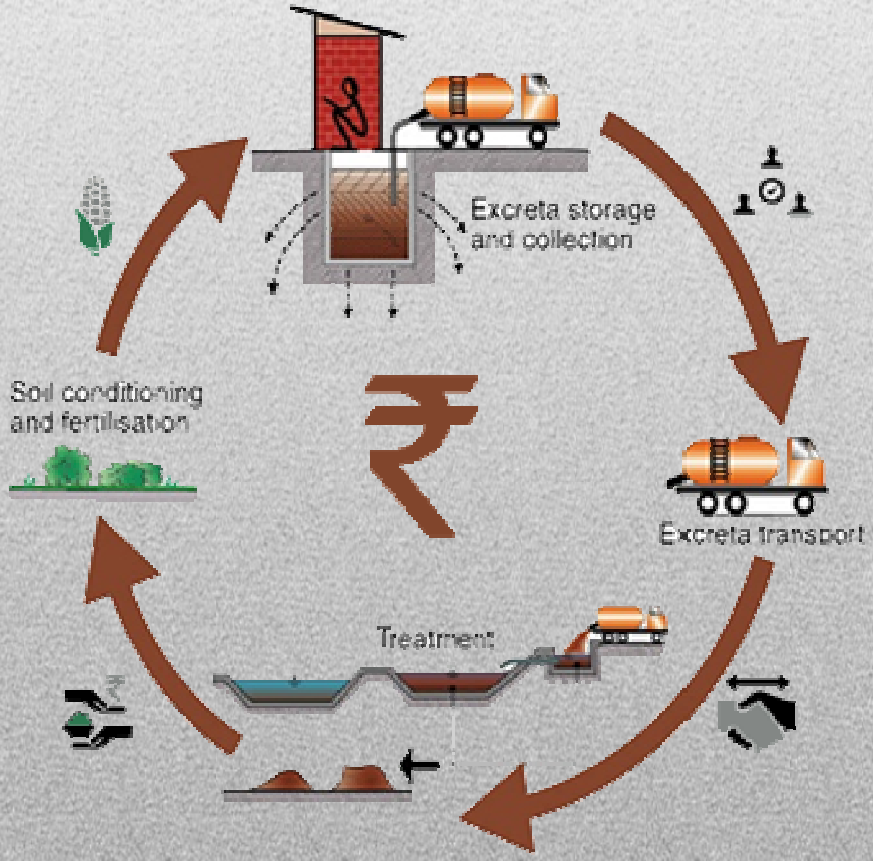
Module on Financing and procurement of Fecal Sludge Management projects

Background Note



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Background

Sanitation, one of the most basic urban services after housing and water, has also been the most under-served as evident from the recent studies conducted in the sector. As per the Joint Monitoring Program (WHO/UNICEF) of the Millennium Development Goals (MDGs) about 2.7 billion people from low & middle income countries totally rely on on-site/un-improved sanitation facilities, while more than 1.1 billion people resort to open defecation in the absence of any facility.

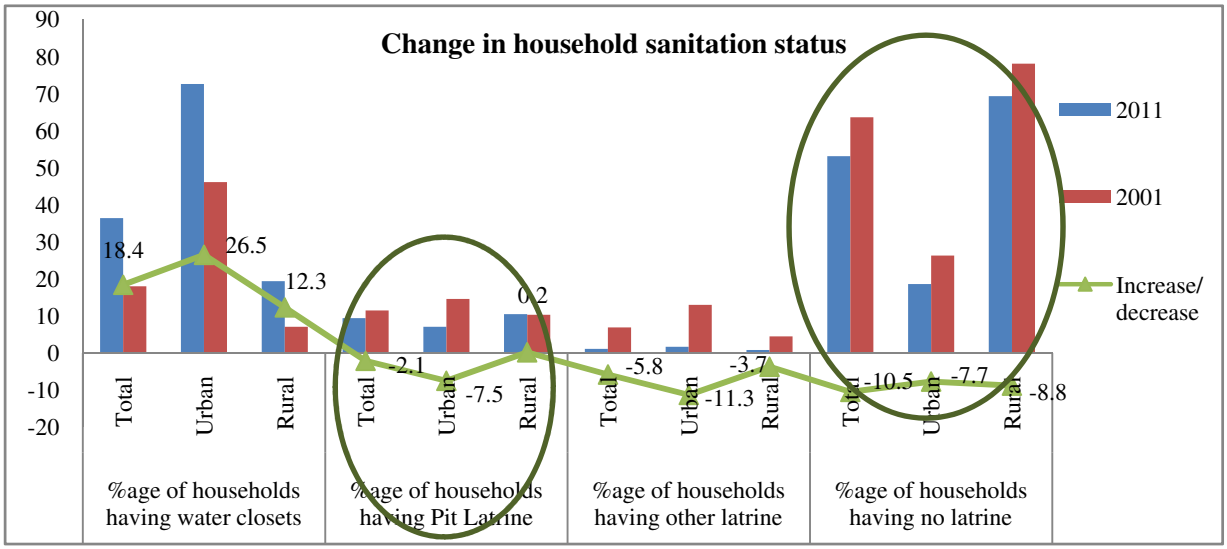
The situation in India is not very different as evident from the Swachhta Status Report of the Ministry of Statistics and Programme Implementation (MOSPI) in 2016 which provides the coverage of sewer network in Indian State in the table. It is observed that maximum number of States have a sewerage network ranging from 20-70% (which in most cases are limited to the core city areas leaving the newly developed peri-urban areas uncovered).

Percentage of Sewer Network	Number of States	Percentage of population
<20%	5	3.44
20–50%	8	32.64
50–70%	6	37.55
70–90%	5	19.29
>90 %	2	6.38
All India	56.4% coverage	99.29 % (total population considered)

Note: Results of some states/union territories (with less than 20 urban frame survey) have not been presented separately. However, the same are included in the all India results, which represent 99.29% of the population.

Source: Swacchta Status Report, 2016, MOSPI

In order to assess the preferences and trends in the uncovered/non-sewered population in terms of type of on-site facility, the Census 2011 data has been analysed in detail, the findings of which have been indicated in the graph below:



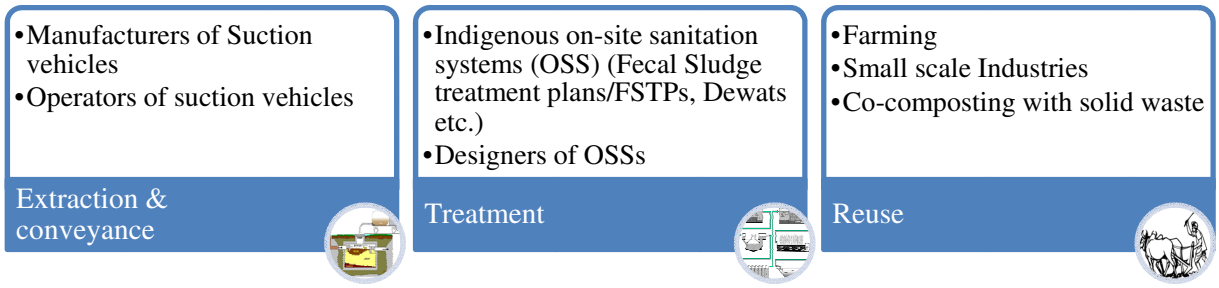
Source: Census 2011 findings

The percentage of households having water closets have increased from 2001 indicating an encouraging growth in access to sanitation, however an analysis of the percentage of houses opting for pit latrines seems to indicate that households are increasingly opting for septic tanks as better option which could also be due to the reason of not being connected through a centralized sewer network by the local water & sewerage board. However, the situation on ground indicates bigger challenges in terms of improper designing of septic tanks, irregular cleaning of the same, open dumping of the septage (output from septic tanks) into open land or water bodies etc. leading to widespread pollution and risks to human health and hygiene. Further a large population without

latrines (out of which a huge portion of 49.8% resorts to open defecation) would also need to be focussed on for future initiatives.

Key Question	What are the available services/which are the key service providers involved in Fecal Sludge Management?

In order to address these issues, it is important to first understand the concept of Fecal Sludge Management (FSM) which includes various activities as indicated below:



A study of the FSM sector indicates that in spite of a huge market potential in the above services, the market is not yet matured, mainly due to lack of a formal system in terms regulation and financing. Most of the interventions/projects are implemented on ground only based on immediate need or specific requirement of end users (households, institutions or any other beneficiary).

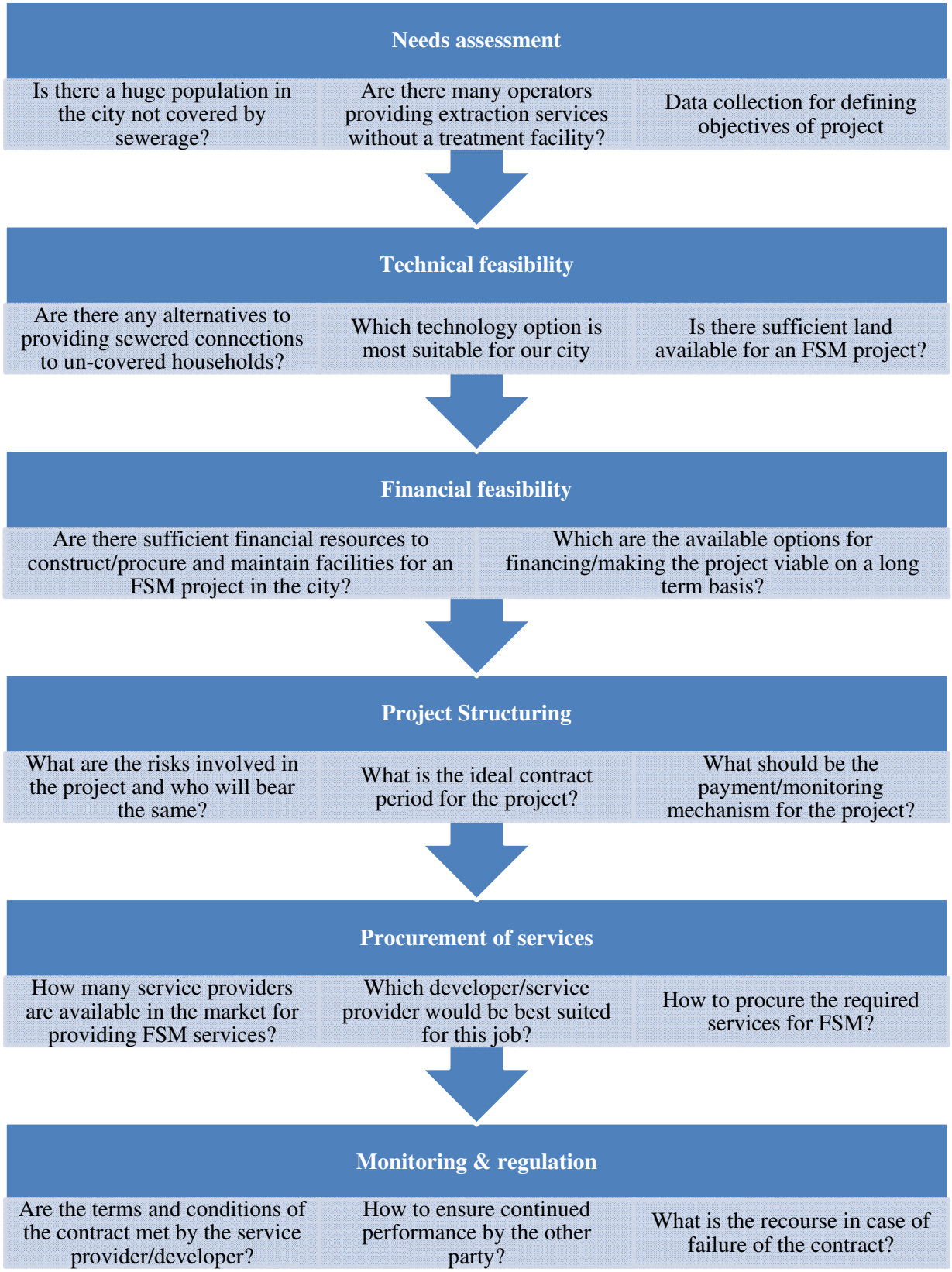
It has also been observed that most of the large scale projects/programs/schemes funded either by the Central/State Governments or Multilateral funding agencies focus only on the large scale networked/sewered connections with huge Sewage Treatment Plants/STPs. Also due to lack of funds in the Urban Local Bodies, procurement of vehicles for septage extraction and construction of FSTPs at city level need external support in the form of Government grants/loans or external funding (through multilateral funding agencies, CSR funds from Corporates etc.). Given the lack of knowledge on FSM concepts there is a felt need for supporting in planning the services at a city level.

This Background Note attempts at identifying the various sources of financing FSM projects and the procurement options which could be used by the Urban Local Bodies (ULB) to help them in conceiving, planning and implementing FSM projects on ground.

Key Question	What are the key steps involved in planning and implementing an FSM project for the city?

Project development process

In order to plan any new intervention, it is essential to properly conceive, plan and develop the project keeping in mind all the challenges anticipated throughout the project life cycle. This would help in bringing down the number of hurdles at a later stage and also ensure smooth functioning of the project. The key activities to be undertaken for implementing an FSM project in a city would include the following which would need to answer the key questions related to the respective activity in order to proceed further:



The above activities involve a combination of the technical, legal and financial activities for project planning and development.The following sectionsof this Background Note however will focus mainly on the financing and procurement related aspects of FSM. This is intended to give the reader a more detailed overview of the existing frameworks and options for financing FSM projects in relation to the overall urban scenario.

Financing of FSM projects

Though FSM is a relatively new concept in terms of a formal service, the practise of decentralized collection of the fecal sludge, conveyance/transportation and disposal has been continuing since many decades. The currentfinancing framework however has been focussed on the sewered networks and mechanised treatment facilities leaving the decentralized sanitation services to the informal market segment.

Key Question	What is the overall market size for FSM in India?

1. Investment required in FSM

As a follow up to the 12th Five Year Plan, a High Powered Expert Committee estimated the financing requirements for urban infrastructure over the period of 2011-31. These estimates were later used as a base by the Water and Sanitation Program based on the changing trends in sanitation over the period of 2006 to 2011 to arrive at a more comprehensive estimate for urban sanitation giving due importance to the following:

i. Provisions for increasing household sanitation access
ii. Safe collection and treatment of excreta from on-site installations
iii. Awareness and capacity building
iv. Supplementing investments in infrastructure creation
v. New construction and replacements of community and public toilets

The table below provides the total estimates for urban sanitation (related to liquid sanitation) over the next 4 five year plan period:

Five Year Period	2013-17	2018-22	2023-27	2028-32	Total
Capital investments during Five Year Periods in Million INR					
New infrastructure + Replacement					
Community sanitation	65,991	24,253	20,758	19,555	130,557
Wastewater collection and treatment	616,369	991,437	773,279	638,184	3,019,268
Septage collection and treatment	136,272	318,402	4,428	4,211	463,314
Household investments	365,272	402,608	424,419	387,735	1,580,034
					5,193,172
O&M expenditure during Five Year Periods in Million INR					
Community sanitation	77,806	38,314	14,457	8,991	139,567
Wastewater collection and treatment	363,091	574,413	782,201	777,294	2,496,999
Septage collection and treatment	3,291	7,601	105	99	11,096
					2,647,662
Support costs during plan periods in Million INR					
Information, education and Communication (IEC) campaign, administration, capacity building, project development and project management for waste water projects	134,888	183,839	158,242	135,841	612,811
Total Capital + O&M + Support	**1,759,689**	**2,533,266**	**2,177,784**	**1,971,811**	**8,442,550**

Source: Model Estimates prepared by WSP, Financing requirements of Urban Sanitation in India, 2016

The huge amount of INR 4,63,314 Million for construction of assets and INR 11,096 Million for operation and maintenance over the next 15 years cannot practically be funded by Government resources alone. A combination of different sources of financing would need to be explored and tied up to meet such a huge requirement.

2. Sources of financing in FSM sector

There are various sources of finances available for undertaking FSM projects today. The following table summarises the key options of financing through Centrally sponsored Government schemes/entities:

Source	Component	Amount allocated	Issues/ Concerns
Atal Mission for Rejuvenation And Urban Transformation (AMRUT)	Fecal Sludge management	• Based on SLIPS and SAAPS prepared – O & M not covered in project costs though computed for 5 years • 80% of annual budgetary allocation as project fund • 10% of annual budgetary allocation for reforms	• Most of SLIPs/SAAPs focussed on centralized sewer systems with Large STPs • Lack of understanding on the concepts/planning aspects
Swaccha Bharat Mission	• Construction of toilets • Construction of toilets with septic tanks/pits	• Households toilets-Rs. 4,000 per household. • No bar on additional resources to be provided by State Government/ULB • 40% Grant/VGF for community toilets and remaining through other resources	• Beneficiary identification • End usage of the toilets due to other issues like continuous water supply, behavioural issues etc. • Land availability and viability in case of CTs & PTs
Backward Grant fund- CTs & PTs	All Components	Rs, 250 Crore for Capacity Building and Rs. 5000 Crore for development grant	• Only about 5.4% of the total development grant used in sanitation • Delays in fund allocation from Centre to States
National Safai Karamcharis Finance & Development Corporation (NSKFDC)	All Components	• Various soft loans for starting feasible businesses in sanitation – 1% - 6% with 10 yrs repayment • Upto 90% of unit cost with max of 15 lakhs, balance 10% from Channelizing Agencies (CA) or promoter	• Limited to only Safai Karmacharis/Manual Scavengers and their kin & CA

The following table provides details of the local/State level sources for financing FSM projects:

Source	Component	Amount allocated	Issues/ Concerns
SFC Grants/any other State specific grants	All Components	As per discretion and fund availability of the ULB	Financial health of ULBs (limited sources of revenues in sanitation)
MP Local Area Development Scheme (MLALADS)	All Components- Asset creation only	•Rs, 5 Crore per MP per year • Funds are non-lapsable	Focus on community or school toilets only
MLA Local Area Development Scheme (MLALADS) - CTs & PTs	Construction of CTs & PTs - Asset creation only	• Rs. 4 Crore per MLA per year for asset creation with each project not exceeding Rs. 2 Crores • No purchase of equipment/inventory allowed	• Lack of intensions/importance to sanitation assets • Unused funds can be carried over for upto 4 years

Key Question	How can the FSM projects be planned under the existing schemes/programs?

The following sections detail out the key features of the above mentioned options:

2.1. Atal Mission for Rejuvenation And Urban Transformation (AMRUT)

The AMRUT scheme launched in June 2015 focuses on urban renewal projects including water supply, sewerage and septage management, storm water drains, pedestrian, non-motorized public transport facilities, parks/green spaces and recreation centres for children etc.

Key components under AMRUT-

i. Water Supply

- Water supply systems including augmentation of existing water supply, water
- treatment plants and universal metering.
- Rehabilitation of old water supply systems, including treatment plants.
- Rejuvenation of water bodies specifically for drinking water supply and recharging of
- ground water
- Special water supply arrangement for difficult areas, hill and coastal cities, includingthose having water quality problems (e.g. arsenic, fluoride)

ii. Sewerage

- Decentralised, networked underground sewerage systems, including augmentation
- of existing sewerage systems and sewage treatment plants.
- Rehabilitation of old sewerage system and treatment plants.
- Recycling of water for beneficial purposes and reuse of wastewater.

iii. Septage

- Faecal Sludge Management- cleaning, transportation and treatment in a cost-effectivemanner.
- Mechanical and biological cleaning of sewers and septic tanks and recovery of operational cost in full.

Key components under AMRUT-

iv. Storm Water Drainage
- Construction and improvement of drains and storm water drains in order to reduceand eliminate flooding.

v. Urban Transport
- Ferry vessels for inland waterways (excluding port/bay infrastructure) and buses.
- Footpaths/walkways, sidewalks, foot over-bridges and facilities for non-motorisedtransport (e.g. bicycles).
- Multi-level parking.
- Bus Rapid Transit System (BRTS).

vi. Green space and parks
- Development of green space and parks with special provision for child-friendlycomponents.

vii. Reforms management & support
- Support structures, activities and funding support for reform implementation.
- Independent Reform monitoring agencies.

viii. Capacity Building
- This has two components- individual and institutional capacity building.
- The capacity building will not be limited to the Mission Cities, but will be extended toother ULBs as well.
- Continuation of the Comprehensive Capacity Building Programme (CCBP) after itsrealignment towards the new Missions.

ix. Indicative (not exhaustive) list of inadmissible components
- Purchase of land for projects or project related works,
- Staff salaries of both the State Governments/ULBs,
- Power,
- Telecom,
- Health,
- Education, and
- Wage employment programme and staff component

The scheme covers 500 cities including cities with population of over one lakh, capital cities/towns of States/UTs, all cities under HRIDAY scheme, all cities/towns on stems of rivers with population between 75000 and 1lakh and 10 cities from hill State, islands and tourist destinations.

With the total outlay of Rs. 50,000 Crores for five years from 2015-20, the mission will fund the following four parts of the annual budgetary allocation:

a. 80% for project fund with Central Assistance to be provided in 3 instalments of 20:40:40 percent of approved cost
b. 10% as incentive for reforms from the Ministry of Urban Development (MoUD) as an additionally which if not used will be transferred to Project fund every year
c. 8% as State funds for Administrative and Office Expenses including Capacity Building and Independent Review & Monitoring Agencies
d. 2% as MoUD funds for Administrative and Office Expense to be used at National level for Capacity Building, conducting workshops, awards & recognition, research studies etc.

The funding patternunder the scheme is as follows:

- Government of India grants-
    - One third of project cost for cities with population above 10 lakh
    - One half of project cost for cities with population upto 10 lakh
- Balance funding would come from State Governments/ULBs or through private investments

Key Question	How can a city include a new FSM project in an existing project/new project in planning stage

Conclusion-

Any AMRUT city planning for an FSM project could include the same in the SLIP report for creating assets under this scheme. The MoUD has designed a "Rapid Assessment Tool for City Septage Budgeting" which would help cities in assessing the cost estimated for fecal sludge management for 131 designated cities.The non-AMRUT cities/towns on the other hand would need to resort to the other available sources of financing. The cost for operation and maintenance would however not be covered under this scheme.

2.2. Swaccha Bharat Mission

The Swaccha Bharat Mission (SBM) was launched in October 2014 as a cleanliness drive for eradicating open defecation and cleaning 4041, implemented by the MoUD in urban and Ministry of Drinking Water and Sanitation (MoDWS) in rural areas over a period of 5 years till 2019. The key objectives of the mission are:

- Elimination of open defecation
- Eradication of Manual Scavenging
- Modern and Scientific Municipal Solid Waste Management
- To effect behavioural change regarding healthy sanitation practices
- Generate awareness about sanitation and its linkage with public health
- Capacity Augmentation for ULB's
- To create an enabling environment for private sector participation in Capex(capital expenditure) and Opex (operation and maintenance)

Key Components under SBM-

i. Household toilets, including conversion of insanitary latrines into pour-flushlatrines;
ii. Community toilets
iii. Public toilets
iv. Solid waste management
v. IEC & Public Awareness

Capacity building and Administrative & Office Expenses (A&OE)

The total outlay for the scheme is Rs. 62,009 Crores for which the funding pattern would include-

GoI share	State/ULB Share	Other sources of funds
23.6% - Rs. 14,623 Crores	25% of GoI funding - Rs. 4,874 Crores	• Private Sector Participation • Additional Resources from State Government/ULB • Beneficiary Share • User Charges • Land Leveraging • Innovative revenue streams

GoI share	State/ULB Share	Other sources of funds
		• Swachh Bharat Kosh • Corporate Social Responsibility • Market Borrowing • External Assistance

The funding for different components would be done as indicated below:

Component	Funding
Individual Household toilets (Wherever sewerage connection is available within 30 meters, only superstructure may be constructed and if not available, then superstructure along with an on-site treatment system should be constructed)	• Rs. 4,000 per household toilet to be released in 2 equal instalments • Balance share by ULB/State Government
Community toilets (same condition for superstructure connection to an on-site or sewerage connection as above)	• 40% grant/VGF by GoI • States will contribute min 25% funds • Balance funds from ULBs/other sources • Minimum 5 years maintenance contract
Public toilets	• States/ULBs to fund completely • Additional funding support to be obtained from other sources • Minimum 5 years maintenance contract
Solid waste management	• 20% grant/VGF as Central Government incentive • States will contribute min 25% funds • Balance funding from other sources
IEC & Public Awareness	• 15% of total Central allocation out of which 12% will be earmarked for States and 3% for MoUD to draw national media campaign and standard tools • States will contribute min 25% of funds
Capacity building & Administrative & Office Expenses	• 3% of total Central Government allocation for capacity building & Admin & OE for States • 2% of total Central Government allocation for MoUD level

Conclusion-

Under this scheme, the construction of toilets along with the on-site treatment facility wherever applicable could be taken up by the ULBs. In many cities it has been observed that old city areas which have narrow lanes and dense population have not been able to rehabilitate the old drainage systems. In such cases, the unhygienic latrines can be identified and converted to hygienic pour-flush toilets either at individual households levels or as shared/community toilets wherever feasible under this scheme.However, operation and maintenance expenses would not be covered under the scheme and will have to be drawn from the ULB finances. Annexure-1 provides the excerpts from the scheme for making cost estimates for undertaking projects across the sanitation value chain.

2.3. Backward Regions Grant fund

The Backward Regions Grant fund (BRGF) was launched in 2007 to cover 272 districts in 27 States in order to address the issue of regional imbalances in development by providing financial support through untied grants. The Panchayat Raj Institutions/PRIs or Municipalities can apply

the funds to any activity of development as per their preference as far as it fills a development gap and has been decided with people's participation.

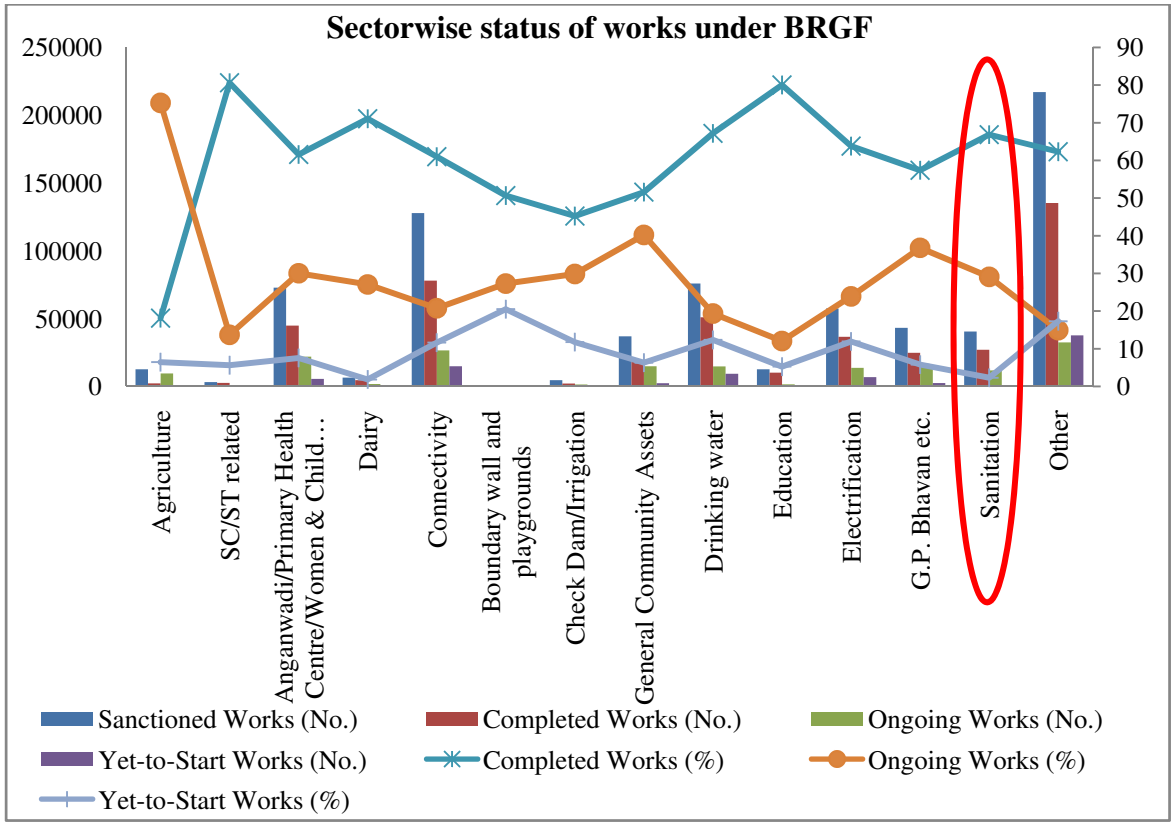
The type of works taken up so far include construction of school buildings /class rooms, health sub-centres, drinking water facility, sanitation facilities, anganwadi buildings, Panchayat buildings, irrigation tanks/channels, street lights, link roads, culverts, soil and water conservation measures, etc.

Components of BRGF-
- Drinking water
- Connectivity
- Health
- Education & social sectors
- Electrification

The BRGF consists of two funding windows including:

Component	Features
Capacity building fund	• Total outlay of Rs. 250 Crores per annum • Primarily used for to build capacity in planning, implementation, monitoring, accounting and improving accountability and transparency
Untied grant	• Rs. 3500 Crores allocated by the PRIs/Municipalities through a consultative process • Every district will receive a fixed minimum of Rs. 10 Crore per annum • 50% of balance allocation to be distributed based on percentage of the population of the district to the total backward region population • Remaining 50% allocated based on share of area of the district to the total area of backward region

However so far only 5.7% of total development works (40,456 out of the total 7,12,143 works spread across 14 sectors undertaken) has been sanctioned in the sanitation sector, as shown in the chart below indicating a lack of focus on the same by the local authorities.



Source: Evaluation study of BRGF by Planning Commission in 2014 across all States

Key Question	Can a peri-urban area or a village undertake an FSM project with any specific Government funding support?

Conclusion-
Under this scheme, it is possible to obtain funds for the cities/towns coming under the backward regions for creation of assets.The funds could be utilized for constructing community toilets with an onsite treatment facility or also a new Fecal Sludge Treatment Facility (FSTP) at a community level. The project implementation however will need to be undertaken by a Society/NGO at the community level.

2.4. National Safai Karamcharis Finance & Development Corporation (NSKFDC)

The National Safai Karmacharis Finance & Development Corporation(NSKFDC), was set up in 1997 as a wholly owned Govt. of India Undertaking under the Ministry of Social Justice & Empowerment as a 'not for profit' company for the betterment and upliftment of Safai karmacharis and manual scavengers along with their dependants through various loans and non-loan based schemesas indicated below:

Loan based schemes-

Sl. No.	Name of the scheme	Maximum Limit	Rate of interest to		Repayment period
			Channelizing Agencies (CAs)	Beneficiaries	
1.	Mahila Samridhi Yojana (MSY)	Upto Rs.50000	1% p.a.	4% p.a.	3 years*
2	Mahila Adhikarita Yogana (MAY)	Upto Rs.75000	2% p.a.	5% p.a.	5 years *
3	Micro Credit Finance (MCF)	Upto Rs. 50000	2% p.a.	5% p.a.	3 years*
4	General Term Loan (GTL)	Upto Rs.15 lacs	3% p.a.	6% p.a.	10 years*
5	Education loan (EL) -For study in India -For study abroad	Upto Rs.10 lacs Upto Rs.20 lacs	1% p.a.	4% p.a.#	5 years afterco-termination of course withmoratorium period of oneyear.
6 Swachhta Udyami Yojana – "Swachhta se Sampannta Ki Aur"					
a)	Scheme for "Pay and use" community toilets	Upto Rs.25 lacs	-	4%@	10 years**
b)	Scheme for procurement of sanitation related vehicles	Upto Rs.15 lacs	-	4%@	10 years *
7	Sanitary Marts Scheme	Upto Rs. 15 lacs	-	4%@	10 years*
8	Green Business Scheme	Upto Rs. 1 lac	1% p.a.	3% p.a.	6 years***

#0.5% rebate for female beneficiaries.
**After implementation period of 3 months and moratorium of 6 months*

*** After implementation period of 6 months and moratorium of 6 months*
**** Including a moratorium period of 6 months*
@1% rebate for women beneficiaries and 0.5% rebate for timely repayment.
Source: Lending Policies and Guidelines of NSKFDC

Non-loan based schemes-

Sl. No.	Schemes	Features
1.	Skill Development Training Programme	100% in the form of grant including stipend of Rs.1500 per month/per candidate. (Stipend of Rs.3000 per month/per candidate is provided in case of skill development training under CSR programmes.
2.	Job Fair	Reimbursement of expenditure for holding job fairs upto Rs. 50000/- per job fair.
3.	Awareness programme	Reimbursement of expenditure for organizing awareness programme upto Rs. 30000/- per awareness programme.
4.	Workshops	Reimbursement of expenditure upto Rs. 25000 per workshop.

Source: Lending Policies and Guidelines of NSKFDC

The NSKFDC is also the nodal agency nominated by Ministry of Social Justice & Empowerment for implementation of the Central Sector Self Employment Scheme for rehabilitation of manual scavengers (SRMS) in accordance with the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 with the following key features:

Sl.No.	Salient features	Details
1.	Eligibility	Manual Scavengers identifiedduring the survey conducted inStates/Union Territories as per MSAct, 2013
2.	One time cash assistance	Rs. 40,000 (deposited directly inthe beneficiary's account, whichcan be withdrawn by thebeneficiary in six instalments i.e.five instalments of Rs. 7000 eachand last instalment of Rs. 5000/-.
3.	Quantum of loan	- Upto Rs. 10 lacs - Upto Rs. 15 lacs in case ofsanitation related projects
4.	Rate of interest -For projects costing upto Rs. 25000 -For projects costing above Rs. 25000	 5% p.a. (4% p.a. for womenbeneficiaries) 6% p.a.
5.	Moratorium period	2 years
6.	Repayment period -For projects costing upto Rs. 5 lacs -For projects costing above Rs. 5 lacs	 5 years (including moratorium) 7 years (including moratorium)
7.	Subsidy	
(a)	Credit linked back-end capital subsidy	
	– Upto Project cost of Rs. 2 lacs – Between Rs.2 lacs to Rs. 5 lacs – Between Rs. 5 lacs to Rs. 10 lacs – Between Rs. 10 lacs to Rs. 15 lacs	– 50% of the project cost – Rs. 1 lac and 33.3% of the project cost between Rs. 2-5 lacs) – Rs. 2 lac and 25% of the projectcost between Rs. 5 -10 lacs – Rs.3.25 lacs

(b)	Interest subsidy	Equivalent to the amount ofdifference between the rate ofinterest charged by Banks and therate prescribed under the scheme.
8.	Training	For courses upto 2 years withstipend of Rs. 3000 p.m.

Source: Lending Policies and Guidelines of NSKFDC

Key Question | Are there any restrictions for availing funds under NSKFDC schemes?

For the above schemes however, the financial support will be available only if:

- The schemes proposed for development of infrastructure are income generating
- The income generated by the beneficiaries by undertaking any of the above mentioned activities should be sufficient enough to bring him/her above poverty line
- Some of the key activities proposed include:

  - From Rs.10.00 lac to 15.00 lac - Sanitary based Equipments including Vacuum loader, Suction Machine with Vehicle, Garbage Disposal Vehicle, Sanitary Marts
  - From Rs.15 lac to Rs. 25 lac- Pay & use toilets etc

Key Question | Is it possible to plan an FSM project with a marginalized community?

Conclusion-

Funding for the FSM projects including purchase of vehicles can be done at a city level provided there are sufficient numbers of Safai Karmacharis/identified manual scavengers, details of which can be obtained from the office of District Magistrate. Various other activities related to sanitation services can be planned under the above mentioned scheme across the sanitation value chain.

2.5. SFC Grants/any other State specific grants

Every State in the country appoints a constitutional body of experts called the State Finance Commission (SFC) for reviewing the financial positions of the PRIs/Municipalities and makes recommendations for improvement of their financial health under the Article Nos. 243I &243Y of the Indian Constitution. For every five years, these SFCs make recommendations on the following:

- Sharing of taxes, duties, levies, tolls etc. between the State and respective ULBs/PRIs
- Estimate the taxes, duties, levies, tolls and fees which can be assigned or appropriated by the ULBs/PRIs
- Grant-in aids to the ULBs/PRIs from the consolidated State fund
- Measures required to improve financial health of the ULBs/PRIs
- Any other matter referred to by the Governor in the interest of sound financial systems for the ULBs/PRIs

Currently, the Fourteenth Finance Commission has provided the recommendations on Central-State fiscal relations during 2015-2020 under which a total grant size of Rs. 2,87, 436 Crores has been worked out. Out of this outlay, a total amount of Rs.2,00,292 Crores has been recommended for the PRIs and Rs. 87,144 Crores for the Municipalities.

Components of Grant-in-aid-

- Basic grant (90% for Gram Panchayat & 80% for Municipalities) – for delivery of basic services including water supply, sanitation including septage management, sewage, solid waste management, storm water drainage, maintenance of community assets, maintenance of roads, footpaths, streetlights, burial and cremation grounds and any other basic services under their relevant regulations.
- Performance grant (10% for Gram Panchayat & 20% for Municipalities) for making available reliable data on ULBs receipt and expenditure through audited accounts and improvement in own revenues.

Key Question	Is there any fixed source of funds for the operation and maintenance of FSM projects?

Conclusion-

The SFC grants are by large the only source of funding the operation and maintenance activities related to sanitation services whether it is operating public/community toilets or treatment facilities. However, from the analysis of most of the medium and small sized cities/towns, it is evident that SFC grants alone would not be sufficient/sustainable for providing these services. In such cases, the ULBs would need to explore alternate mechanisms for increasing their revenues through advertising, charging additional sanitation cess (which would be a minimal amount) as a part of property tax, monetize un-used land parcels, subsidize and promote the reuse of treated wastewater etc.

2.6. MP Local Area Development Scheme (MPLADS)

Members of Parliament Local Area Development Scheme (MPLADS) is a centrally-sponsored planscheme fully funded by the government of India under which funds are released in the form of grants-in-aiddirectly to the district authorities. This scheme provides funds which directly fulfils the requirementsof the public at large in the field of infrastructure development, drinking water, education, roads, health,sanitation, etc. and is governed by the Guidelines on MPLADS.

Key features of the Scheme:

- All works to meet locally felt infrastructure and development needs, with an emphasis on creation ofdurable assets in the constituency
- 15% for areas inhabited by Scheduled Caste population
- 7.5% for areas inhabited by S.T. population
- An additional amount of 25 lakh to be spent in the tribal areas
- The minimum amount sanctioned under the MPLAD Scheme for any project or work should normally not be less than Rs. 1 lakh. If, however, the District Authority is of the considered view that the work of less amount will be beneficial to the public at large, he/she may sanction the same, even if the cost of the work is less than Rs. 1 lakh.
- Areas prone to or affected by natural & manmade calamities like floods, cyclones, Tsunami, earthquake, hailstorm, avalanche, cloud burst, pest attack, landslides, tornado, drought, fire, chemical, biological and radiological hazards can also be taken up for development works under the scheme with upto maximum Rs. 25 lakhs per annum.
- MPs can also take up development activities outside their constituency for a maximum of Rs. 25 lakhs in a financial year.
- Convergence of funds are allowed with other schemes like MNREGA and Khelo India
- If assets created under the scheme are not utilized, the State/UT Government may take over the asset and recover the amount spent from the trust/society with an interest of 18% p.a.

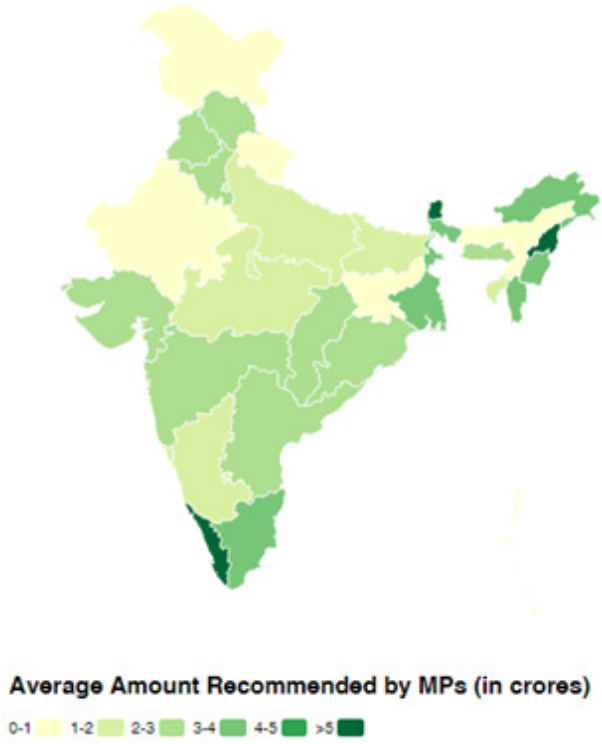
Key features of the Scheme:

- Not more than Rs. 50 lakhs can be spent on one or more works for a single trust/society under the scheme.
- The funds are released in 2 equal instalments of Rs. 2.5 Crores each by GoI to the District Authority with first instalment released at the time of constitution of Lok/election of RajyaSabha member at the beginning fo the financial year.
- Funds are non-lapsable if not used in a financial year

Following are the permissible activities with sector and scheme codes:

Sl. No.	Type of activity	Sector code	Scheme code
1.	Drains and gutters for public drainage	09	001
2.	Public toilets and bathrooms	09	002
3.	Garbage collection and night soil disposal Systems, earth movers including vehicles for local bodies	09	003
4.	Other works for sanitation and public health	09	999
5.	Community Toilets	14	004
6.	Construction of additional Toilets for passengers in Circulation Area of Railway Station.	08	012
7.	Non-conventional energy resources- gobar gas for community use	06	001 & 002

The objective of the scheme is to enable Members of Parliament to recommend development works withemphasis on creation of durable community assets based on locally felt needs to be taken up in theirconstituencies. Under the scheme, each MP has the choice to suggest to the District Collector for, worksto the tune of Rs. 5 Crores per annum to be taken up in his/her constituency. The Rajya Sabha Member ofParliament can recommend works in one or more districts in the State from where he/she has beenelected.



Recent data provided by Ministry of Statistics and Programme Implementation (MoSPI) indicates that the funds under the MPLAD scheme have been underutilized with only a few States witnessing recommendations of works like Kerala, West Bengal, Nagaland, Sikkim etc. which indicates that there is a huge scope of drawing funds under this scheme for FSM. The map indicates performances of all the States

Source: Ministry of Statistics and Programme Implementation (MoSPI) data

Conclusion-

The expenses to be incurred on the operation and maintenance of assets created under the scheme cannot be met by funds under this scheme. However, given the under-utilization of the funds, it is feasible for the ULBs to approach the concerned MP of their jurisdiction for availing funds for implementation of FSM projects in their city/town.

2.7. MLA Local Area Development Scheme (MLALADS)

The MLA Local Areas Development Scheme (MIALADS) is also a Centrally sponsored scheme on the lines of the MPLADS which focuses on strengthening and augmentation of infrastructure facilities in each Assembly constituency with a fund size of Rs. 4 Crores allocated to each MLA for projects not exceeding Rs. 2 Crores each.

Key features of the Scheme:

- Works recommended under this scheme should conform to the general pattern of programmes and projects being implemented by the local bodies/ departments of Govt. of Delhi.
- technical and administrative sanction of the works shall be as per normal departmental procedures being followed by local authorities.
- Works that can be completed within one or two years' time only should be taken up under the scheme
- No purchase of inventory equipment etc. or revenue expenditure will be allowed except purchase of computers for schools and provision of ambulances & refuse collectors only for the Government institutions.
- Expenditure on each project/location is not going to exceed more than Rs.2.00 Crores under the guidelines
- MLALAD Scheme can be converged with the scheme of Central Government, State Government/local Bodies
- 15% of MLA fund can be utilized for the special repair and maintenance of assets created in the previous years subject to the production of a certificate to this effect and the date of completion of the work by aconcerned officer not below the rank ofSuperintending Engineer of the concerned executing agencies to UD Department after duly recommended by the concerned area MLA
- The funds under the scheme shall be considered and treated as un-lapsable; therefore, the release of funds under the scheme, if not fully utilized due to unavoidable circumstances and unreleased fund left with the government in a particular year, is allowed to be carried forward/released for subsequent three years and four years respectively tothe implementing departments/agencies etc.

The list of permissible works includes the following:

i. Construction of school buildings.
ii. Construction of community halls/barat ghars/chaupals, other durable assests for public use on public/government land.
iii. Construction of sub-ways wherever found technically feasible.
iv. Hostels specially for working women or girl schools.
v. Public libraries.
vi. Construction of culverts, foot-bridges/bridges.
vii. Public toilets at different locations.
viii. Sports complexes.
ix. Crematoriums or development of burial grounds.
x. Construction of tube-wells and water tanks for providing drinking water to public

xi. Construction of roads and drains including part roads, approach roads, link roads as per approved lay-outs.
xii. Sanitation
xiii. Development of parks(except earth filling, planting of saplings, apply of compost manure)
xiv. Computers to schools
xv. Street lighting
xvi. Provision of common services/community services including maintenance of group toilets, courtyard, common path and similar other services in privately owned katras
xvii. Bus Stop and Bus 'Q' Shelter
xviii. Garbage collection Centre like one's in NDMC area.
xix. Solar Traffic Lights.
xx. Provision of Ambulances/Refuse Collectors
xxi. Rain Water Harvesting in government and public buildings and places including buildings and places of Local Bodies.
xxii. The funds upto the limit of Rs. 35 lakh per MLA per year shall be released for Relief to the victims of Natural Disaster / National Calamity
xxiii. The development / strengthening of common areas / common facilities / common passages balconies / Courtyards / Common stairs / toilet blocks and various facilities in the slum complexes developed by Slum & JJ Department and other such residential complexes
xxiv. Shifting of HT/LT lines (funds would be released as per laid down procedure by Power Department, GNCTD)
xxv. Mobile vans for public library purpose only
xxvi. Benches for public parks.
xxvii. Porta Cabins with over 20 years of durability on Government land after obtaining NOC from the land owning agency.
xxviii. Provision of PVC Overhead Tanks for portable water storage in JJ Clusters and Unauthorized Colonies;
xxix. Provision of Porta Cabins with durability over 20 years in areas other than NDMC and Lutyen's Zone

The list of non-permissible works includes:

i. Office buildings, residential buildings and other buildings relating to Central or State Governments, Departments, Agencies and Organizations.
ii. Works pertaining to commercial organizations, trusts, registered societies, private institutions or co-operative institutions.
iii. Grants and loans.
iv. Memorials or memorial buildings.
v. Purchase of inventory or stock of any type.
vi. Acquisition of land or any compensation for land acquired.
vii. Assets for an individual benefit except those which are part of approved schemes.
viii. Places for religious worship

Conclusion-

Funds can be availed under this scheme for most of the activities of FSM except procurement of vehicles. Wherever it is difficult to fund the operation and maintenance of assets created, the same could be explored under this scheme provided there is an availability based on previous years' expenditures. Funds under this scheme can also be converged with the funds available under the MPLAD scheme.

3. Stakeholder mapping and financing framework relating to sanitation

In order to summarize the above sections, a mapping of the key stakeholders with the relevant financing options has been drawn out across the sanitation value chain as indicated below:

Sl. No.	Activity	Concerned Entity				Source of funds	Procedure to be followed
		Preparation & Implementation	Approval & Financing	Operation & Maintenance	Monitoring & Regulation		
1.	Toilets-Individual Household Toilets	• Beneficiaries/End users • Self Help Groups/Local Ward Corporators in case of a scheme	• Municipal Commissioners/Executive officers • Project Directors in case of district level initiatives	Beneficiaries/End users	• Environmental Engineers in case of implementation under schemes	• Swaccha Bharat Mission • CSR funding	• Identification and approval at the Commissioner level • Procurement would be undertaken at the beneficiary/end user level
2.	Public & Community toilets	• Self Help Groups (SHGs)/Local Ward Corporators in case of a scheme • Environmental Engr/Municipal Commissioner/Executive officer for Public toilets	• Municipal Commissioners/Executive officers/ District Authority • Private sector players (financing) • State Nodal Agency for State/Central Government funded schemes	• Beneficiaries/End users/SHGs • Private operator	Environmental Engr/Municipal Commissioner/Executive officer	• SFC Grants • Swaccha Bharat Mission • BRGF • NSKFDC schemes • MPLADS • MLALADS • Micro Financing Institutions • CSR funding • User charges/Other revenues	• Standard Procurement practises as specified by respective State Rules
3.	Procurement of Extraction Vehicles/Vacuum	• Environmental Engr/Municipal Commissioner/Executive officer • Private sector	• City Commissioner/Executive Officer/District Authority	• ULB • Private operator	Environmental Engr/Municipal Commissioner/Executive officer	• SFC Grants • MPLADS • NSKFDC Schemes • MLALADS • CSR funding	• Standard Procurement practises as specified by respective State

Sl. No.	Activity	Concerned Entity				Source of funds	Procedure to be followed
		Preparation & Implementation	**Approval & Financing**	**Operation & Maintenance**	**Monitoring & Regulation**		
	trucks	operators	• State Nodal Agency for State/Central Government funded schemes			• User charges/ other revenues	Rules for procurement of vehicles
4.	Operation of Extraction Vehicles/Vacuum trucks	• Engr/Municipal Commissioner/Executive officer • Private sector operators	• Engr/Municipal Commissioner/Executive officer • State Nodal Agency for State/Central Government funded schemes	• Private operators • ULB	• ULB • RTOs for licenses	• SFC Grants • funding • User charges/ other revenues	• Operations Contracts as per State Rules for services contract • Direct employment by ULBs
5.	Construction of Treatment facility	• Engr/Municipal Commissioner/Executive officer • Self Help Groups (SHGs)/Local Ward Corporators/RWAs • Private sector operators	• Engr/Municipal Commissioner/Executive officer • State Nodal Agency for State/Central Government funded schemes	• Private operators • ULB	• ULB • State Pollution Control Boards (for Consents)	• AMRUT • Swaccha Bharat Mission • BRGF • SFC Grants • MPLADS • MLALADS • CSR Funding • Micro Financing Institutions • Any external funding from development banks/Agencies/Foundations etc.	• Standard Procurement practises as specified by respective State Rules • Procurement Rules of funding agencies

Procurement of FSM services

Based on the above mentioned financing options and other key decision points like financial feasibility, size of project, demand for the project and capacity of the ULB, following are some of the Contract options for engaging private sector in providing sanitation services. The different types of contracts in practise could be summarised as follows:

EPC Contract- for asset creation	•The investment/funding is undertaken by the Implementing Authority/ULB •Designs and specification are fixed before finalizing the contract •Services of private sector utilized for construction activity with a defects liability period
Turnkey contract- for planning/designing & creation of asset/s	•Short duration contract with investment/funding by Implementing Authority/ULB •Design specifications to be proposed by private operator based on aImplementing Authority/ULB's requirement •Decision on the designs to be taken by the Implementing Authority/ULB •Operations to be undertaken by Implementing Authority/ULB seperately
O & M Contract- for operating assets	•Long duration contract entered into for providing O & M services by the private operator •Expenses for the operations borne by Implementing Authority/ULB •Service/performance standards pre-decided and monitored strongly throughout the contract period
PPP Contracts- Build-Own-Operate-Transfer Build-Operate- Transfer Design- Build-Finance-Operate-Transfer	•Undertaken with financing either by the private operator or the Implementing Authority/ULB •Longterm contract including all activities related to asset creation as well as operation •More complex financial terms and conditions for revenues/expenses pre-defined before contract execution •Include a comprehensive monitoring and regulation framework

Each ULB would need to review the existing situation and options and based on their judgement of what is most suitable to their city, decide on the type of contract to be entered into for providing sanitation services.

The following table provides a basic decision matrix for arriving at the most suitable type of contract.

Availability of funds for creation of assets (construction as well as procurement)	**Availability of funds for operation & maintenance**	**Availability of manpower**	**Technical knowhow or management efficiency**	**Type of Contract/s**
√	√	√	√	EPC contract
√	√	X	√	Separate EPC & O & M contracts
√	√	√	X	Turnkey contract
√	√	X	X	Turnkey contract & separate O&M Contract
X	√	√	X	• PPP Contract • Turnkey contract with a separate O&M contract
√	X	√	X	• Turnkey contract with a separate O & M contract • PPP Contract
X	X	√	X	• PPP Contract (where only land can be provided by the ULB)
√	√	√	X	• Design Contract followed by EPC Contract
√	√	X	√	• EPC Contract followed by O&M Contract
X	√	√	√	• PPP Contract (where design specifications would be fixed before contracting)

The above table is indicative based on situations anticipated as per recent interactions with a few city officials; however before deciding the type of contract a detailed assessment would need to be carried out by the ULB on all the requirements of the project in terms of technology, financing, manpower availability, market demand/feasibility/land availability etc.

Alternatively, several toolkits have been prepared by various agencies like the Sanitech, Saniplan, FSM Technical and Financial toolkits[1] which can be used for planning the financing of FSM projects at a city level.

[1] Sanitation Tool Compendium, CSTEP, August 2016

Issues and challenges in financing FSM projects

Traditionally, most of the large scale projects in the water and sanitation sector have been funded either through schemes/programs conceived and funded under the State or Central Governments or through external funding agencies including international development banks like the World Bank, Asian Development Bank, European Bank for Reconstruction and Development etc. or development aid agencies like AusAID, GIZ, JICA, USAID etc. These projects however largely focus on sewered networks combined with high capacity, mechanised Sewage Treatment Plants (STPs). However, little has been achieved in terms of financing smaller scale sanitation projects at city/State levels. There have been a few small scale successes in financing sanitation projects across the country.

Examples of micro financing in sanitation sector-

Guardian, the first water-and-sanitation-only Micro Financing Institution in India works in four districts of Tamil Nadu and has an outstanding portfolio of over Rs. 11 crore (US$ 1.9 mn approx.).

GrameenKoota with a presence in Karnataka, Maharashtra and Tamil Nadu, crossed a disbursement of Rs. 100 crore (US$ 16.7 mn approx.) for water and sanitation loans in 2014.

There are various issues and challenges to availing finances from such resources, the key ones being:

i. Current finances of Urban Local Bodies/ULBs are not sufficient enough for making investments in sanitation assets or even funding the operations & maintenance in a sustainable manner.
ii. Households or small Self Help Groups cannot directly access Micro financing Institutions/MFIs due to a lack of credit line for availing loans at reasonable rates.
iii. Current policies of MFIs require them to provide 70% of their loans to income generating assets while sanitation assets do not fall in this category.
iv. Reserve bank of India mandates 40% of lending by banks to priority sectors[2] which do not include sanitation.
v. Housing Finance Institutions cannot directly fund for sanitation projects as the mortgage requirements are too high and special terms will need to be laid out for sanitation related assets.
vi. Most of the CSR activities of big corporates are focussed on other development agendas including health and education.
vii. In spite of prohibition of manual scavenging by law, many cities/towns in the country are still continuing this inhuman practise in the absence of lack of interest in upliftment of the manual scavengers through existing schemes (in addition to regulatory and other issues).

The National Commission for Scheduled Castes (NCSC) observed in a note circulated for a recent review meeting in July 2016 that *"expenditure for the last three years under the Self-Employment Scheme for Rehabilitation of Manual Scavengers (SRMS) is minimal". The budgeted amount for SRMS for 2015-16 was Rs. 470.19 Crore while actual expenditure was 'nil'.*

[2] Mainly include small value loans to farmers for agriculture and allied activities, micro and small enterprises, poor people for housing, students for education and other low income groups and weaker sections.

Review of Best Practises

There have been a few successful cases in the financing and implementation of sanitation/FSM projects in the recent past from which learnings can be derived for planning future projects. The following table summarises the financing mechanism adopted across different types of projects in each category:

Sl. No.	Name of Project	Country	Financing Mechanism
Subsidy			
1.	Kitakyushu Wastewater Management Project	Japan	City government financing (bonds and general account) with subsidy from central government and beneficiary contribution
2.	Maharashtra Community-led Total Sanitation	India	Central government-financed sanitation awareness campaign with hardware subsidies for poor households
Public–Private Partnership			
3.	Alandur Sewerage Project	India	Loans and grants for sewer lines; public–private partnership for sewerage treatment plant
Output-Based Aid			
4.	Increasing Household Access to Domestic Sanitation in Greater Colombo	Sri Lanka	Subsidy and output-based aid
5.	Output-based Aid for Sanitation	Nepal	Performance-based grants for construction of household latrines
Carbon Credits			
6.	Kinoya Sewerage Treatment Plant	Fiji	Carbon credits
7.	National Biodigester Program	Cambodia	Subsidy and carbon credits
Microfinance			
8.	Sanitation Revolving Fund	Viet Nam	Revolving fund managed by the Women's Union
9.	Microfinance Loans for Sanitation	Cambodia	Microfinance loans managed by microfinance institutions
Partnership			
10.	Devanahalli FSTP project, Bangalore	India	External funding for asset creation coupled with alternative revenue mechanisms for sustainable operations
11.	Dumaguete Septage Management Project	Philippines	Collaboration between local government and water utility
12.	Water District Septage Management Project	Philippines	Water utility-led septage management project

The Annexure-2 provides further details of the key features and learnings from the above case studies/best practises.

Annexure-1

The indicative assumptions for making estimates for different components of sanitation projects under the Swaccha Bharat Mission are provided below:

<table>
<tr><th>Sl. No.</th><th>Component</th><th>Assumed capacity/size</th><th>Unit cost in INR</th></tr>
<tr><td></td><td>Twin-pit Latrine</td><td>Minimum land required- 40-60 sq.ft
For 5 users-Size of pit- 900mmx1000mm</td><td>15,000- 20,000 depending on construction material</td></tr>
<tr><td></td><td>Septic Tank</td><td>Minimum land required- 40-50 sq.ft
For 5 users-Size of septic tank-
1.5mx0.75mx1m (for cleaning interval of 2 yrs and 1.05m for 3 years)</td><td>25,000- 30,000 depending on construction material.
Low cost options of prefabricated septic tanks available in the market</td></tr>
<tr><td></td><td>Bio-digester toilet</td><td>Minimum land required- 25 sq.ft
Size
<table>
<tr><th>No. of users</th><th>Size of bio-digester / bio-toilet</th><th>Remarks</th></tr>
<tr><td>4-8 (Single family)</td><td>0.7m3</td><td>Individual</td></tr>
<tr><td>8-15 (two families)</td><td>1.2 m3</td><td>Group / shared</td></tr>
<tr><td>30-50</td><td>3.2 m3</td><td rowspan="4">Community</td></tr>
<tr><td>100-120</td><td>6.0 m3</td></tr>
<tr><td>200-220</td><td>12.0 m3</td></tr>
<tr><td>500-600</td><td>30.0 m3</td></tr>
</table></td><td>Toilet cost- 12,000- 15,000 depending on material of construction
<table>
<tr><th>Bio-digester tank -></th><th colspan="3">Material of construction</th></tr>
<tr><th>No. of users / Capacity</th><th>Masonry</th><th>Precast Cylindrical Unit</th><th>Fiber reinforced plastic</th></tr>
<tr><td>5 to 7 users</td><td></td><td></td><td></td></tr>
<tr><td></td><td>17,100</td><td>11,600</td><td>22,000</td></tr>
<tr><td>(700 Litre)</td><td></td><td></td><td></td></tr>
<tr><td>10 to 12 users (1000 Litre) Group/shared toilet</td><td>19,000</td><td>13,600</td><td>24,000</td></tr>
</table></td></tr>
<tr><td></td><td>Community/Public Toilets</td><td>Community toilets-
• One seat for 35 men;
• One seat for 25 women
• Adequate bathing facilities</td><td>Depending on construction material-
• 65,000/- per seat for Community Toilet
• 75,000/- per seat for Public Toilet</td></tr>
</table>

<table>
<tr><th>Sl. No.</th><th>Component</th><th>Assumed capacity/size</th><th>Unit cost in INR</th></tr>
<tr><td></td><td></td><td>Public toilets-
<table>
<tr><th>Sanitary Unit</th><th>For Male</th><th>For Female (A)</th></tr>
<tr><td>Water Closet</td><td>One per 100 persons up to 400 persons; For over 400 persons, add at the rate of one per 250 persons or part thereof</td><td>Two for 100 persons up to 200 persons; over 200 persons, add at the rate of one per 100 persons or part thereof</td></tr>
<tr><td>Ablution Taps</td><td>One in each W.C.</td><td>One in each W. C.</td></tr>
<tr><td>Urinals</td><td>One for 50 persons or part thereof</td><td>Nil</td></tr>
<tr><td>Wash basins</td><td>One per W. C. and urinal provided</td><td>One per W. C. provided</td></tr>
</table></td><td>
<table>
<tr><td colspan="3">Superstructure 5 Cubicle for 200 users</td></tr>
<tr><td>Pre Painted galvanized Sheets</td><td>Masonry</td><td>Cement Board</td></tr>
<tr><td>Rs. 1,63,000.00/-</td><td>Rs.95,000.00/-</td><td>Rs. 80,000.00/-</td></tr>
<tr><td colspan="3">Superstructure 10 Cubicle for 400 users</td></tr>
<tr><td>Pre Painted galvanized Sheets</td><td>Masonry</td><td>Cement Board</td></tr>
<tr><td>Rs.3,26,000.00/-</td><td>Rs. 1,80,000.00/-</td><td>Rs. 1,60,000.00/-</td></tr>
<tr><td colspan="3">Bio Digester Tank 10 KLD for every 200 users – Masonry- Rs. 1,74,000.00/- per 200users</td></tr>
</table></td></tr>
</table>

Annexure-2

The following table provides the details of key features and learnings from some of the successful projects implemented in the sanitation/FSM sector:

Sl. No.	Project title	Key features	Learnings/key success factors for future initiatives	Reference for further information
1.	Devanahalli Fecal Sludge Treatment Plant, Karnataka	• First Integrated FSM project implemented by the ULB with the support of external funding in the country • Land provided by the ULB while funding for infrastructure obtained by the Bill & Melinda Gates Foundation • Project planning, designing & implementation undertaken by CDD Society • Alternative revenue sources from advertising, co-composting and addition of a small maintenance fee in property tax to make project sustainable	• Comprehensive planning and survey of existing situation is essential to ensure long term sustainability of the project • Public and private cooperation essential for implementation of a city wide initiative • Awareness creation and training of all stakeholders especially the ULB officials on alternative options • Alternative revenue mechanisms for making the projects sustainable which can be achieved through a comprehensive IEC activity • Strong monitoring & regulation of vacuum tank operators to ensure that there is no open dumping of untreated septage	CDD Society, Bangalore Tel No.-+91-(0)80-28486700
2.	Malaprabha technology-toilet – linked biogas plant	• Community level shared toilets-linked with biogas plants where user pays the owner for usage of toilet and owner benefits in terms of O&M revenues and biogas generation • Continued IEC activities by Dr. Mapuskar with involvement of PRI (through Rural Sanitation Program) • Suitable for the rural/peri-urban areas	• Propagating sanitation in combination with an alternative source of energy/fuel • Concept of shared sanitation facilities in heavily crowded & marginalized communities is more effective and practical on ground • A push from the local authorities through existing schemes/programs will ensure participation from all stakeholders and also avoid under-utilization of the available support	http://sanitation.indiawaterportal.org/sites/default/files/attachment/Sanitation_Malaprabha_Technology.pdf
3.	Decentralized Reuse-oriented	• Decentralized wastewater management in school	• Efficient use of free space in bulk generators of wastewater which can also be made	• Ecosan services foundation, Pune.

Sl. No.	Project title	Key features	Learnings/key success factors for future initiatives	Reference for further information
	Wastewater Management at Adarsh Vidyaprasarak Sanstha's College of Arts & Commerce, Badlapur	• Availability of unused land in large institutions • Operation of sanitation infrastructure by institutions through internal resources • Promotion of concept of reuse of treated wastewater to cross subsidize utility costs	sustainable by promoting reuse of treated wastewater • Use of large institutions by municipal corporations can meet needs of surrounding public also • Focus on simple and easy to operate technologies can ensure faster acceptance from general public	Tel: +91 (0)20 64 000 736 http://ecosanservices.org/ • http://www.adarshcollege.avpskulgaon.net/
4.	Community-based Sanitation (SANIMAS)a community-based development approach to improve access by low-income households to sanitation services in Indonesia.	• SANIMAS projects have been implemented in more than 22 provinces and 100 communities in Indonesia since 2003 • Developed in a partnership of development agency and Government department-BORDA and the partner network in close co-operation with the inter-ministerial Water and Environmental Sanitation Working Group/BAPPENAS • Community level planning and implementation of sanitation projects beneficial specially for crowded slums	• A complete sanitation value chain planning • Demand responsive approach by the Community itself is essential to ensure success • Standardized implementation practices would need to be planned for future replication • Community self-selection of desired activities instead of planning by an external entity • Multi-stakeholder funding and contribution • In-build Capacity Development & Training Programs as a part of comprehensive planning • PPP management of infrastructure and facilities through CSR initiatives • Impact monitoring at a regular interval to ensure continued performance	• The Ministry of National Development Planning / National Development Planning Agency (Bappenas), Jalan Taman Suropati No.2 Jakarta 10310, Tel. 021 3193 6207 • http://isdb-indonesia.org/project/sanimas-community-based-sanitation-project/ • http://www.borda-sea.org/sanitation-by-communities-sanimas.html
5.	Faecal sludge management in Accra, Ghana	• Integrated FSM project planned at a city level • Partnership between waste management department and local private vacuum truck operators	• Tailor-made solutions need to be planned based on the existing situation in the city • Continued cooperation from the ward Corporators, public, RWAs/NGOs & private	• http://www.eservices.gov.gh/ • http://www.ircwash.org/sites/default/file

Sl. No.	Project title	Key features	Learnings/key success factors for future initiatives	Reference for further information
		• Public participation by supporting the project and paying increased tariff for better services • Efficient planning for the entire city to cover the un-covered high density areas also	operators along with the ULB officials very essential for making the project sustainable • Comprehensive IEC activities are essential to garner public support • Efficient contract structuring with promotion of the concept of collection centres can satisfy the needs of public as well as private operators • Conversion of insanitary latrines essential to make project successful	s/Boot-2008-Use.pdf
6.	Cambérène Fecal Sludge Treatment Plant (FSTP) in Senegal	• The FSTP is operated by the national sanitation utility-ONAS • The households pay a fee to the extraction operators for emptying their septic tanks along with a sanitation tax (for treatment services provided by ONAS) • The vacuum truck operators also have to pay a fee to the FSTP for discharge • The profit for the operator is from the extraction fee while for ONAS it is from the sanitation tax, discharge fees and additional revenue from sale of dried FS as a soil conditioner	• Alternative revenue mechanisms are essential to make sanitation services sustainable. • The concept of licensing vacuum truck operators provides a formal business environment for them along with a reduction in environmental pollution due to open discharging of septage • Strong regulation with public support is essential to ensure success of the project • Inclusion of discharge incentives to vacuum truck operators can promote the market for FSM services	• National office of sanitation of Senegal, Tel : 33 879 25 00 • https://www.onas.sn/ • https://www.onas.sn/cat/projets/ • Fecal sludge management program: lessons learned, Boues mag (quarterly magazine of ONAS FSM program, December 2014) • http://www.pseau.org/
7.	Kitakyushu Wastewater Management	• Combined sewer system planned for the city • The central government provides subsidies at fixed rates, which depend on the type	• The development of a legal and financial support system from the central governmentwas a powerful incentive for	• https://www.city.kitakyushu.lg.jp • Financing

Sl. No.	Project title	Key features	Learnings/key success factors for future initiatives	Reference for further information
	(JAPAN)	offacilities. • The funding of unsubsidized facilities is done through local bonds and the generalaccount of the local government. Residents also partly pay for the capital cost throughbeneficiary contribution • Sewerage Finance Research Committee (SFRC) determines the fundamental principle for the financing of sewage works accordingto socioeconomic conditions • Cost of project was shared between municipality bonds (65% of total cost), subsidies from the central government (26%), beneficiarycontribution (3%), and the general account of the city (6%) • At the time of bond repayment by local governments, the law authorizes about 50%redemption with the tax revenue allocated to local governments for this purpose	sewerage implementation. • Localgovernment also provided subsidy through the municipal bonds. • Tariff offset by the government subsidies making the project viable • Appropriate cost and risk sharing among public and private parties • Adoption of combined sewer system • Strong monitoring and regulation	mechanism for wastewater and sanitation, ADB, 2016
8.	Increasing Household Access to Domestic Sanitation in Greater Colombo, Sri Lanka	• Sanitation services to low income groups with external funding by GPOBA, a multi-donor trust fund administered by the World Bank • performance-based subsidies disbursedon the basis of realized pre-agreed outputs, after an independent verification of their eligibilityfor financing under the project • Concept of universal sanitation services combining both on-site and off-site systems • Household contribution of reduced access fee	• Encourage partnership in terms of investments by both service providers as well as service beneficiaries • Performance based and time bound subsidies encourage timely completion of works • OBA payments andcontracts have to be packaged in a way that incentivizes sustainable service deliveryalongside the entire sanitation value chain • Strong monitoring and regulation key to success of performance based financing	• https://www.gpoba.org/project/P111161 • GPOBA- OBA Working Paper series, 2010 • Financing mechanism for wastewater and sanitation, ADB, 2016
9.	Carbon Credits	• methane capture and combustion project have	• First of its kind project in the pacific under	• http://pacific.acp-

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	for the Kinoya Sewerage Treatment Plant (FIJI)	a major impact on development • of similar and other potential renewable, projects eligible underthe Clean Development Mechanism (CDM) • Asia Pacific Carbon Fund (APCF) cofinances carbon savings through up-front payment against the purchaseof CERs to be generated by the project • Project part financed by ADB • Local acceptance of project as it eliminated the issue of bad odour in open treatment plants	the CDM category • Additional revenue benefits for the Authority through Certified Emission Reductions (CER) • Cross subsidization of other non-profitable/unsustainable services possible by such mechanisms • Useful for highly industrialized cities/towns	cd4cdm.org/media/322130/fiji_kinoya-sewerage-treatment-plant.pdf • https://cdm.unfccc.int/Projects/DB/TUEV-SUED1299488431.41/view • http://www.waterauthority.com.fj/ • Financing mechanism for wastewater and sanitation, ADB, 2016
10.	National Biodigester Program in CAMBODIA	• Project undertaken under Cambodia's National Biodigester Program, which is being managed by the Ministry of Agriculture, Forestry, and Fisheries, aims to disseminate domestic bio digesters as indigenous, sustainable energy source through the development of a commercial, marketorientedbio digester sector in selected provinces • Funding by Dutch Ministry of Foreign Affairs, throughtheir Asia Biogas Program and GIZ • Funding allocated to program establishment andmaintenance, information, education, and communication activities, and a flat rate subsidyon the cost of the bio-digesters for farmers • Project involved cooperation from many	• Sustainability of such programs depend on a comprehensive framework involving banks, business houses, MFIs, technology institutions, IEC players etc. • Local monitoring key to continuity and success of projects • Participation of local NGOs essential for widespread use of bio digesters	• http://nbp.org.kh/ • Financing mechanism for wastewater and sanitation, ADB, 2016 • http://www.snv.org/project/national-biodigester-programme-nbp-cambodia

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		partners ranging from local governments, to research institutes, learning centres, entrepreneurs etc.		
11.	Sanitation Revolving Fund in Vietnam	• Revolving fund forbuilding on-sitesanitation facilitiesfor low-incomehouseholds • Working capital for the revolving funds was provided by the WorldBank, the Government of Australia, the Government of Finland, and the Government ofDenmark • Small loans provided over 2 years at partiallysubsidized rates to low-income and poor households to help them construct or improveon-site sanitation facilities, mainly individual septic tanks and urine-diverting and/orcomposting latrines, or to build sewer connections • Program also included a significant software support component for sanitationpromotion, the creation of Savings and Credit groups, and hygiene education • Women unions appointed to administer funds • Services of Savings and Credit groups and Revolving fund management boards used in each city	• Concept of revolving funds proved highly sustainable with a high repayment rate of 99% • Attractive lending procedures help as catalyst for households to take interest • Creation of Savings and Credit groups was seen as critical to ensure repayment ofthe loans and regular savings contributions	• https://www.wsp.org/.../WSP-Financing-On-Site-Sanitation-Vietnam-Case-Study • http://wspst.org.vn/en/sanitation-revolving-fund/other-activities/sanitation-revolving-fund.html • Financing mechanism for wastewater and sanitation, ADB, 2016 • https://m.talkvietnam.com/tag/revolving-funds/
12.	Microfinance Loans for Sanitation in Cambodia	• Sanitationfinancing programfor low-incomehouseholds • 13 month project of WSP with partnership of international non-profit Program for AppropriateTechnology in Health (PATH) and International Development Enterprises (iDE) • Both individual and group loans offered to beneficiaries	• Sanitation loan programoffered by socially oriented MFIs helps to increase uptake among the poor • Reduction in loan processing time and dedicated loan officers can streamline the process • Close partnership between MFIs and businesses in sanitation services essential for	• Financing mechanism for wastewater and sanitation, ADB, 2016 • https://www.**microfinance**gateway.org • www.sswm.info/content/**microfinance**

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		• VisionFundCambodia in Kandal Province and KREDIT Microfinance Institution(KREDIT) engaged for the pilot • Loans with 2.6%-2.8% interest rate per month with 4-12 months tenure	success	• https://www.ideglobal.org/country/**cambodia** • www.**visionfund**.org • https://www.**kredit**.com.kh/en/
13.	Dumaguete City Septage Management System in Philippines	• Collaboration between the Dumaguete City Government and the Dumaguete City WaterDistrict • Project involved the construction of a septage treatment plant and purchasing of 7 vacuum trucks • Equal sharing of capital and operating costs and any future income between the CityGovernment (septage treatment plan) and DCWD (collection & transportation of septage and maintaining financial records) • The city government also provided the land and enacted the local septage management system ordinance • DCWD collected fees from users as add-on to monthly water bills	• Low cost/low maintenance treatment facility translates to low user fee • Selection of the most simple and low cost technology is the key to success of an FSM project • Wide support by Community through IEC campaign and passing of ordinance ensured success • Equal partnership of ULB and service provider in terms of investment and revenue share will ensure sustainable services to the public at large	• psa.ph › USAID-Rotary Water Alliance • www.wastewaterinfo.asia • kabacan-water.gov.ph • pdf.usaid.gov/pdf_docs/Pnadl683.pdf
14.	Baliwag Water District Septage Management Project, Philippines	• BWD septage management services involve the desludging of septic tanks every 5years, transport and treatment in a septage treatment plant, and disposal of effluent andbiosolids in an environmentally acceptable manner • Project led by the Water District with very little LGU and government collaboration • Only feasibility study conducted with support from USAID-funded Philippine Water	• Though government intervention was minimal in terms of financing, complete support through ordinance and support in outreach helped in project implementation • Cost recovery for septage management program easier compared to networked and mechanised sewer system • Leadership in the form of Sanitation Champion led to success of the intervention	• eascongress.pemsea.org/sites/default/files/file.../PPT-S3W1-07-VictoriaSigno.pdf • baliwagwd.com/contents/baliwag-water-district-history • www.wastewaterinf

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		Revolving Fund • Loan secured from Philippines National Bank for asset creation, purchase of vacuum trucks as well as land for the facility • BWD also engaged with Indah Water Konsortium ofMalaysia for training & IEC • Tipping fee collected was nominal as BWD was not-for-profit entity	• Information and advocacy campaigns significantly contributed in gaining publicacceptance of the septage management project	o.asia/sites/default/files/events/BALIWAG_ppt.pdf

Suggested reading

1. Sanitation tool compendium, August 2016, CSTEP (available in the url- http://smartnet.niua.org/sites/default/files/resources/Sanitation%20Tool%20Compendium_Oct2016_0.pdf)
2. Financial Requirements of Urban Sanitation in India- An Exploratory Analysis, March 2016, WSP
3. Primer on Fecal Sludge and Septage Management, Ministry of Urban Development, Government of India
4. Advisory Note on Septage Management in Indian Cities, Ministry of Urban Development, Government of India (available in the url- http://moud.gov.in/advisory)
5. Guidelines for Decentralized Wastewater management, MoUD Centre of Excellence in DWWM, Department of Civil Engineering, Indian Institute of Technology Madras – Chennai
6. From Dreams to Reality- Compendium of Best Practices in Rural Sanitation in India, Ministry of Rural Development, Government of India
7. Boues mag- fecal sludge management program- lessons learned, December 2014