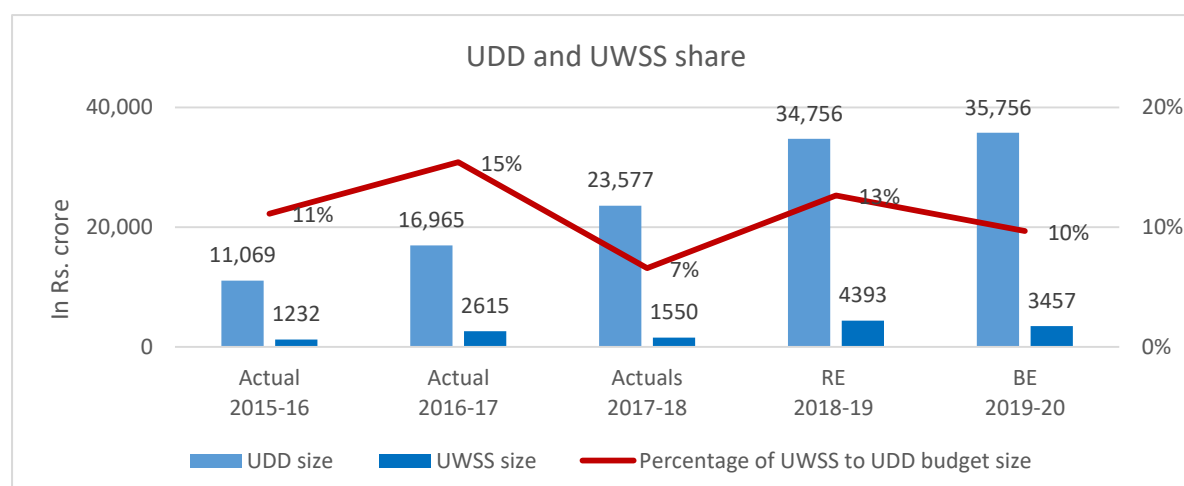
Table 3: Percentage share of Urban Water Supply and Sanitation to Urban Development Department budget

Values in Rs. crore

Items	Actual 2015-16	Actual 2016-17	Actuals 2017-18	RE 2018-19	BE 2019-20
UDD size	11069	16965	23577	34756	35756
UWSS size	1232	2615	1550	4393	3457
Percentage of UWSS to UDD budget size	11%	15%	7%	13%	10%

Source: Maharashtra Urban Development Department Budget Documents 2015-20

Figure: 4 Percentage share of Urban Water Supply and Sanitation to Urban Development Department budget

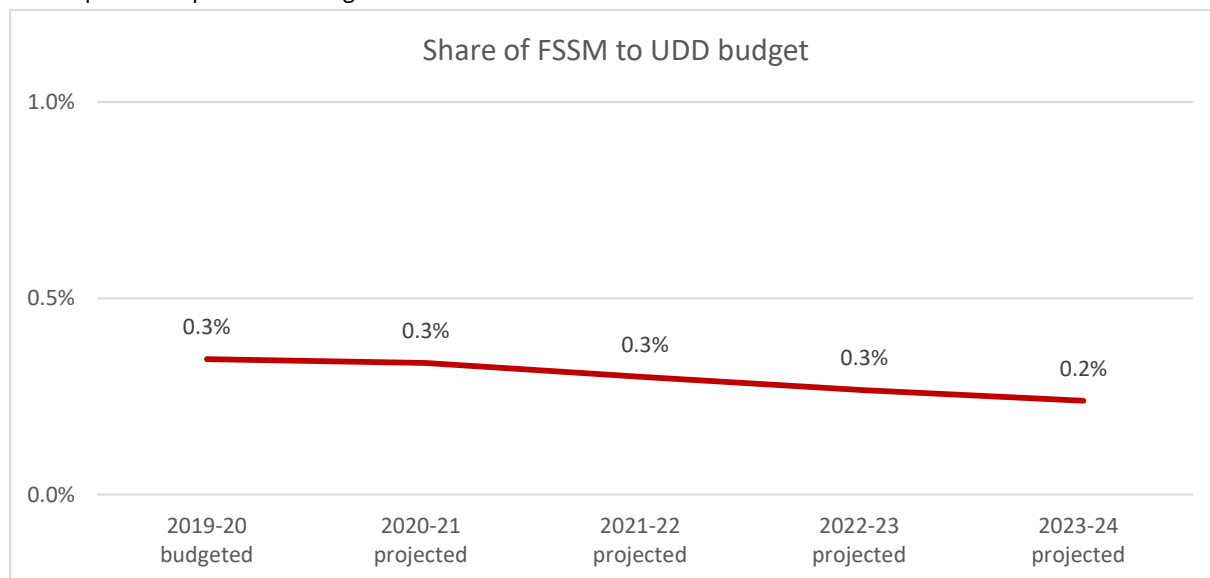


Source: Maharashtra Urban Development Department Budget Documents 2015-20

**FSSM capital funds requirement is less than 1% of budget allocation for urban development.** The total budget size of Urban Development Department, Government of

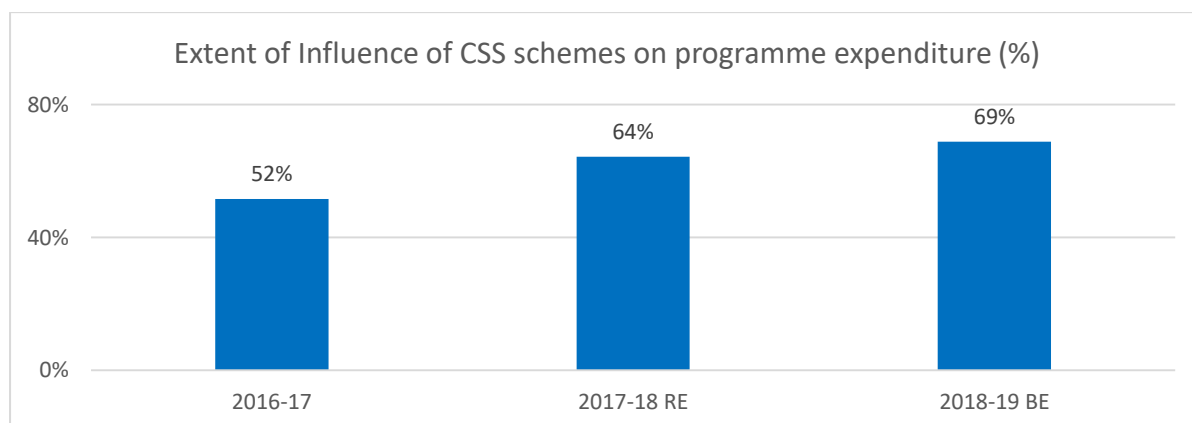
Maharashtra is INR 35,756 crore in 2019-20<sup>1</sup>. This represents less than 1 percent of the capital expenditure requirements for the period 2019-2024 i.e. INR 634 crore rupees. It is only a small proportion of total urban sector outlay.

Figure: 5 Percentage share of FSSM requirement to Urban Water Supply and Sanitation budget and Urban Development Department budget



Source: CEPT Analysis; Maharashtra Urban Development Department Budget Documents 2019-20

**Maharashtra's urban budget allocation is highly influenced from centrally sponsored schemes.** Budget allocation for FY 2018-19 suggests that nearly two third of program allocation in urban Maharashtra is aligned with centrally sponsored scheme. These are aligned with the missions of central government of AMRUT, SBM, Smart city, NULM, etc.



Source: CEPT Analysis; Maharashtra Urban Development Department Budget Documents 2019-20

In this context, there is a need to create better awareness at both national and state levels to explicitly incorporate FSSM related components in national programs, such as SBM and

<sup>1</sup> Urban Development Department (2019-20) "Urban Development Department Budget 2019-20" Govt. of Maharashtra



AMRUT. This is important, particularly for small and medium towns, which are not covered by the current flagship programmes. This focus on inclusion of FSSM in flagship programmes will also influence state governments to allocate more funds for FSSM. Recently, there has been significant interest created around provision of citywide FSSM service through National FSSM Policy. The AMRUT programme's reform also includes preparation of a state level FSSM policy. FSSM is also accorded some weightage in the Swachh Sarvekshan. Despite these efforts, however, non-network sanitation solutions through city wide FSSM services are still not recognized adequately by most State and local governments for allocating public funds for these options.

As shown above, FSSM requirement over the next 5 years will be less than 10% of the state's annual UWSS allocation on its own schemes and funds under UDD. Given that public funds are adequate, the key issue is of channelling / re-allocating those funds towards FSSM – this can be done by convincing national and state governments to increase share of sanitation/FSSM in the urban development budget. Focused budgeting for FSSM projects is needed.

**Potential state schemes for financing FSSM.** There is a need to develop a State level programme or specific allocation towards FSSM for effective city wide FSSM implementation strategy. GoM may use state's own program such as Maharashtra Suvarna Jayanti Nagarotthan Maha Abhiyan (MSJNMA) and Vasishpurna Scheme. Total budget allocation for these program is around INR 1100 crore per annum as per 2017-18 actuals<sup>2</sup>, which represents 18 percent of financing requirements for FSSM per annum. MSJNMA can be utilised in a focused manner to finance the capital expenditure component of FSSM. While municipal corporations and larger municipalities can focus on AMRUT funds, MSJNMA or similar state schemes, which may be introduced in the near future, can be explored to finance FSSM requirements of smaller municipalities. In this context, it is essential to develop an effective communication strategy for advocacy to State government and ULBs to prioritize/ leverage public finances for FSSM projects.

Table 4: Potential Maharashtra state schemes for funding FSSM

Values in Rs. crore

Items	Actual 2015-16	Actual 2016-17	Actuals 2017-18	RE 2018-19	BE 2019-20
Maharashtra Suvarna Jayanti Nagarotthan Maha Abhiyan	585	859	522	720	1200
Vasishth Purna Scheme/ special grants to Municipal Councils for Distinctive work	513	598	573	480	655

Source: Maharashtra Urban Development Department Budget Documents 2015-20

<sup>2</sup> Urban Development Department (2019-20) "Urban Development Department Budget 2019-20" Govt. of Maharashtra



To encourage ULBs towards making and sustaining their cities ODF, the GoM announced incentive funds on achievement of ODF status. It has also announced incentive grants for cities that have done well under Swachh Sarvekshana. According to the government resolution outlining the conditions for becoming ODF, ODF+ and ODF++, ODF cities can use the SBM Incentive Fund and 50% of 14th FC funds for obtaining the ODF+ and ODF++ status. Cities in Maharashtra are eligible for the SBM Incentive Fund based on their classification. The overall eligibility under the SBM Incentive Fund is Rs. 408 Crores. Total budget allocation as a state share in SBM is INR 1675 crore in 2015-20.

As per the Maharashtra government resolution stated above, of the total 14th FC devolutions (FY15-FY20) of Rs. 12,413 Crores, almost Rs. 6,000 Crores can be seen as a potential funding source of FSSM services. The estimated funds required by the state over the next 5 years (FY18-FY22) is 25% of this amount.

#### **Box-1 Funding of FSTP by ULB from 14<sup>th</sup> FC funds: Case of Sinnar, Maharashtra**

Government of Maharashtra had asked the ULBs to use 50% of their 14<sup>th</sup> FC funds for sanitation related activities. There is, thus, significant fund availability with small and medium towns in Maharashtra.

Sinnar, a class B city of Maharashtra is a fast growing industrial town with a population of 80,000. It is one of the first cities to address the entire sanitation chain from end to end. They focused from improving access to toilets to have implemented scheduled emptying of septic tanks to treating its faecal sludge.

Sinnar is the first city in Maharashtra to implement FSTP from its own funding. For the capital cost of the FSTP, Sinnar city has invested its basic funds received under the Center's Fourteenth Finance Commission (14<sup>th</sup> FC). This is a departure from the norm of cities depending on special funding by State or Central government for large scale infrastructure. For the operations and maintenance cost of the FSTP, they have introduced the sanitation tax in the city.

They are also seeking funds from corporates, local industries and diaspora. They have set up City Sanitation Funds – "Swachhta Kosh" to converge CSR funds and donations for sanitation planning activities. The interventions have been inclusive and sustainable in terms of finance and operations through partnerships with the private sector and using the city's own funds.

#### 4. Using public funds to leverage private funds for conveyance

Funding for FSS treatment plant should ideally come from government. The private desludging operators can play important role in the conveyance business. This is ideally suited for small and medium enterprises. Even if public finance is used to mobilise capital funds for FSSM service provision, it is essential to ensure good service delivery and that requires appropriate business models that involve private sector and draw on their management capacities.

For the conveyance services, there is a mix of private operators and ULB providing conveyance services in the cities of Maharashtra. The capital investment for the purchase of trucks can either be mobilized through local government funds or private sector financing. One approach can be of scheduled desludging (e.g. in Maharashtra), where annuity payments are made by ULBs financed through sanitation tax on properties. In case of demand desludging, it is possible to let private desludgers operate on payment of a licence fee.

##### **Box-2 Experience of Scheduled Desludging in Wai and Sinnar, Maharashtra**

The local governments in both cities of Wai and Sinnar, provide desludging of septic tanks as a regular public service through PPP. 'Scheduled desludging' service of onsite sanitation systems is introduced. This service functions on the principle that all septic tanks in the city are to be emptied once in every three years according to a pre-determined schedule.

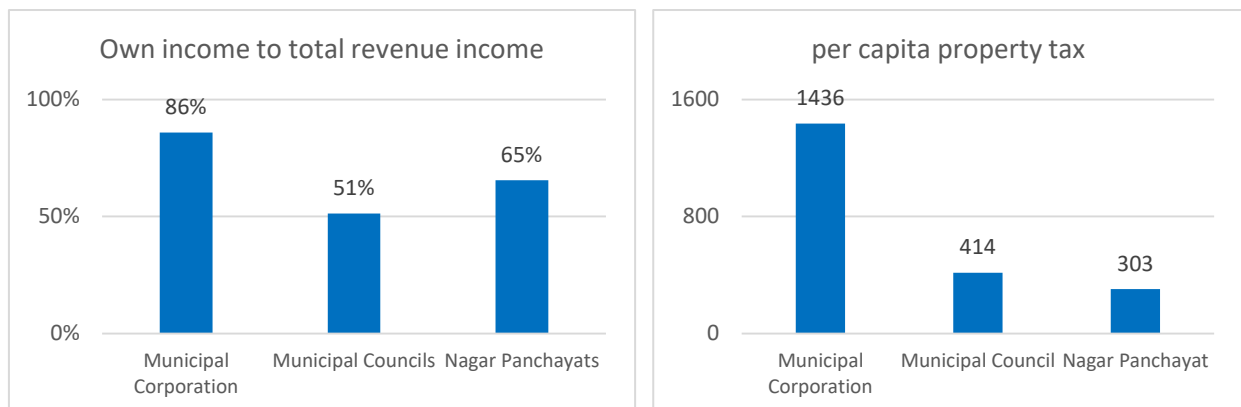
The desludging is done by engaging a private service provider through a performance linked annuity contract. The capital cost of the trucks and operational cost of the scheduled desludging service will be mobilized by the private provider. The payment to the private provider will be made by the local government against results delivered. The service provider is paid against the number of septic tanks emptied and safe discharge at the designated treatment site. Both cities have levied an annual sanitation tax instead of the user charge collected earlier at the time of emptying. This tax amount is used to pay the private service provider. While the private service providers make investments in trucks, they get a fixed business and assurance of monthly payments against number of septic tanks emptied.

In both cities, the bid price was lower than the previous charges levied for demand desludging. The total annual contract value is only 1.8% of total annual revenue expenditure of local governments.

## 5. Enhancing financial health of local governments to ensure O&M sustainability

Over the past decade, Government of India has made considerable investment in urban sanitation under various National Programs. However, it is recognized that to sustain the investments in urban sanitation, strengthening of municipal finance needs attention. Generally national/state flagship programmes provide funds for capital investments, but it is important to ensure that these investments are maintained and operated adequately. ULBs have to ensure mobilizing adequate local revenues to sustain operation and maintenance of infrastructure.

The ULBs of Maharashtra are financially sound. Almost 78% of total revenues is from its own sources, i.e. taxes, charges, fees etc. However, there is a huge disparity between Municipal Corporations and Municipalities in this regard. Analysis shows that while own revenues comprise almost 86% of income for municipal corporations, it is also 51% for municipalities. Municipalities, thus, are more dependent on state devolutions and grants.

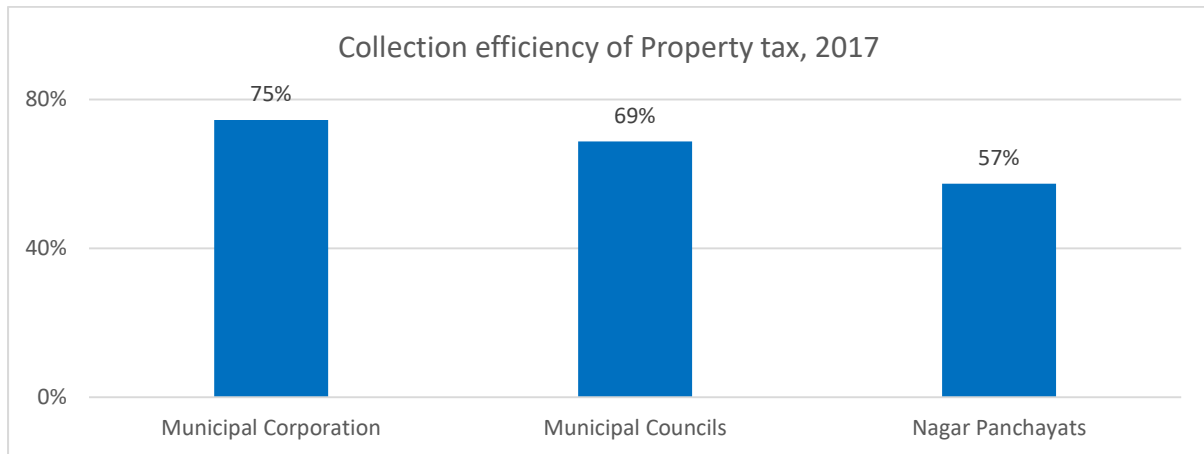


Source: PAS, Service Level Benchmark data, 2016-17 (data of 349 ULBs of Maharashtra)

For FY 2016-17, the average per capita property tax demand for municipal corporations in Maharashtra was Rs. 1,435. While it was Rs. 414 for municipal councils. The share of property tax to own tax revenue is around 20% at state level. The average per capita property tax of Maharashtra is Rs. 440. This is higher in comparison with other states of Andhra Pradesh and Tamil Nadu where per capita property tax are of Rs. 282 and Rs. 359 respectively.

The collection efficiency of the property tax is around 70% at state level. The situation is almost similar in both municipal corporations and municipalities. This poses a significant opportunity for ULBs to improve their financial performance by improving their collection

rates. This can be done by introducing convenient and easy payment methods. A large potential of this tax which is untapped can be recovered to enhance the own ULB income. This will increase their own income sources.



Source: PAS, Service Level Benchmark data, 2016-17 (data of 349 ULBs of Maharashtra)

From the past decade, it is observed that Maharashtra state government devolves 16-20% of its state FC transfers to the ULBs. This shows that these transfers are regular and consistent. Thus the predictability of these transfers also assures the ULBs income.

For operational sustainability, ULBs need to enhance their own incomes by improving property taxes and revenues from other sources of own income and reduce their dependence on grants and transfers from state and national governments. Introduction of sanitation tax can help to have assured income for O&M for FSSM services. This sanitation tax can also be a part of property tax or part of water tax.

## 6. Way Forward

**FSSM financing needs for Maharashtra over the next 5 years are less than 1% of the annual budget for Urban Development Department.** The trends on financing for urban water and sanitation in urban Maharashtra suggests that financing requirements for FSSM is quite small. However, various national and state flagship programmes were focused on large cities and funds were allocated for underground sewerage schemes and solid waste management. Hence, there is a need for dedicated pool of funds for FSSM to ensure its implementation.

**Advocacy for channelling funds for FSSM.** There is a need to create better awareness to recognize FSSM as mainstream sanitation solution through budget allocations. The present need is to focus on FSSM as majority of the small and medium cities are dependent on on-site sanitation. The state budget analysis shows that the Maharashtra's urban budget allocation is highly influenced from centrally sponsored schemes. Thus, the recognition of

FSSM in upcoming missions would help to leverage public funds from state government and municipal share for FSSM services.

**State's own programme allocation is adequate but an effective strategy is needed to leverage/prioritize FSSM.** Existing state schemes of Maharashtra Suvarna Jayanti Nagarotthan Maha Abhiyan and Vashishthpurna scheme provide funds towards sanitation infrastructure. FSSM financing needs over the next 5 years are about 20% of the annual budget allocation under these schemes. While the large municipal corporations and cities can rely on various national flagship programmes like AMRUT, Smart cities etc, the state schemes and FC grants can have specific allocation for FSSM for the small and medium cities.

**Funding for setting up FSTPs helps to leverage private funds for collection and conveyance of FSSM services.** Scheduled desludging and setting up of FSTPs is an integral part of FSSM. The funding for building FSTPs must come from public funds. This will leverage the private funds for conveyance. The private sector must be introduced to scheduled desludging with performance linked annuity payments for carrying out desludging services. This will enhance the market for desludging services for private sector.

**Enhancing overall municipal financial health of local government is key to ensure effective FSSM service delivery.** The onus of operations and maintenance of infrastructure is on the urban local bodies. To sustain these services, improving municipal's own income and reducing dependency on revenue grants from state and central government will strengthen the local government. For this, ULBs should also focus on improvement of property tax revenue and its collection efficiency. In addition to this, introducing sanitation tax will ensure sustainability of FSSM services at local level.

## Annex-1

### Details of Urban Development Department budget:

Values in Rs. crore

Items	Actual 2015-16	Actual 2016-17	Actuals 2017-18	RE 2018-19	BE 2019-20
UDD Budget	11069	16965	23577	34756	35756
UWSS budget	1232	2615	1550	4393	3457
Percentage of UWSS to UDD budget size	11%	15%	7%	13%	10%
JnnURM (Central Share)	0	0	0	0	0
SBM (Central Share)	179	137	272	885	435
AMRUT (Central Share)	258	609	486	1529	1176
Smart Cities (Central Share)	3	118.8	78.9	123	120
JnnURM (State Share)	39	25	11	2	
SBM (State Share)	261	534	0	590	290
AMRUT (State Share)	117	566	231	735	588
Smart Cities (State Share)	0	59.4	39.45	61.5	60
Maharashtra Nagarothan	351	515	313	432	720
Special provision foe development of basic amenities in areas of Municipal Corporations	24	50	100	36	68
Brihan Mumbai storm water drainage				0.5	
Vasai Virar satellite township development			19		
Vasishth Purna Scheme/ special grants to Municipal Councils for Distinctive work	513	598	573	480	655

\*percentage share for UWSS is as per water and sanitation projects under these budget heads

## Annex-2:

### Details of 14<sup>th</sup> FC grant for Maharashtra

#### 14<sup>th</sup> FC Grant for Maharashtra (In Rs. Crores)

Year	Basic Grant	Performance Grant	Total Grant
FY 2015-16	1,191	-	1,191
FY 2016-17	1,649	487	2,136
FY 2017-18	1,906	551	2,457
FY 2018-19	2,205	626	2,830
FY 2019-20	2,979	819	3,798
FY15-FY20	9,930	2,483	12,413

Source: 14th FC Report, Dec 2014; GoM

## **Acknowledgements**

The Sustainable Development Goals (SDGs) set various targets under goal 6 of “Ensuring availability and sustainable management of water and sanitation for all”. Government of Maharashtra also focuses on ‘Safe management of sanitation’ as articulated in its ODF sustainability charter. It emphasized faecal sludge and septage management as an important component of the sustainability charter. FSSM does not require huge financial resources. There is a need to create better awareness to recognize FSSM as mainstream sanitation solution through budget allocations. The recognition of FSSM in upcoming missions would help to leverage public funds from state government and municipal share for FSSM services.

This budget brief identifies the possible financing options for Faecal Sludge and Septage Management in Maharashtra. The report presents an analysis of various public finance sources in Maharashtra. It also assesses the trends that have influenced urban sanitation funding and utilisation in Maharashtra.

The study was carried out under the project “Financing Faecal Sludge and Septage Management (FSSM) services” funded by the Bill and Melinda Gates Foundation. The report is based on studies by the team at Center for Water and Sanitation (C-WAS), CEPT University.

The CWAS Team included Meera Mehta, Dinesh Mehta, Dhruv Bhavsar, Upasana Yadav, Jigisha Jaiswal, Aasim Mansuri and Dhwani Shah.

Meera Mehta and Dinesh Mehta  
Executive Directors, Centre for water and Sanitation  
CRDF, CEPT University  
Ahmedabad, India





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. In recent years C-WAS has focused its work on urban sanitation.

**Citation suggestion:**

Center for Water and Sanitation - CEPT University (2019) Budget Brief Financing Faecal Sludge & Septage Management Services in Maharashtra [Online] Available at:

<https://pas.org.in/Portal/document/UrbanSanitation/uploads/Budget%20Brief%20Financing%20FSSM%20Services%20in%20Maharashtra.pdf> [Accessed at: date]