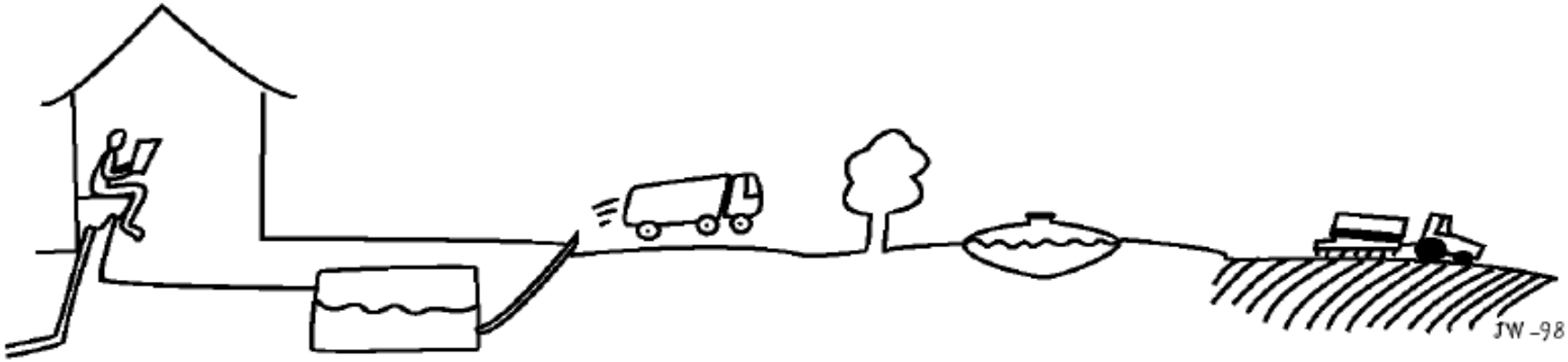


SaniPlan – IFSM Tools For Citywide Assessment and Planning

Mainstreaming Citywide Sanitation

Opportunities & Challenges in Excreta Management

4-5th April, 2016

Prof. Dinesh Mehta, Prof. Meera Mehta, Aasim Mansuri

pas performance assessment system

PAS Project, CEPT University

Objective of the tool . . .

"Main objective of tools for Citywide assessment and planning is to help users identify **key areas of assessment** for commencing **IFSM planning** in city **facilitated** by **SANIPLAN model** and **tools for data collection and field assessment** which will help making **informed discussion** among **stakeholders** and provide for '**evidence-based**' **decision making** by city authorities"

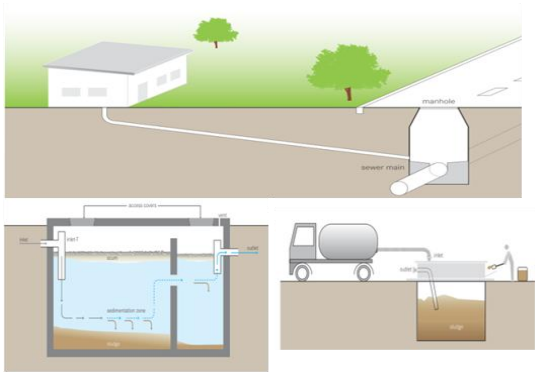
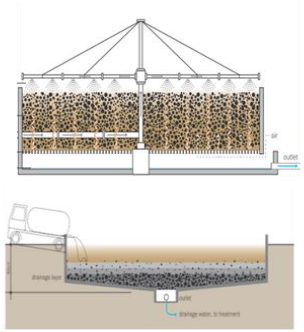
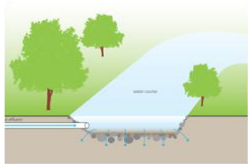
Five Modules of Assessment . . .

Module 1 : Assessing Service Performance Across the Full Service Chain

Assessing service performance across the **service chain** through a city level assessment is the first step in planning process.

It is an important exercise, which provides an **initial sense** of the **state of FSM in the city**, help in understanding the context and **identifying gaps** in key services.

The **data collection** and **field assessments** in the city should start with a kick-off meeting with **key stakeholders**.

Access	Collection	Conveyance	Treatment	Recycle & Reuse
				
Coverage of toilets	Collection efficiency of sanitation system		Adequacy of treatment capacity of sanitation system	Extent of reuse and recycling in sanitation system
Coverage of adequate sanitation systems			Quality of treatment of sanitation system	

Module 1 : Tools

TOOLS available for ASSESSING service PERFORMANCE across the service chain

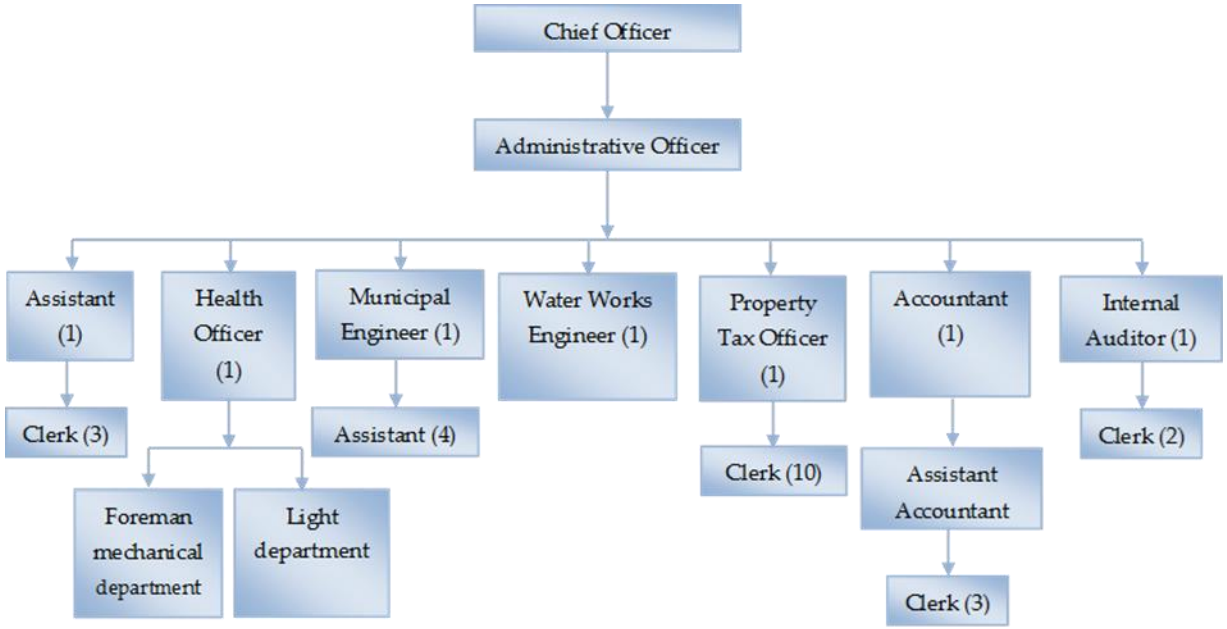
Assessment areas		
Assessment through City level Performance Indicators	Assessment across each link in the service chain	Summary and vision

Assessment Tools	Download
1. SANIPLAN: Information collection and initial performance assessment	a. SaniPlan , SaniPlan-FSM b. Data for SaniPlan Input:List of sources
2. Physical and spatial analysis of city	a. Sample maps
3. Field assessment of toilets and onsite systems	a. SaniTab tool (Android installer .apk file/ sample questionnaire) b. Manual for Surveyors c. Template for survey of small contractors and masons d. Template for technical assessment of onsite systems
4. Field assessment of emptying services and treatment	a. Template: Onsite system emptying service b. Template: Wastewater quality assessment

Module 2: Enabling Environment: Policy, Regulation and Institutions

It is important to **understand** and **assess** the **prevailing enabling** and **regulatory environment** as well as **capacity** of local **stakeholders** to **manage** the citywide **FSM services**.

This can be **assessed** by a review of: a) **State/national policies** and guidelines on FSM, b) **Regulatory framework** for treatment, disposal, and reuse of fecal matter, and c) assessing **roles** and **responsibilities** of **local government** for FSM.



Module 2 : Tools

TOOLS available for

ASSESSING policies,

REGULATIONS and

CAPACITY of Local

government

Assessment areas		
National and state policy and guidelines	Regulatory regime for FSM and the institutional roles	Assessing local capacity for FSM

Assessment Tools	Download
5. Assessing policies and regulations affecting FSM at local levels	a. Sample policies and guidelines (NUSP , FSM guidelines GOI / GoM , GoTN , FSM in Urban Maharashtra , Other Sanitation Acts)
6. Assessing capacity at local level: local government and other stakeholders	a. Examples of Process mapping b. Examples of citizens charter c. Interview guide for local government to assess capacity for PSP

Module 3: Technology options for FSM services

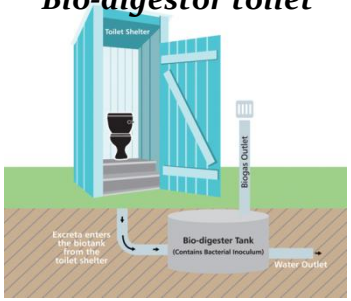
In designing a citywide IFSM service, it is important to **assess technology options** for each link in the **service chain**.

This ranges from **appropriate toilets** and **onsite systems** such as septic tanks to **conveyance** as well as **treatment** and reuse.

Toilets and Septic tanks

Twin pit

Bio-digestor toilet



Emptying services

Conventional Vacuum Tanker

Mini-Vacuum Tanker (Vacutug)

Treatment technologies

Sludge drying bed

Co-composting

Module 3 : Tools

TOOLS available for

ASSESSING

TECHNOLOGY

options across

service chain

Assessment areas		
Assessing technical options for toilets and septic tanks	Assessing options for emptying services and conveyance	Assessing options for treatment and reuse of fecal sludge/septage

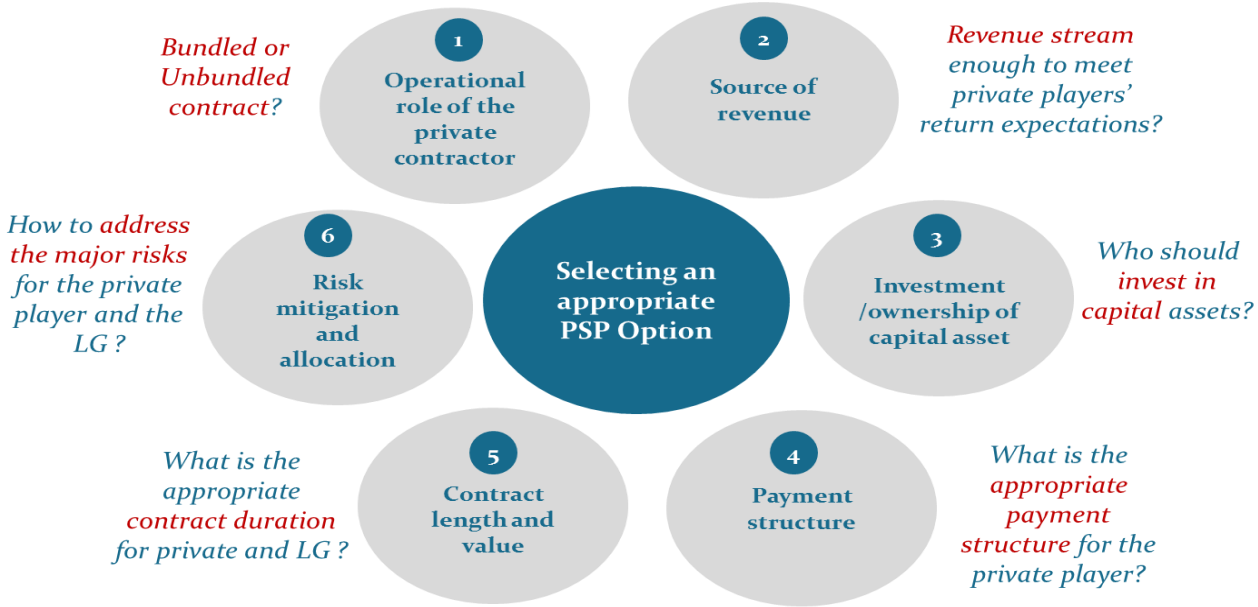
Assessment Tools	Download
7. Assessing options for conveyance of septage services	a. Determining infrastructure required for septic tank emptying cycle b. Template for licensing of septage transporter c. Template manifest form for emptying
8. Assessing options for treatment and reuse of fecal sludge	a. Factors influencing selection of treatment facilities

Module 4 : Potential of private sector role across the service chain

While the **city governments** generally **have** the **mandate** to **ensure service provision**, often there is an **active private sector** that provides FSM services in the city.

It is necessary to **assess** the **current role** of **private sector** providers as well as their **potential role** in a citywide service provision

The assessment will thus need to start with a quick **landscape analysis**, and can be followed by a **detailed assessment** after the FSM strategy is developed.



Module 4 : Tools

TOOLS available for ASSESSING potential for PRIVATE sector PARTICIPATION

Assessment areas		
Assessing local government capacity for PSP	Landscape study of private sector	Develop and review potential structure of PSP option

Assessment Tools	Download
9. Guide to a landscape study of private sector	a. Interview guide for Private sector players
10. Review of potential structure of PSP option	a. Interview guide for Local government about FSM-PSP structure and contracts b. Interview guide for Private sector about FSM-PSP structure contracts c. Model contract/bid documents (O&M / construction)

Module 5: Financial Assessment

To ensure financial **sustainability** of **FSM services**, it is important to **assess capacity for financing** of both capital and O&M expenditure over the plan period.

This can start with an **assessment** of **financial** requirements for both **capital** and **O&M expenditures**.

The assessment also **provides guidance** on **potential sources** of **finance** for meeting these expenditures including through external **grants**, **private sector investments**, user contributions, external **debt** or through local government internal resources.

Assessment of Financing requirement across FSM service chain

FS Flow Diagram	User Interface	Collection	Conveyance	Treatment/ Disposal
Financial Requirement – **Capex**	**New septic tanks**	**Refurbishment of septic tanks**	**New Suction Emptier Trucks**	**Treatment Facility-** Land cost, construction cost
Financial Requirement – **Opex**			**Operation of Emptier trucks–** Fuel cost, salaries of truck driver, etc	**Operation of Treatment Facility-** staff salary, electricity bill, pumps replacement, etc

Module 5 : Tools

TOOLS available for

ASSESSING

FINANCE

Assessment areas		
Assessment of finance requirements and potential sources	Potential sources of finances for capital/ O&M expenditures	Review of required tariffs

Assessment Tools	Download
11. SANIPLAN: Financing plan and tariff review	a. SaniPlan , SaniPlan-FSM b. Financial planning using SaniPlan
12. Assessing willingness to pay and to charge	a. Questionnaire: Assessing willingness to pay b. Sample resolution by local government

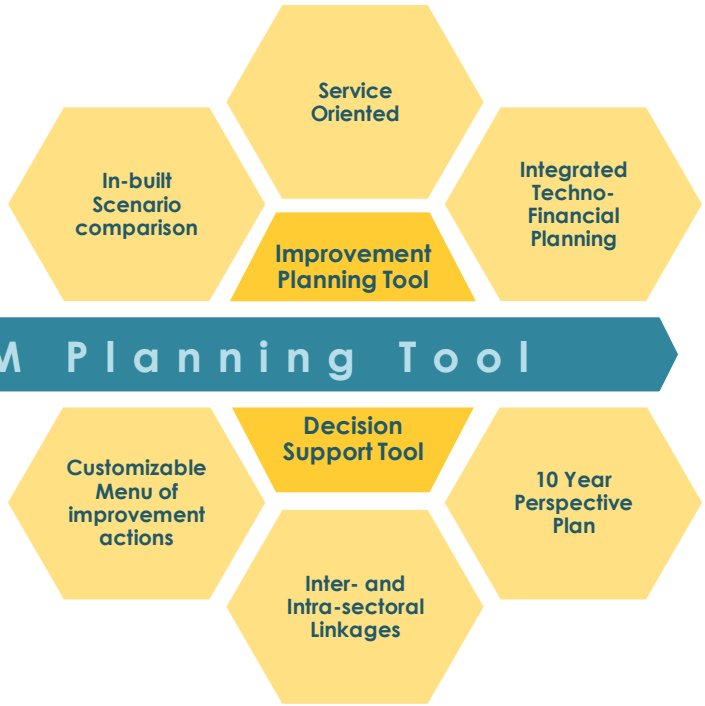
SANIPLAN

SANIPLAN is a **decision support tool** that provides a structured approach to planning for urban sanitation.

It is a planning tool which can **support more informed stakeholder participation**.

SANIPLAN has **three modules**: a) performance assessment, b) action planning, and c) financial planning.

SaniPlan



Link to website

p a s performance assessment system

Search this site

HOME

SaniPlan - IFSM
Tools for Citywide Assessment and Planning

Citywide Integrated Faecal Sludge Management (IFSM) planning involves assessment and planning across the full service chain. Citywide approach suggests universal coverage of services in all areas and for all properties in the city. It also involves a review of the full service chain – user interface, storage, conveyance, treatment and reuse. The focus here is on providing effective and sustainable sanitation services by the local government and other service providers.

Citywide IFSM planning is a consultative process and the tools for citywide assessment presented here help informed discussion among stakeholders and provide for 'evidence-based' decision making by city authorities. The process should start off with a kick-off meeting with key stakeholders. Consultations with key stakeholders should be planned during key stages in the planning process.

The IFSM planning process is facilitated by SANIPLAN, a decision support tool that has three main areas: a) assessment of service performance across the full service chain, b) designing an action plan to ensure service improvements across the chain, and c) developing a financing plan for both capital and O&M costs for the full plan period.

City-wide Assessment

Citywide assessment of FSM is the first key step for IFSM planning. The tools are organized around five key areas. Assessing the current situation of FSM in these five areas is important to develop a FSM plan that is technically appropriate and financially feasible at local level. Assessment in each area entails review of available information at city level, identifying information gaps, and conducting field studies where necessary.

SaniPlan – IFSM Toolkit

SANIPLAN Tool

SaniPlan can assist in developing SLIPs for AMRUT

SLIP (Service level improvement plans)

- **Assess** the **service** level **gap**
- Examine **alternatives**
- **Estimate** the cost (both **capital** and **O&M**)
- **Prioritize** based on local demands
- Financing: **Investment** requirements, **revenue** improvements and **resource mobilization**

SaniPlan

- In SaniPlan, **SLBs** are used to **assess gaps**
- **Various action** areas **available** for use , each action **shows impact** on **service levels**
- Model computes **Capital** and **O & M** cost for **10 years**
- **Enables decision makers** to **evaluate options** and identify proposals
- It is the only available **model** that **links infrastructure decisions** to **finance** and helps **evaluate** various **financing plan options**

Conventional Approach versus SANIPlan approach

Conventional Approach

'PROJECT'
based approach

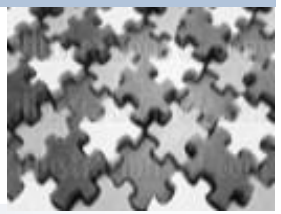
Focus on achieving OUTPUTS

Starting point is an assessment of available grant funding – SUPPLY DRIVEN

Focus on developing INDIVIDUAL PROJECTS of various sectors

SANIPLAN Approach

'SERVICE'
based approach



Focus on achieving OUTCOMES

Starting point is measurement of current performance and local priorities – NEED DRIVEN

Focus on developing integrated SECTORAL SOLUTIONS

Key Components of SANI Plan

Performance Assessment

Action Planning

Financial Planning

Steps in SANI Plan

Performance Assessment

Action Planning

Financial Planning

Baseline Information

BASELINE INFORMATION FOR PERFORMANCE ASSESSMENT

Water supply, wastewater and solid waste; Municipal finance past trends and future forecasts

Excel sheet in SANIPLAN : WSS info, Finance info, Municipal Finance

PERFORMANCE ASSESSMENT

Step 1.: ASSESS CITY PRIORITIES

Review trends of key performance indicators and peer comparison

Excel sheet in SANIPLAN: Performance assessment

Step 2. SELECT IMPROVEMENT ACTIONS

Identify improvement actions to meet sector goals

Excel sheet in SANIPLAN : Performance assessment

ACTION PLANNING

Step 3. DEVELOP IMPROVEMENT PLAN

Design of actions in Improvement Plan – Phasing, quantity and costs

Excel sheet in SANIPLAN : WS Plan, WW Plan, SW Plan

Step 4. REVIEW IMPROVEMENT PLAN

Review impact on service performance

Excel sheet in SANIPLAN : Summary of Action Plan

FINANCIAL PLANNING

Step 5. MAKE FINANCIAL DECISIONS

Sources of funds, Tariff structures & levels, Transfer surplus to WSS

Excel sheet in SANIPLAN : Action Plan finance, Financing Plan

Step 6. REVIEW FINANCING PLAN

Review feasibility of Financing plan for CapEx and OpEx

Excel sheet in SANIPLAN : Financing Plan

Step-1 Baseline Information

Base line Information for WSS across Value chain

BASELINE INFORMATION

ASSESS CITY PRIORITIES

SELECT IMPROVEMENT ACTIONS

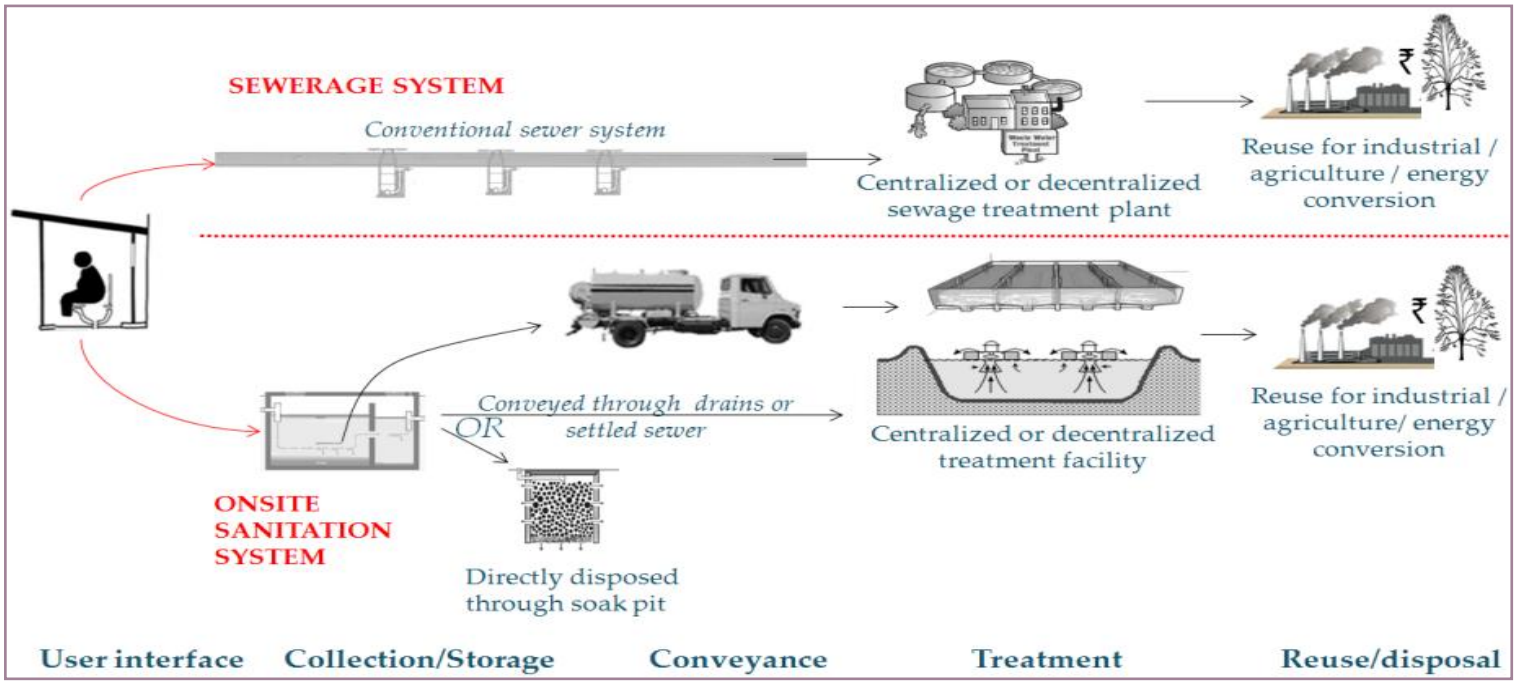
DEVELOP IMPROVEMENT PLAN

REVIEW IMPROVEMENT PLAN

MAKE FINANCIAL DECISIONS

REVIEW FINANCING PLAN

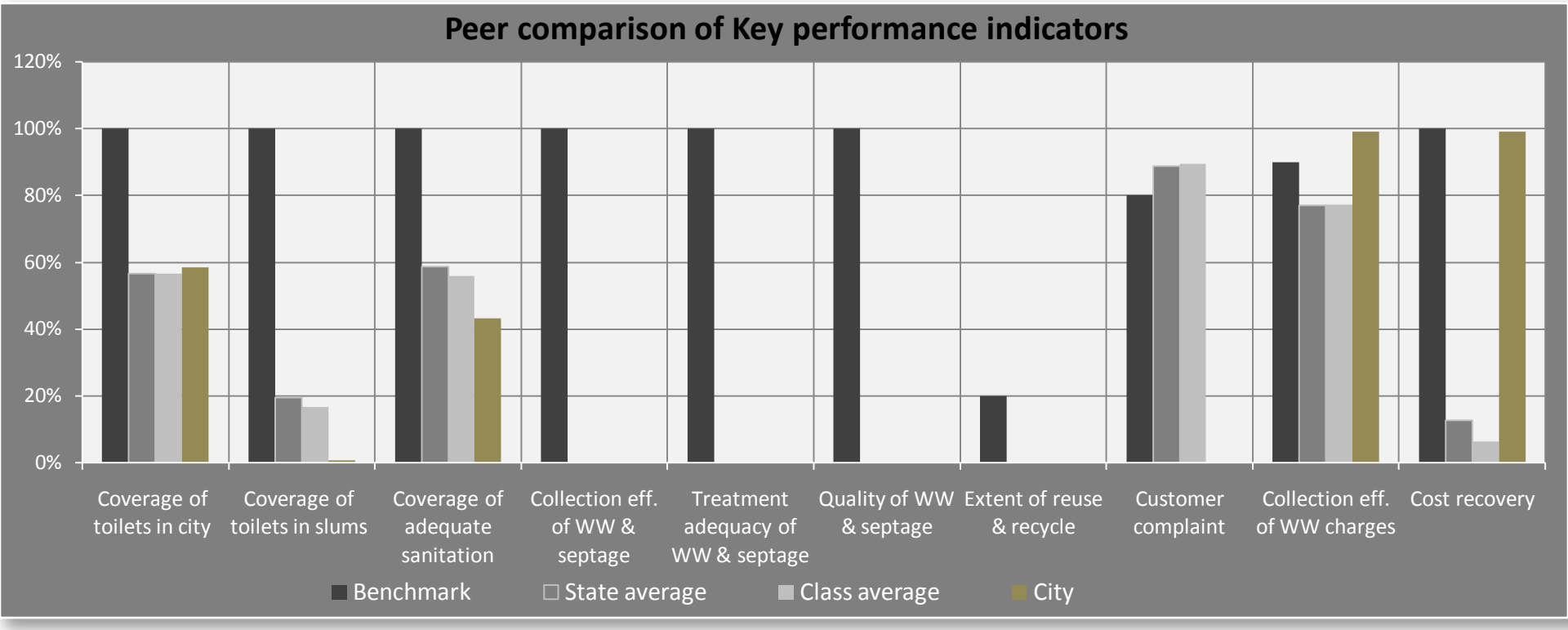
Performance assessment is envisaged as a sector-wide approach, assessing entire value chain rather than focusing it as separate compartments.



Current performance levels of sanitation services are assessed and quantified in terms of Key performance indicators. To arrive at these results, comprehensive compilation of baseline information is required. Sanitation sector is captured through various data sets across their respective value chain.

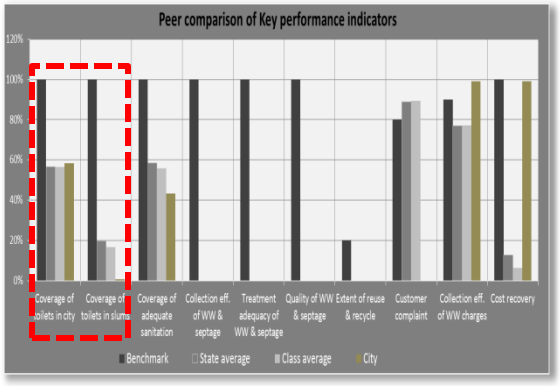
Step-2 Performance Assessment

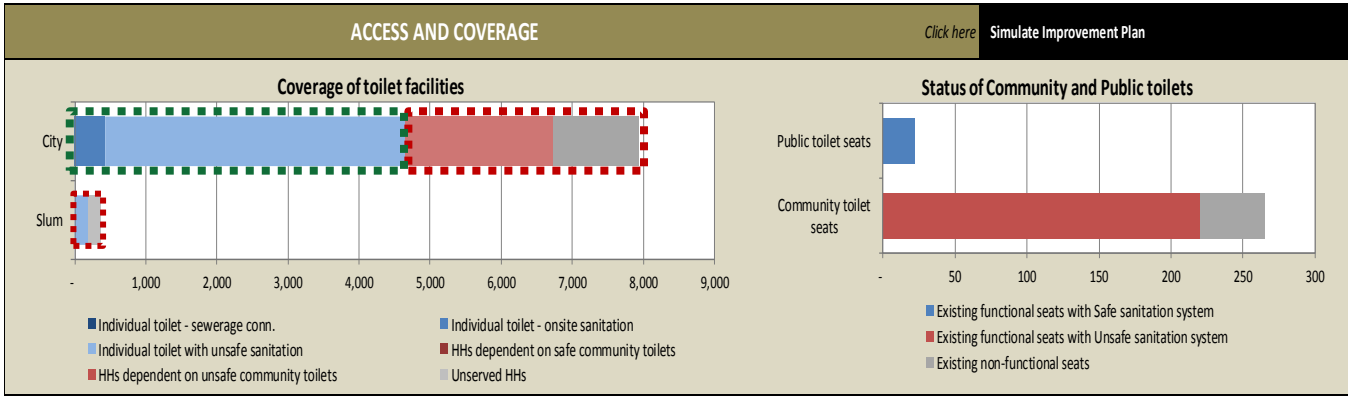
Assessment through City level Performance Indicators



- **Coverage of toilets** in the city is almost **at-par with the class and state average**
- The **city lacks adequate sanitation**
- There is **no proper collection and treatment of wastewater** in the city
- **Collection efficiency** of **wastewater charges** and **cost recovery** is better than the class and state average

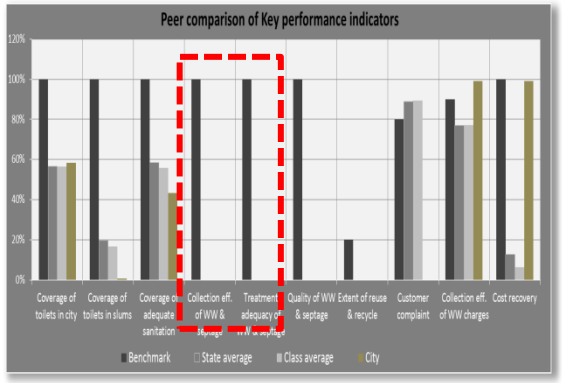
Assessment through Local Action indicators

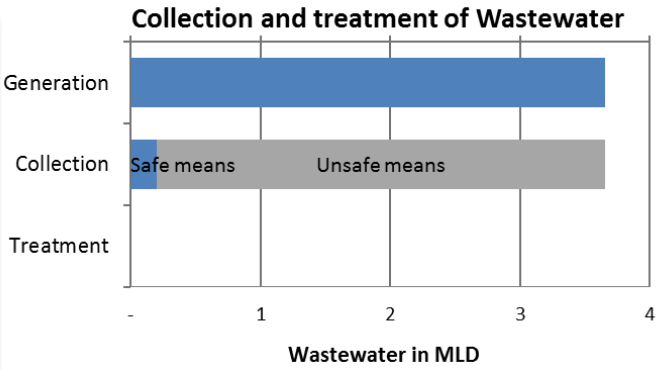


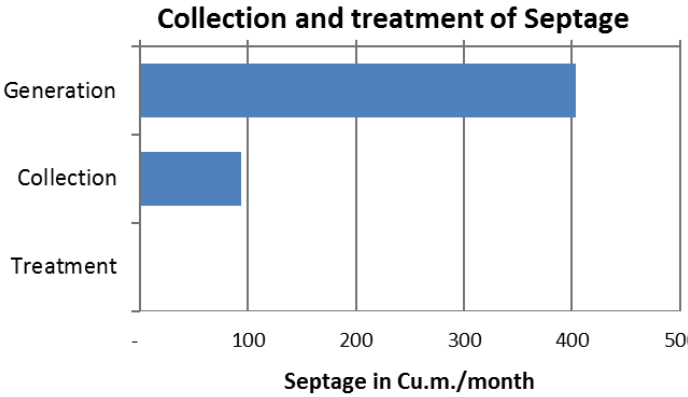


Households having latrines

Households not having latrines







There is very little safe conveyance means for wastewater and No treatment Facility

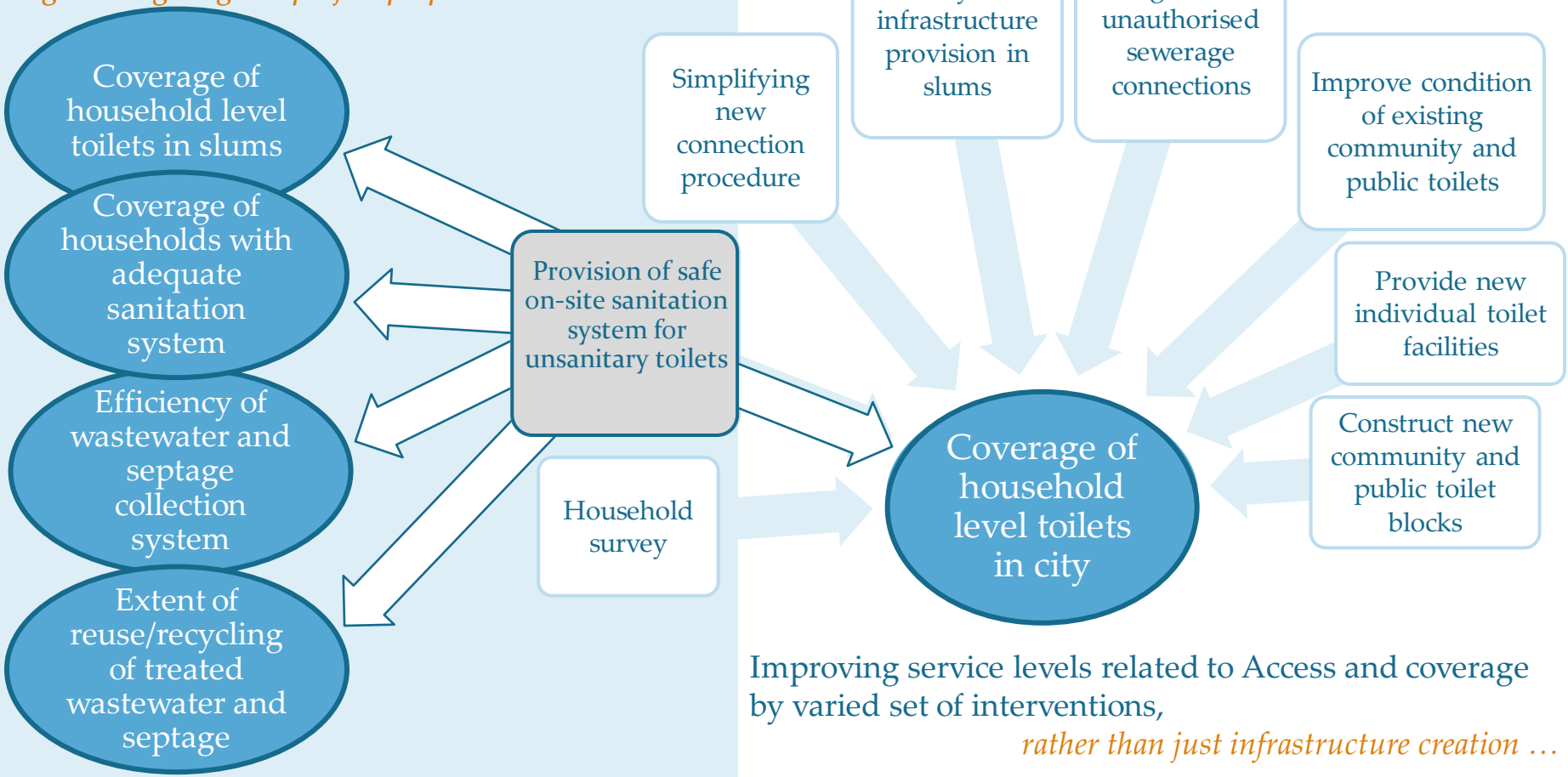
Only 2% of the septic tanks are cleaned annually

No septage treatment facility

Step-3 Action Planning

Approach of Action Planning in Saniplan

Multi-layered links between improvement actions and performance indicators,
as against big singular project proposals …



Improving service levels related to Access and coverage by varied set of interventions,
rather than just infrastructure creation …

Inter-sectoral linkages are also captured in SANIPLAN

Planning of improvement actions

Individual actions are calibrated as output based tangible targets. A set of these calibrated actions will form an implementation plan for ULB across ten years of plan period. Hence, this Action Plan must evolve through an iterative process of identifying appropriate actions, phasing and financing pattern.

Activate/ Deactivate actions

Phasing of actions

Learn more	Activate	Lay new water supply distribution network	2015		2018
Baseline		- Inhabited area not served by distribution network	*Sq. km*		-
		- Existing length of distribution network	*Km*		45.00
		- Existing percentage of households served with piped water supply	*%*		74%
Improvement		- Increase in length of new distribution network	*Km*		10
		- Additional area to be covered with new distribution network	*Sq. km*		1.00
		- New connections that can be given by laying distribution network	*Number*		1,500
Finance		- Block cost to lay distribution network	*Rs lakhs/ km*		20
		- O&M expenses to maintain new distribution network	*% of CapEx/ annum*		5%

Baseline information

Improvement information

Cost and Finance information

Impact of Improvement Actions

Performance levels	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Access and coverage											
Coverage of households with individual and group toilets in city	58%	67%	75%	82%	90%	97%	96%	96%	95%	95%	94%
Number of households with access to individual and group toilets as percentage of total households in city.											
Coverage of households with individual and group toilets in slums	53%	62%	71%	80%	88%	96%	95%	95%	94%	94%	93%
Number of households in slum settlements with access to individual and group toilets as percentage of total slum households.											
Coverage of households with improved sanitation facility in city	85%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Number of households with access to some kind of toilet facility (individual and community toilet), as percentage of total households in city (as defined by Joint Monitoring Program)											
Households resorting to open defecation in city	15%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Number of households in city without any safe sanitation facility and resort to open defecation, as percentage of total households in city.											
Households dependent on community toilet facilities	26%	28%	25%	18%	10%	3%	4%	4%	5%	5%	6%
Number of households dependent on functional community toilet facilities near their houses as percentage of total households in city.											
Non-functional community and public toilets	17%	11%	6%	0%	0%	0%	0%	0%	0%	0%	0%
Number of non-functional community and public toilet seats as percentage of total community and public toilet seats.											
Service level and quality											
Coverage of households with adequate sanitation system	5%	27%	49%	70%	90%	97%	96%	96%	95%	95%	94%
Number of households with access to safe and adequate sanitation system for wastewater disposal (sewerage or on-site) as percentage of total households in city.											
Efficiency of wastewater and septage collection system	5%	27%	49%	70%	90%	97%	96%	96%	95%	95%	94%
Aggregate quantum of wastewater collected (through sewerage and settled sewer network) at the intake of treatment plant and wastewater discharged through soak pits as percentage of normative wastewater generated in city. This indicator is calculated based on weighted average of households and wastewater collection systems.											
Adequacy of wastewater and septage treatment capacity	0%	0%	0%	3%	10%	27%	24%	21%	19%	17%	16%
Aggregate quantum of sewage, sludge and sullage to be treated with present treatment facilities as percentage of normative wastewater generated in city. This indicator is calculated based on weighted average of households and wastewater treatment facilities.											
Households with full on-site sanitation system	5%	27%	49%	70%	90%	97%	96%	96%	95%	95%	94%
Number of households with full on-site sanitation disposal system as septic tanks connected to soak pits for grey water disposal, as percentage of total households in city.											
Households with on-site sanitation and settled sewer	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Number of households with on-site black water disposal system as septic tanks connected to settled sewer/ small bore sewers for grey water disposal, as percentage of total households in city.											
Households with sewerage network services	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Number of households with individual connections to sewerage network, as percentage of total households in city.											
Spatial coverage of closed surface drains	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Municipal area covered by closed surface drains for storm water drainage as percentage of total jurisdictional area of city.											
Septic tanks cleaned annually in city	8%	34%	34%	34%	34%	32%	31%	31%	31%	31%	31%
Number of septic tanks (includes septic tanks of individual toilets, community and public toilets) cleaned annually as percentage of total septic tanks in city.											
Adequacy of sewage treatment capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Quantum of sewage that can be treated at secondary treatment plants as percentage of normative sewage collected by sewerage network.											
Adequacy of treatment plant capacity for effluent and sullage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Quantum of sullage and effluent that can be treated at primary treatment plants as percentage of normative sullage and effluent collected by settled sewer or drains (unsafe way).											
Adequacy of septage treatment capacity	0%	0%	0%	118%	107%	100%	100%	99%	98%	98%	97%
Quantum of septage that can be treated at faecal sludge treatment plant as percentage of normative septage generated in city.											

Step-4 Financial Planning

Integrated approach for FINANCIAL PLANNING

Assess aggregate funding demand from all improvement actions

Financial implications of each Improvement action

- Capital expenditure
- Revenue generation
- Operating and maintenance expenditure
- Effect of inflation based on phasing

Aligning both these financial streams to evolve sustainable 'Financing Plan'

External sources of funds

Exploring funding pattern possible for each improvement action

Internal sources of funds

Exploring options to increase revenue from own income sources

Assess financial health and extent of revenue surplus available

Municipal finances of urban local bodies

- Past trends of municipal finances
- Forecasting for finances for Business as Usual scenario

Funding requirement for improvement action

Summary of improvement actions

Click to view Phasing, CapEx or OpEx

IMPROVEMENT ACTIONS

Sector colour code FSM and Wastewater

SUMMARY OF CAPITAL EXPENDITURE

Click here to view **Summary of** ○ PHASING ◉ CAPEX PLAN ○ O&M PLAN

Actions	Type	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Policy for providing sanitation services in slums	Process/ Policy										
Improve condition of existing individual toilets by providing safe sanitation	Exisiting system	64									
Improve condition of existing Community toilets	Exisiting system	23	25	26							
Construct new individual toilets	New infrastructure	198	212	226	242	259					
Construct new public toilet blocks	New infrastructure	11	12								
Increase septage collection with existing suction emptier trucks	Exisiting system										
Procure new suction emptier trucks	New infrastructure	24									
Construct/augment fecal sludge treatment plant	New infrastructure	45	48								

Select Sources of Funds for Capital Expenditure

IMPROVEMENT ACTIONS

Sector colour code FSM and Wastewater

SOURCES OF FUNDS FOR CAPITAL EXPENDITURE

Against each action, mention percentage share of funding possible through either of these funding sources (%)

NOTE: RE-ENTER INPUTS IN THIS TABLE EACH TIME ACTIONS ARE ACTIVATED OR DEACTIVATED

Actions	Type	Total CapEx	Central Grants	State Grants	Debt	Private/ PPP	Beneficiary	ULB share (% and Rs. lakhs)	
Policy for providing sanitation services in slums	Process/ Policy	0						100%	
Improve condition of existing individual toilets by providing safe sanitation	Exisiting system	64					60%	40%	26
Improve condition of existing Community toilets	Exisiting system	74						100%	74
Construct new individual toilets	New infrastructure	1,137	10%	30%			60%		
Construct new public toilet blocks	New infrastructure	23				100%			
Increase septage collection with existing suction emptier trucks	Exisiting system	0						100%	
Procure new suction emptier trucks	New infrastructure	24				100%			
Construct/augment fecal sludge treatment plant	New infrastructure	93			50%			50%	47

Snapshot of setting tariff structures in SANIPLAN

Revision in tariffs for revenue enhancement to meet funding requirement of capital expenditure, operating expenditure & debt servicing.

Tabular boxes for setting of tariffs sector-wise

TARIFFS FOR FSM AND WASTEWATER SERVICES — Click: Back to WSS O&M Plan

3. Wastewater tax based on flat rate

Are wastewater charges based on flat rate levied presently by ULB?				NO		Mode of charging			Flat rate/unit	
						-			0	
If No, and if planned to levy then start it from which year?			Year	2015		Number of properties			200	
Percentage increment in flat rate based user charges	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
					20%		20%	20%	20%	

4. Wastewater tax linked to general property tax

Is property tax linked wastewater tax levied presently by ULB?					NO			% of general property tax		
								0.0%		
If No, and if planned to levy then start it from which year?				Year						
Revised percentage of general property tax for wastewater tax	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024

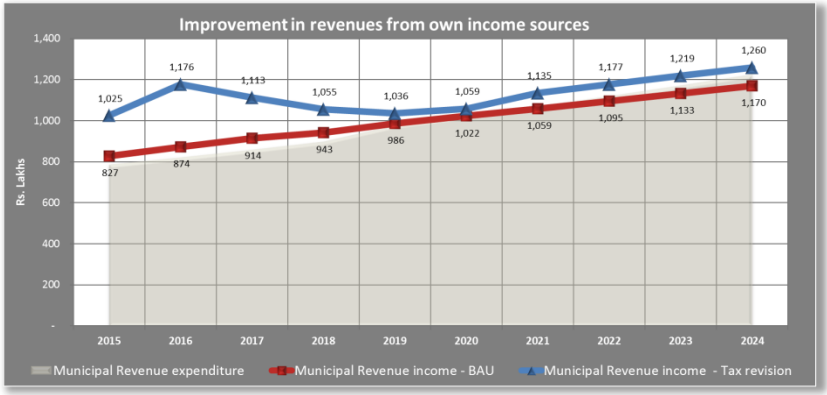
5. Septic tank emptying charges

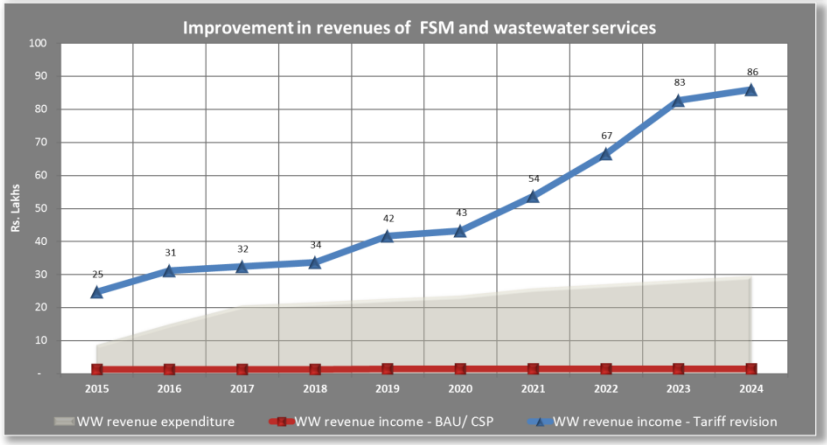
Does the city provide septic tank emtying service				No		Mode of charging			Flatrate/unit	
						-			0	
If No and if planned to levy, then start it from which year?			Year	2017		Annual charge for scheduled emptying				
If Yes and charged at time of emptying, when does the city plan to charge annually and provide scheduled emptying			Year			Annual charge for scheduled emptying				
Percentage increment in flat rate based user charges	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024

6. Sewerage user charges

Is sewerage user charges levied presently by ULB?					NO			Rs/connection/annum		
								0		
If No, and if planned to levy then start it from which year?				Year						
Percentage increment in user charges	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
				20%			20%			

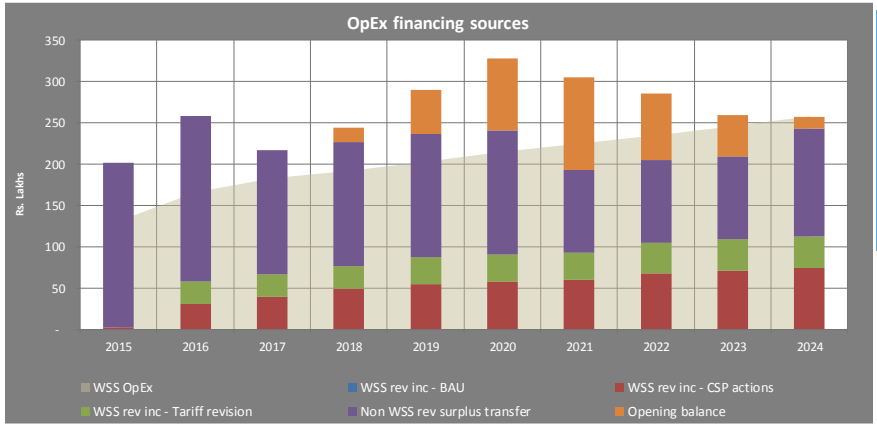
Visual display of impact on revenues





Snapshot of CapEx and OpEx plan summary in SANIPLAN

FSM AND WASTEWATER OPERATING PLAN

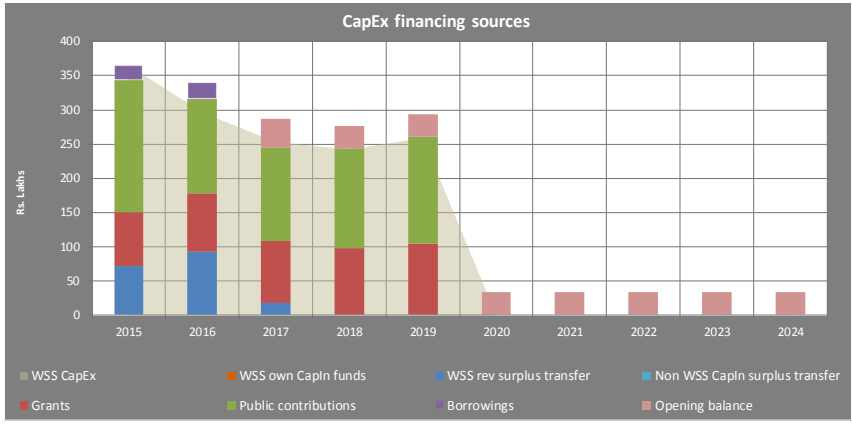


Snapshot of Operating plan summary and tariff structures

REVIEW OF TAXES AND CHARGES

Average tax demand (per household per annum)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Property tax	1156	1156	1156	1156	1156	1156	1156	1156	1156	1156	1156
Wastewater tax	0	0	0	0	0	0	0	0	0	0	0
Annual septic tank emptying charges	0	0	300	300	300	330	330	330	363	363	363
Sewerage tax	0	0	0	0	0	0	0	0	0	0	0
Annual demand from HHs depending on septic tanks	1156	1156	1456	1456	1456	1486	1486	1486	1519	1519	1519
Annual increment	-	0%	26%	0%	0%	2%	0%	0%	2%	0%	0%
Operating ratio feasible :-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

FSM AND WASTEWATER CAPITAL PLAN



Snapshot of Capital plan summary and external sources of funds

REVIEW OF EXTERNAL FUNDING

Sources of funds	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Already approved Capln	0	0	0	0	0	0	0	0	0	0	**0**
Internal fund transfers for CapEx	71	92	17	0	0	0	0	0	0	0	**180**
Grant-in-aids	79	85	91	97	104	0	0	0	0	0	**455**
Private contributions	192	139	136	145	155	0	0	0	0	0	**767**
Borrowings	23	24	0	0	0	0	0	0	0	0	**47**
Debt servicing requirement	0	2	5	5	7	9	8	8	7	7	**57**
DSCR feasible :-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-

SANIPlan Dashboard

Sanitation options for comparison

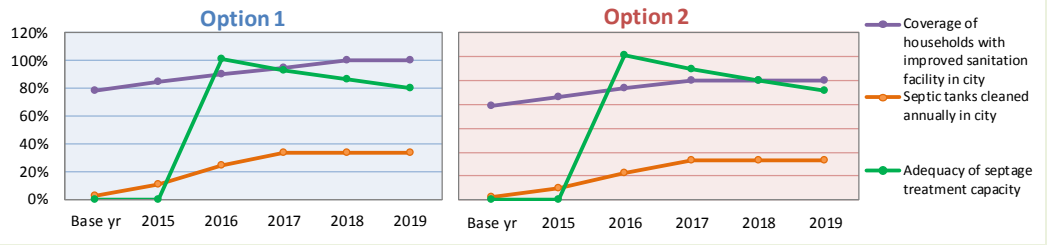
Create your options by selecting appropriate mode to improve coverage of toilets, wastewater management and financing mechanism

Select Toilet option	Individual toilets	Individual toilets	Select Toilet option
Select Conveyance regime	Regulated- 3 yrs	Regulated- 3 yrs	Select Conveyance regime
Select Treatment technology	SDB	Sintex Package treatment Plant	Select Treatment technology
Select financing mechanism	Innovative finance	Innovative finance	Select financing mechanism

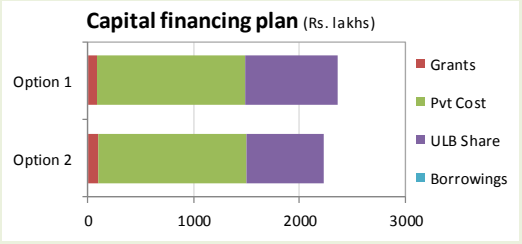
	Option 1	Option 2
Toilet	Individual toilets	Individual toilets
Conveyance	Regulated- 3 yrs	Regulated- 3 yrs
Treatment	SDB	Sintex Package treatment Plant
CapEx	2161.59	2177.36
O&M	19.91	29.15

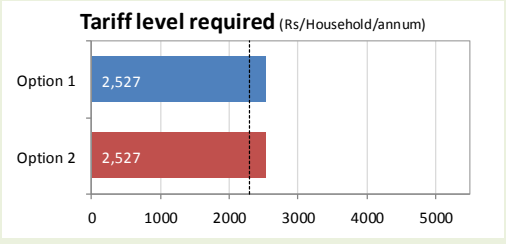
All figures are in Rs. Lakhs

Impact on service levels



Financial implications





Summary of Action plan

Select mode: CAPITAL EXPENDITURE

Option 1	2015	2016	2017	2018	2019
Improve existing individual toilets	168.5	180.3	-	-	-
New individual toilets	292.8	313.2	335.2	358.6	383.7
Increase septage collection with	0.7	0.7	0.8	-	-
New suction emptier trucks	10.0	10.7	11.4	-	-
Fecal sludge treatment plant	95.0	-	-	-	-

Option 2	2015	2016	2017	2018	2019
Improve existing individual toilets	170.3	182.2	-	-	-
New individual toilets	292.8	313.2	335.2	358.6	383.7
Increase septage collection with	0.7	0.7	0.8	-	-
New suction emptier trucks	10.0	10.7	11.4	-	-
Fecal sludge treatment plant	107.0	-	-	-	-

SaniPlan Dashboard: Compare Options (1/2)

SANIPLAN Dashboards for IFSM enable easy selection and comparison of a set of options during a stakeholder consultation.

Users can choose across: a) toilet coverage, b) Conveyance mechanism c) treatment options and d)financing.

The dashboards compare their impacts on a) expenditure requirements, b) service performance, and c) financial implications.

The graphic illustrates a comparison - between septage treatment options - for a small town; though similar levels of service can be achieved in both options, Sludge Drying Bed (SDB) treatment option -comes out as economical and with low O&M cost.

Sanitation options for comparison

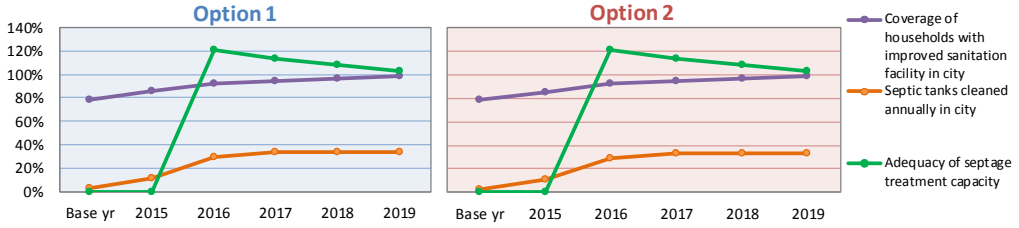
Create your options by selecting appropriate mode to improve coverage of toilets, wastewater management and financing mechanism

Select Toilet option	Individual + Community toilets	Individual + Community toilets	Select Toilet option
Select Conveyance regime	Regulated- 3 yrs	Regulated- 3 yrs	Select Conveyance regime
Select Treatment technology	SDB	Sintex Package treatment Plant	Select Treatment technology
Select financing mechanism	Innovative finance	Innovative finance	Select financing mechanism

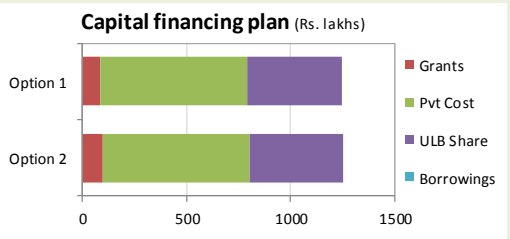
	Option 1	Option 2
Toilet	Individual + Community toilets	Individual + Community toilets
Conveyance	Regulated- 3 yrs	Regulated- 3 yrs
Treatment	SDB	Sintex Package treatment Plant
CapEx	1185.55	1196.11
O&M	22.39	31.63

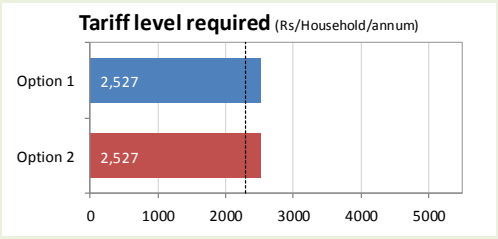
All figures are in Rs. Lakhs

Impact on service levels



Financial implications





Summary of Action plan

Select mode: CAPITAL EXPENDITURE

Option 1	2015	2016	2017	2018	2019
Improve existing individual toilets	170.3	182.2	-	-	-
Improve existing Community toilets	4.2	4.5	-	-	-
New individual toilets	107.0	114.5	122.5	131.1	140.3
New community toilet blocks	38.5	41.2	-	-	-
Increase septage collection with	0.7	0.7	0.8	-	-
New suction emptier trucks	10.0	10.7	11.4	-	-
Fecal sludge treatment plant	95.0	-	-	-	-

Option 2	2015	2016	2017	2018	2019
Improve existing individual toilets	170.3	182.2	-	-	-
Improve existing Community toilets	4.2	4.5	-	-	-
New individual toilets	106.8	114.2	122.2	130.8	139.9
New community toilet blocks	38.5	41.2	-	-	-
Increase septage collection with	0.7	0.7	0.8	-	-
New suction emptier trucks	10.0	10.7	11.4	-	-
Fecal sludge treatment plant	107.0	-	-	-	-

SaniPlan Dashboard: Compare Options (2/2)

As compared to previous scenario of individual toilets, option of individual and community toilets are low in capital expenditure but has high lifecycle cost.

Thank you

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