

SUMMARY OF PIP ACTION PLAN

Print

Key Performance Indicators

Financial Summary

Action Plan Summary

Summary details

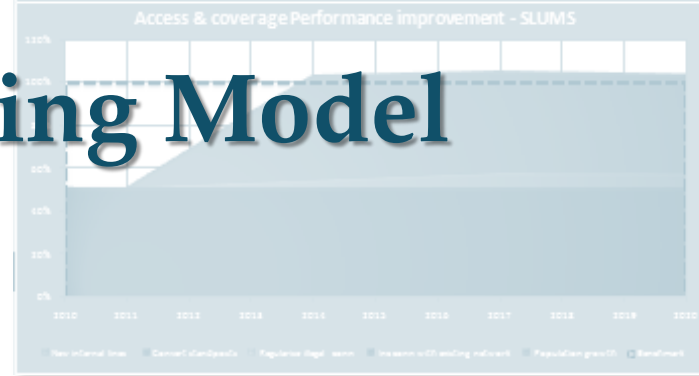
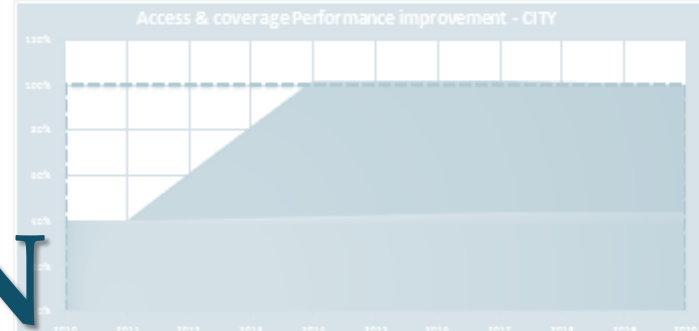
CAPEX O&M PHASING ONLY

Summary of O&M expenditure

Actions	Type	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Regularising unauthorized connections	Existing system											0.0
Laying new distribution network lines	New infrastructure				101.1							823.1
Laying internal infrastructure lines in slum settlements	New infrastructure											0.0
Reduction of losses in Trunk main transmission	Existing system											0.0
Reduction of losses in Treated water transmission	Existing system											0.0
Improvement in distribution network	Existing system											0.0
Reduction in free connections	Existing system											0.0
Increasing continuity of water supply services	Existing system											0.0
Water augmentation - Down surface water	New infrastructure											16.2
Augmentation of Water Treatment plant capacity	New infrastructure											54.3
Augmentation of water storage capacity	New infrastructure											101.5
Improvement in collection efficiency of water supply charges & taxes	Existing system											0.0
Other measures to optimise power & energy expenses	Existing system											0.0

SANIPLAN

A City Sanitation Planning Model



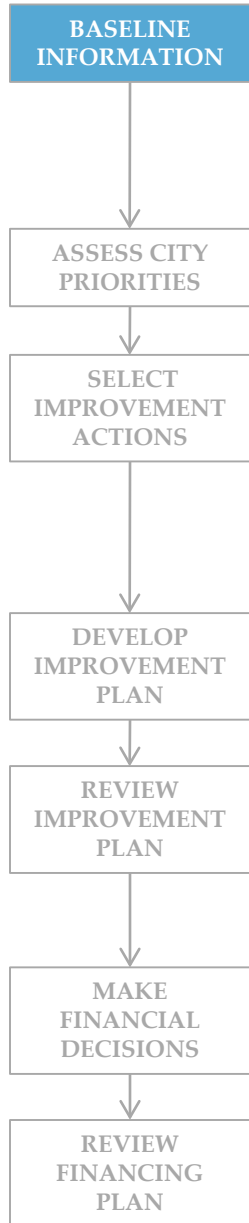
Application for a small town - Sinnar

WATER SUPPLY SERVICES	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Coverage of individual household connections	88%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
Coverage of individual household connections in slums	51%	60%	68%	75%	80%	85%	90%	95%	99%	99%	99%
Per Capita supply of water at consumer end	lpcd	53	54	57	60	64	67	67	67	66	65
Continuity of water supply	hours	4.00	4.00	10.67	17.33	24.00	24.00	24.00	24.00	24.00	24.00
Extent of Non revenue water	%	37%	35%	30%	26%	20%	16%	15%	14%	14%	14%
Extent of metering of water connections	%	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%
Quality of water supplied	%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Efficiency in redressal of customer complaints	%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
Efficiency in collection of WS charges	%	85%	85%	88%	90%	93%	95%	98%	100%	100%	100%
Cost recovery in WS services	%	90%	88%	90%	90%	82%	82%	78%	83%	84%	83%



Sinnar City Profile

City Profile



- The city lies on the golden triangle Mumbai-Pune-Nashik.
- 2 industrial estates set up by MIDC in mid 90's viz; Malegaon and Musalgaon housing mainly small manufacturing units
- Population grew by more than 100% between 2001 and 2011
- Proximity to Shirdi, a religious centre
- Finds historical mention in Mughal and Maratha records, currently headquarters of Sinnar taluka

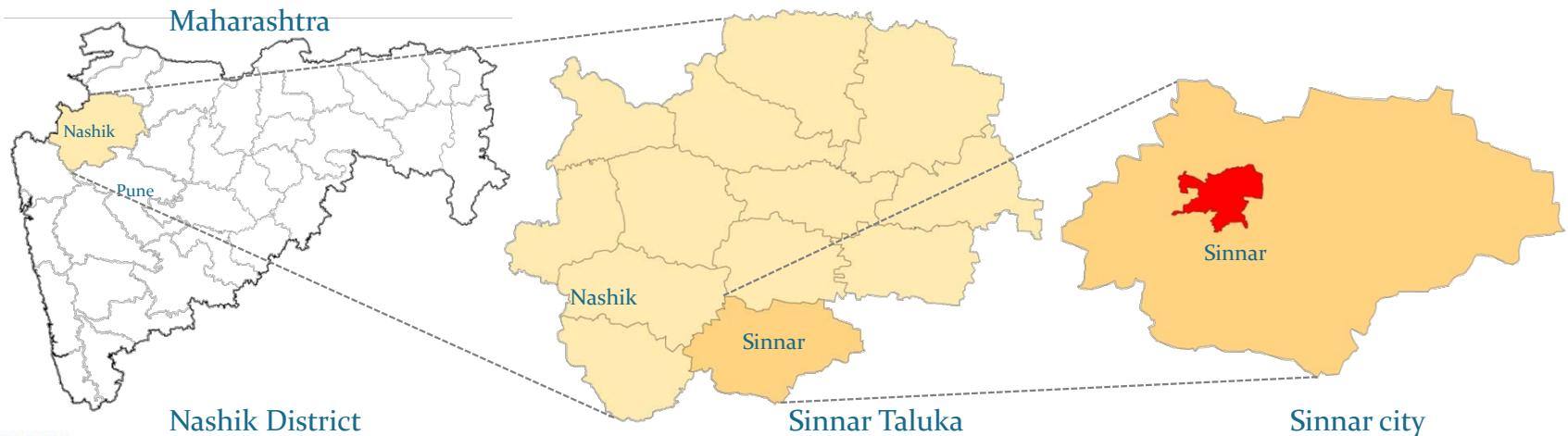
Administrative Details

Civic status	Class C Municipality
Area	51.4 sq kms.
Location	30 Km from Nashik
Administrative Divisions	6 Prabhags 23 wards

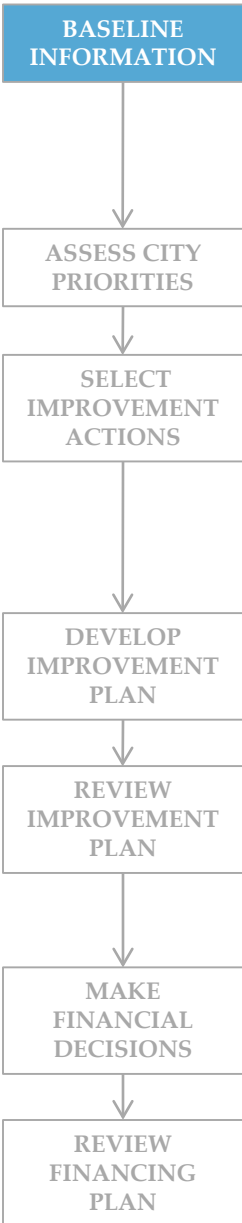
Demography

Population (No)	65,251
Households (No)	13112
Slum Population	5445 (8%)
HHs in slums (No)	1417

Location and regional settings



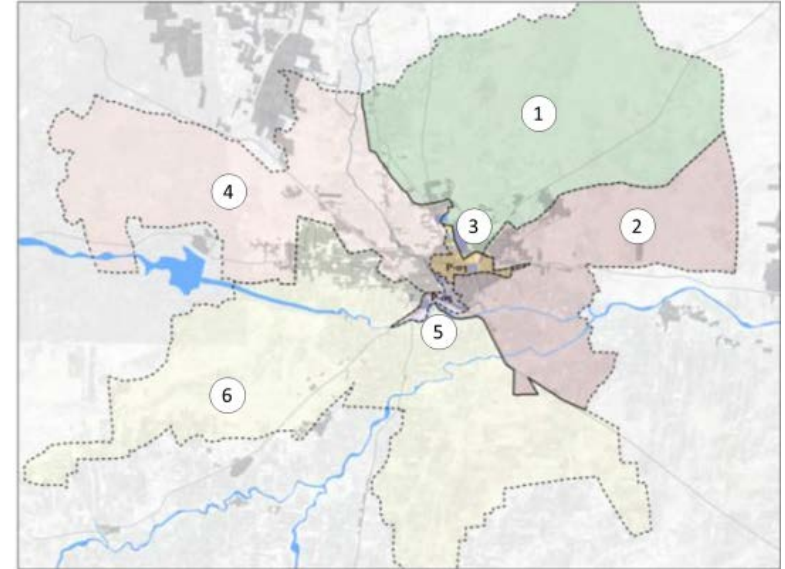
City Profile



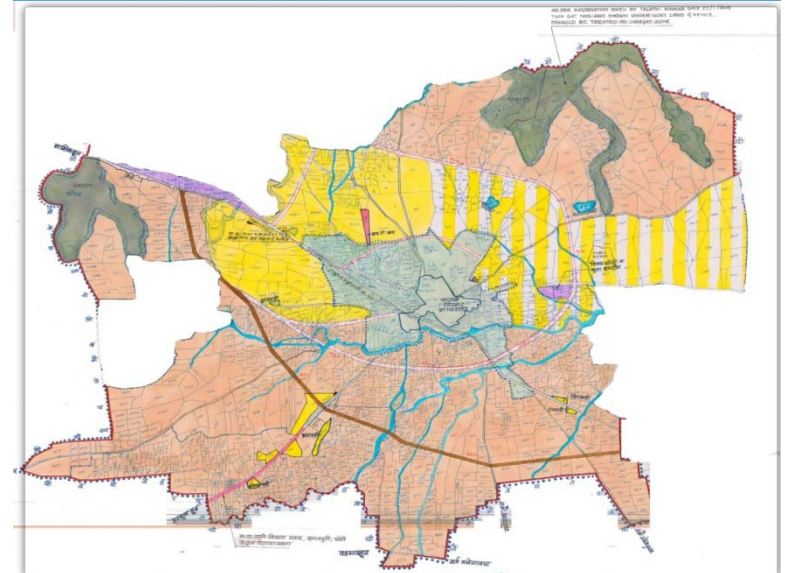
Sr. no.	Prabhag Name	Area (Sq km)	Population (2011)	HHs
1	Kandimala/ Gondeshwar Temple	12.1	10,943	2,377
2	Vijay Nagar/ Londhe Galli	7.4	12,211	2,406
3	Khadak Pura / Ganga Ves	2.8	6,579	2,003
4	Udyog Bhavan /I.T.I	10.1	13,659	2,414
5	Shivaji Chowk / Tanaji Chowk	2.7	6,373	1,939
6	Pachore Mala / Shivaji Nagar / Maruti Temple	16.3	15,486	1,973
Total		51.4	65,251	13,112

Municipal Area extended from 5 sq km to 51 sq km in 2009.

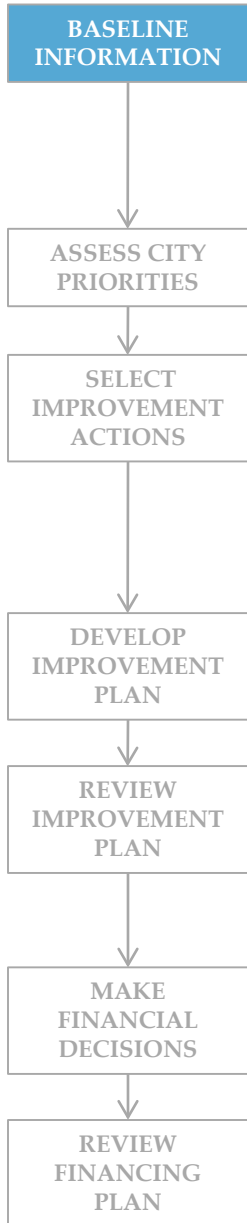
Administrative Divisions



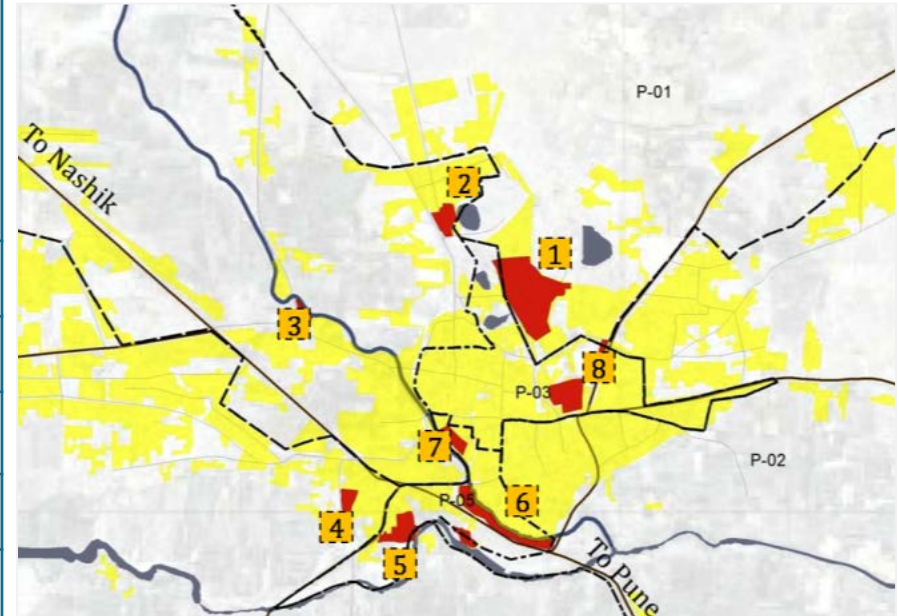
Development Plan



City Profile



Sr. No	Slum name	Population	HHs
1	Makadwadi, Waiduwadi, Joshiwadi, Bhairavnathnagar	1405	611
2	Talwadi	930	186
3	Devi road	490	98
4	Bhoigalli	260	50
5	Tambeshwar nagar	395	79
6	Apnagarage	960	192
7	Satpirbhilati	170	34
8	Indiranagar	835	167

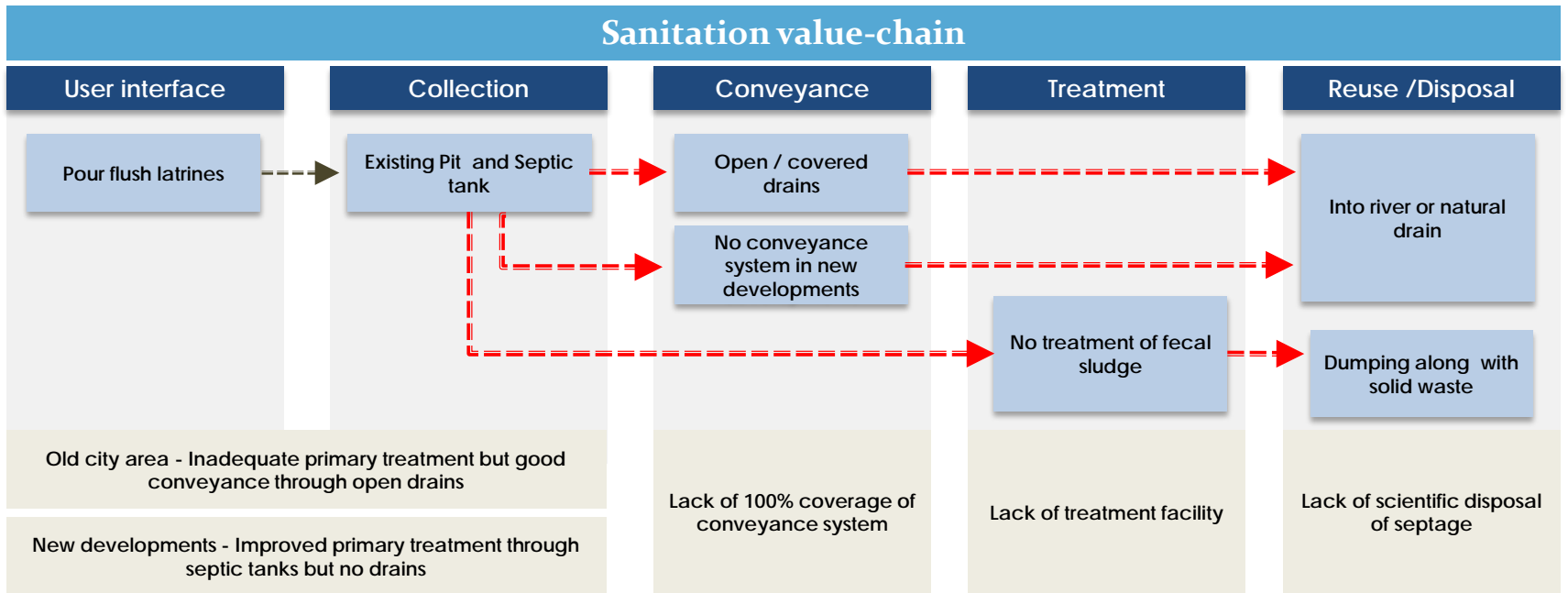
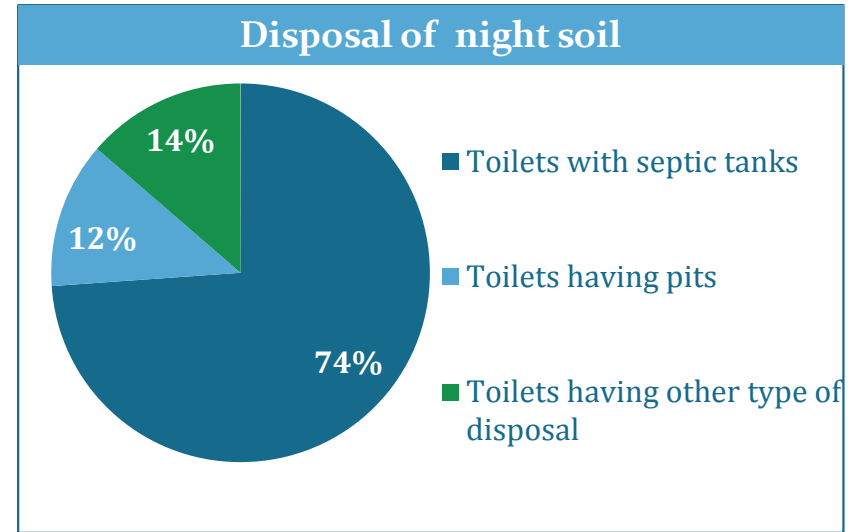
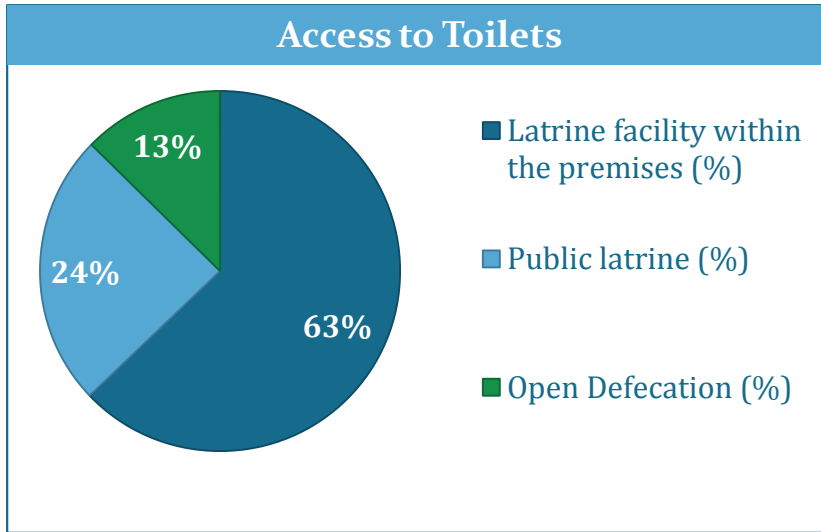
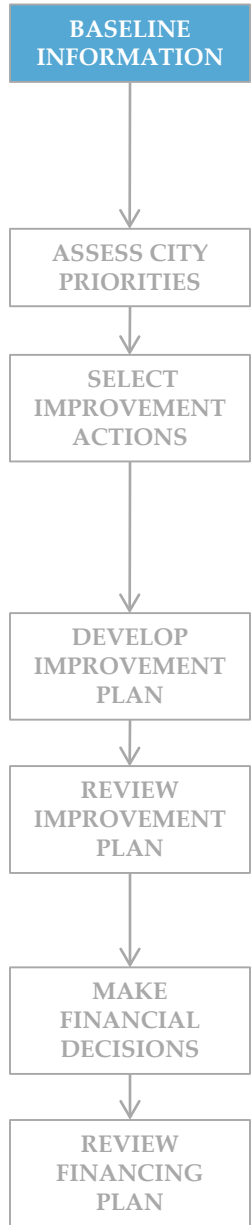


8 slum pockets constituting 8.3% of the total population



Sanitation

Sanitation



---> Missing links

Sanitation

BASELINE
INFORMATION

USER INTERFACE

COLLECTION/ STORAGE

CONVEYANCE

TREATMENT/ DISPOSAL

ASSESS CITY
PRIORITIES

SELECT
IMPROVEMENT
ACTIONS

DEVELOP
IMPROVEMENT
PLAN

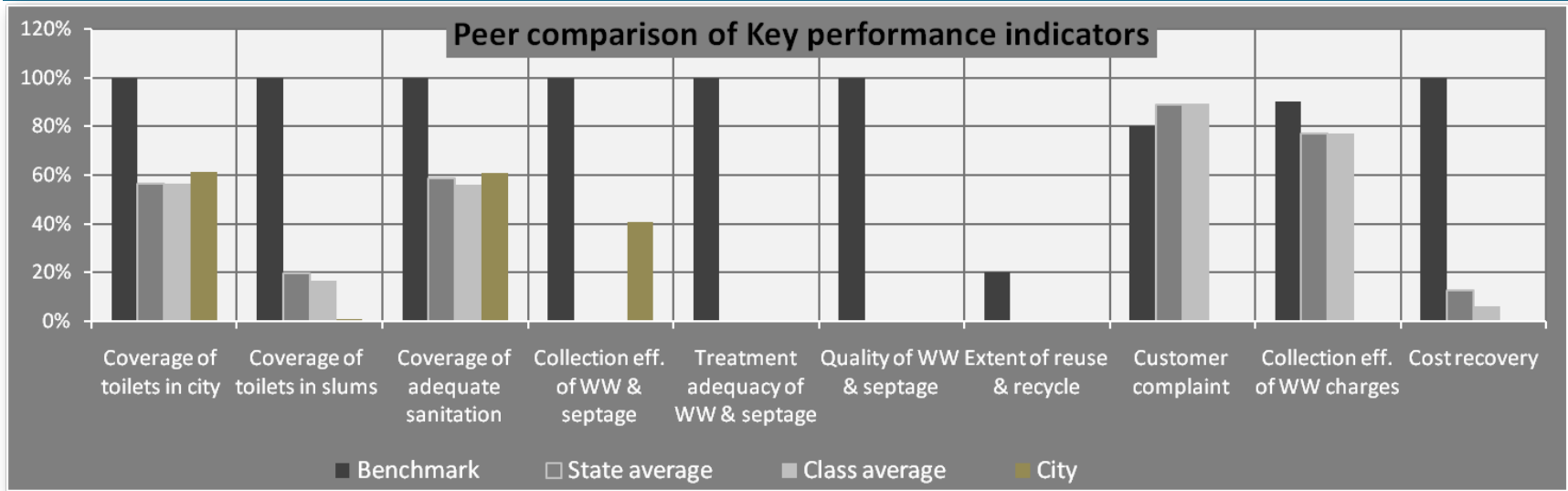
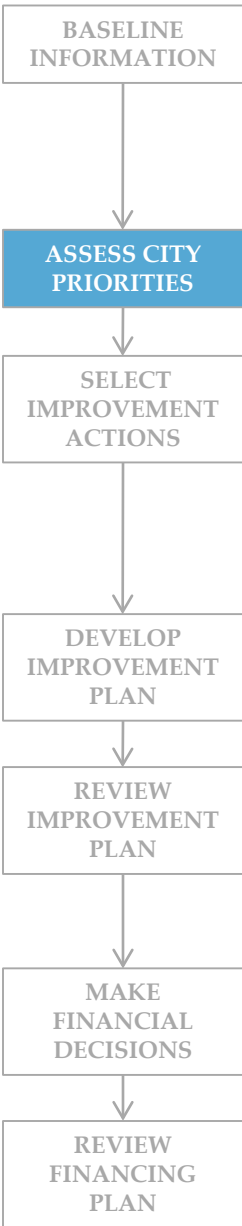
REVIEW
IMPROVEMENT
PLAN

MAKE
FINANCIAL
DECISIONS

REVIEW
FINANCING
PLAN



Sanitation



Access & Coverage

- Individual toilet coverage of city is marginally higher than peer group & State average
- Slum level individual toilet coverage is negligible.
- 18 community and 3 public toilet blocks

Service level & Quality

- Absence of any kind of treatment facility for both waste water and septage
- Only 2% of the septic tanks are cleaned annually

Efficiency in service operation

- No quality tests before disposal of waste water flowing through drains
- No quality tests before disposal of septage on dumping grounds

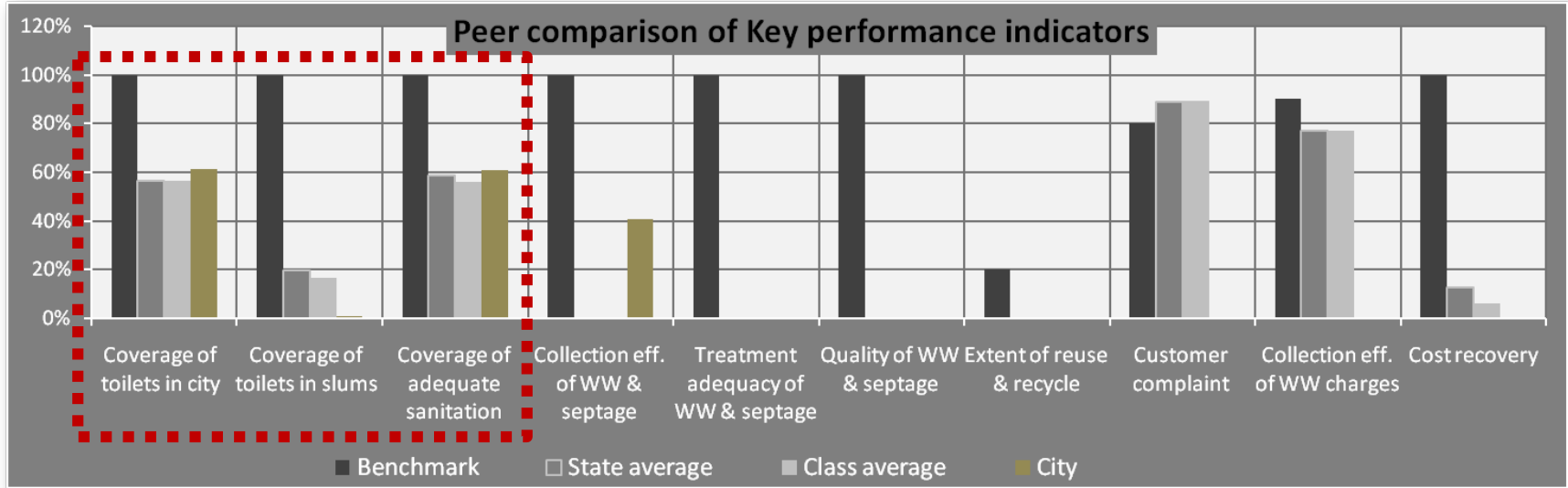
Financial Sustainability

- No charges for sanitation services provided in the city. Only source is septic tank cleaning charges

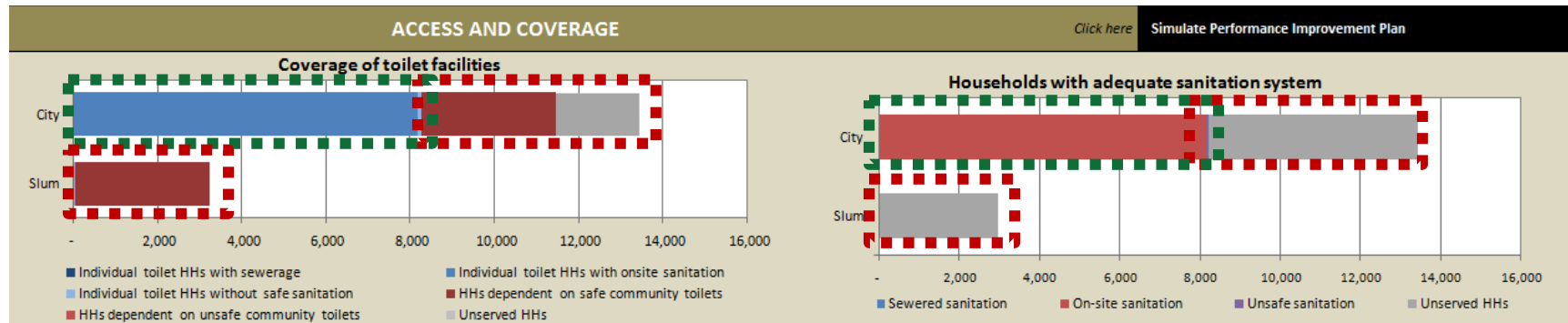
The city is non – sewerd, so majority of sewerage indicators are not generated

Sanitation

High dependence on community toilets



Effluent from septic tanks let off in un-scientific ways.



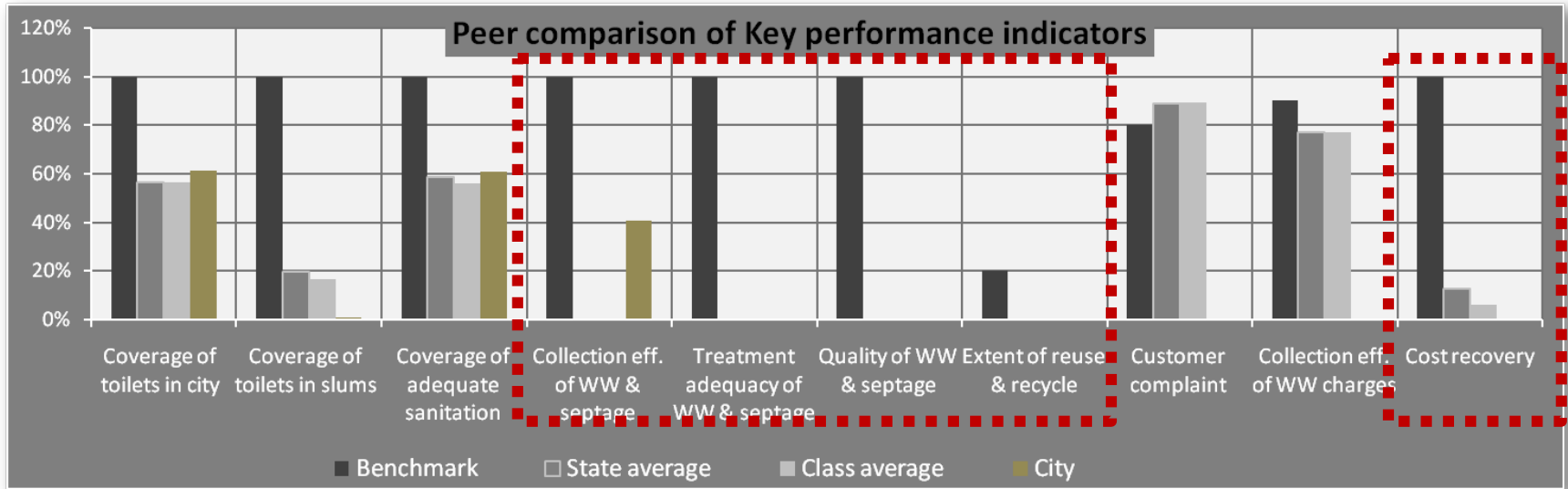
Households having latrines

Households not having latrines

Toilets having sanitary disposal system

Toilets not having sanitary disposal system

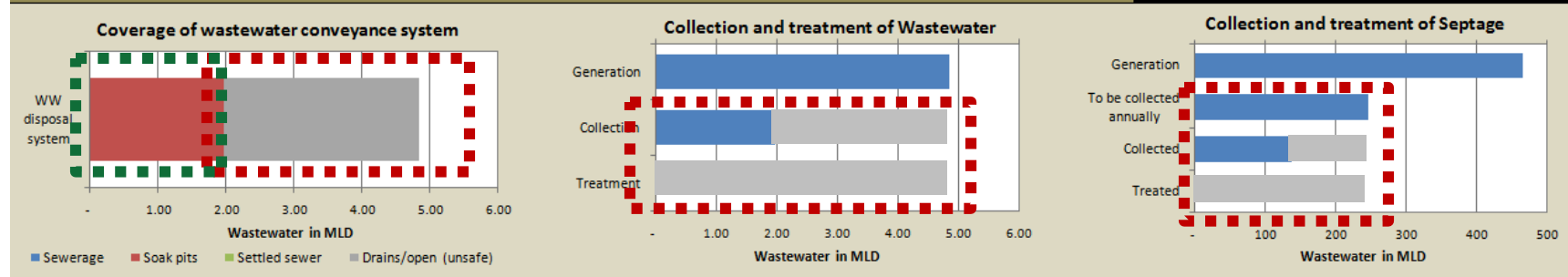
Sanitation



No waste water or septage treatment facility

No tax to recover costs incurred for the service

SERVICE LEVELS AND QUALITY [Click here](#) [Simulate Performance Improvement Plan](#)

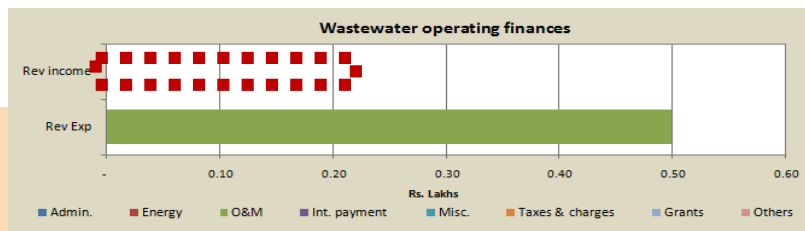


Waste water collected into soak-pits

Waste water conveyed through open/closed drains, no treatment

Only part of septage is collected, and none treated

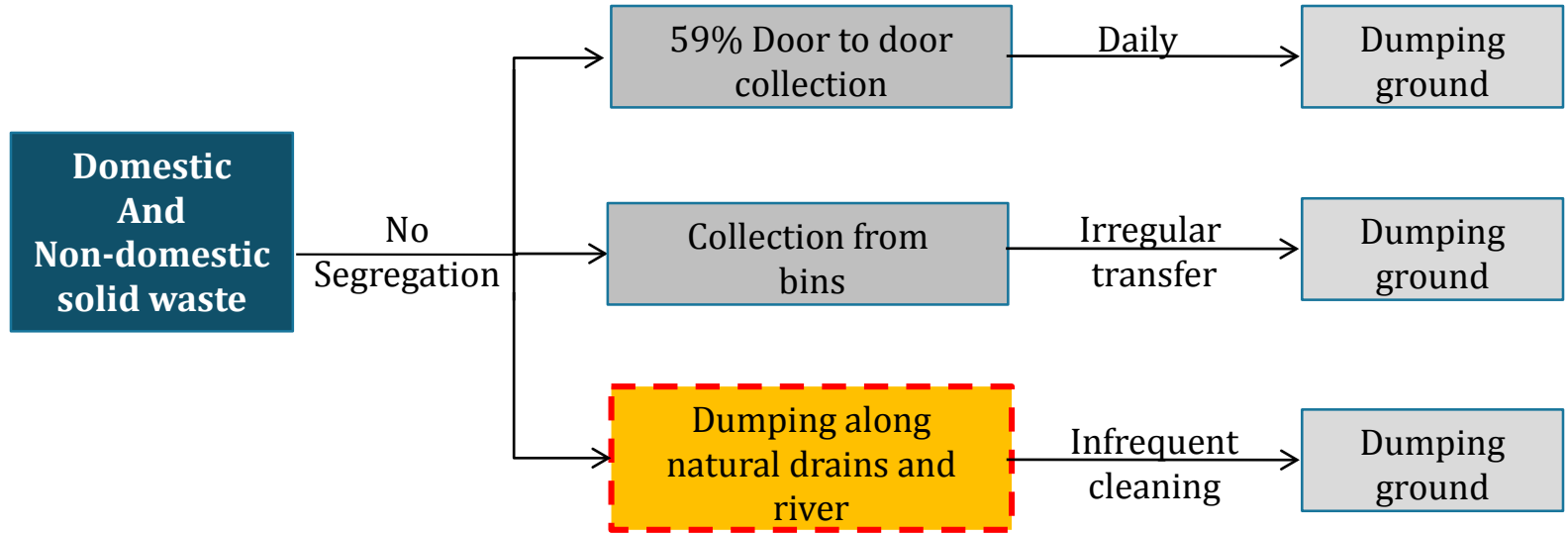
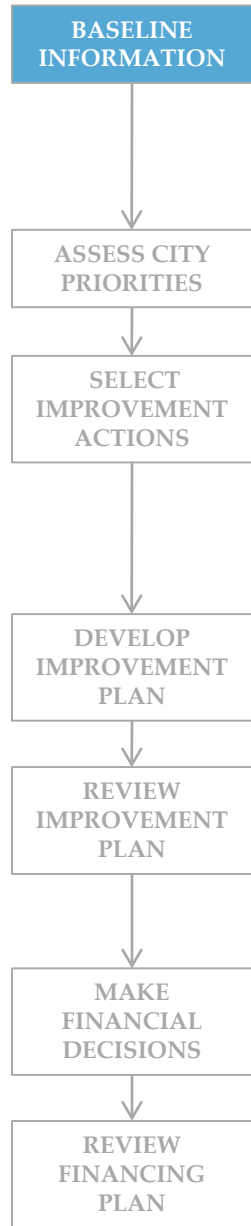
No revenue stream for sanitation





Solid Waste Management

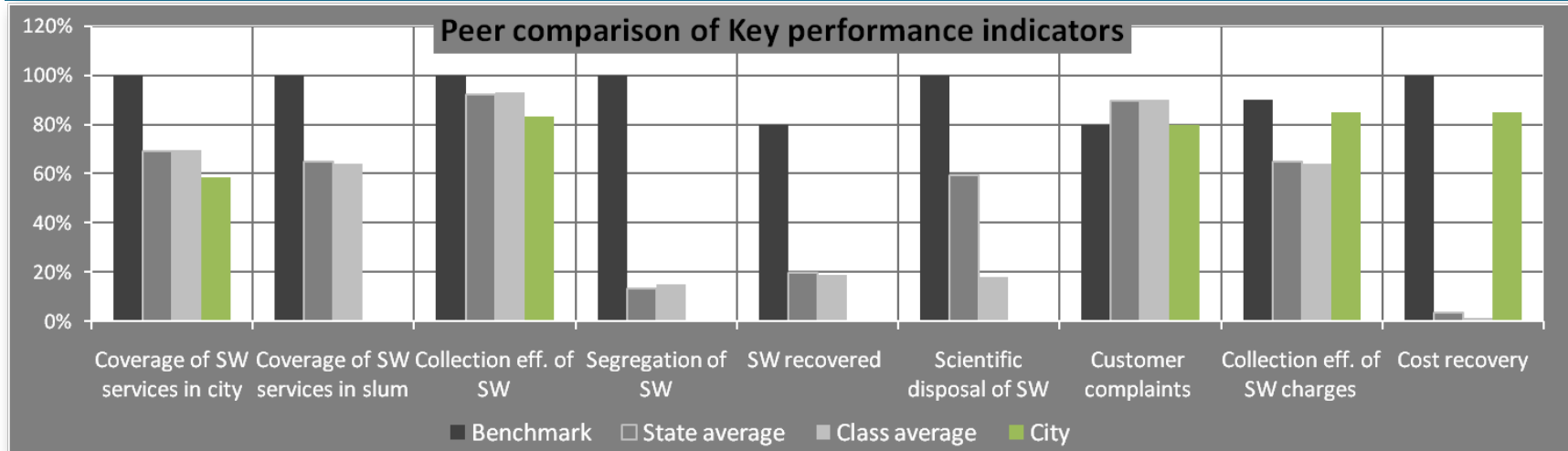
Solid Waste Management



Data related to source wise generation of waste i.e. domestic, commercial, market, etc. is not available



Solid Waste Management



BASELINE INFORMATION

ASSESS CITY PRIORITIES

SELECT IMPROVEMENT ACTIONS

DEVELOP IMPROVEMENT PLAN

REVIEW IMPROVEMENT PLAN

MAKE FINANCIAL DECISIONS

REVIEW FINANCING PLAN

Access & Coverage

- HH level Door to Door coverage of city is less than peer group & State,
- D-D collection services are not provided in slums

Service level & Quality

- No segregation of waste
- Composting plant non functional due to management issues

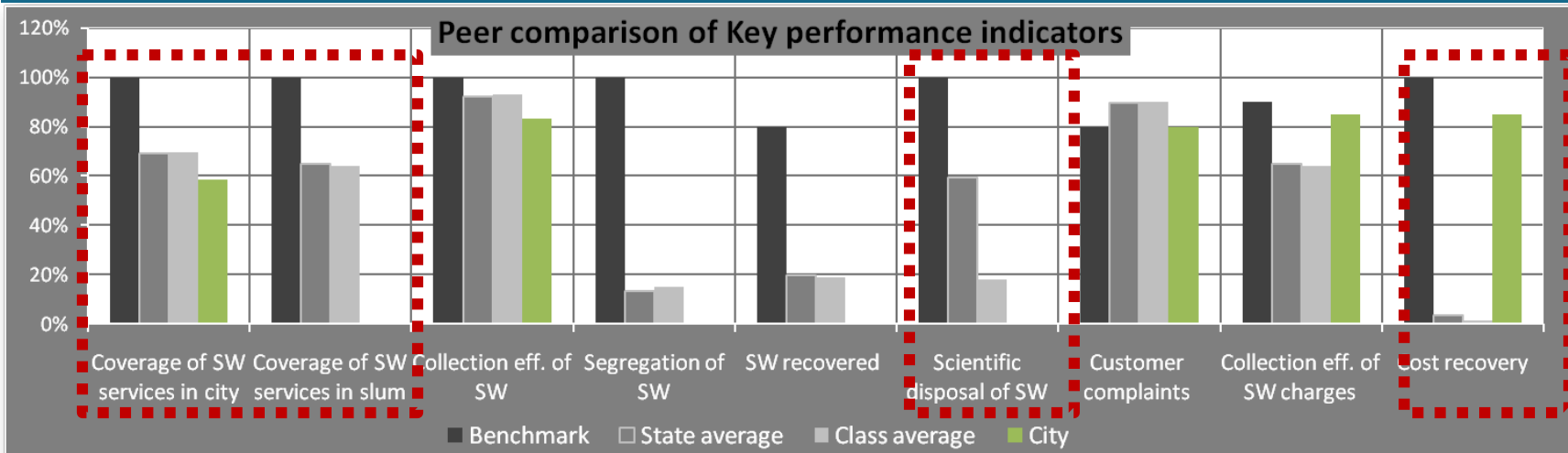
Efficiency in service operation

- Dumping of solid waste in the dumping grounds

Financial Sustainability

- Collection efficiency and cost recovery both better than state average and peer group average.

Solid Waste Management

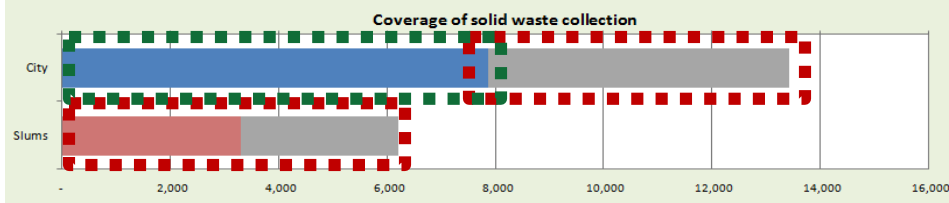


No segregation of waste

Crude dumping of most of the collected waste

No tax to recover costs incurred for the service

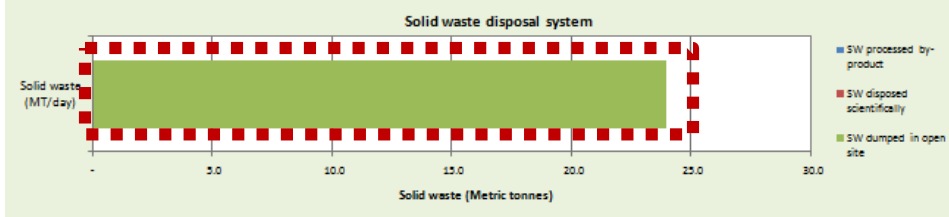
ACCESS AND COVERAGE [Click here](#) [Simulate Performance](#)



Households served by D2D collection system

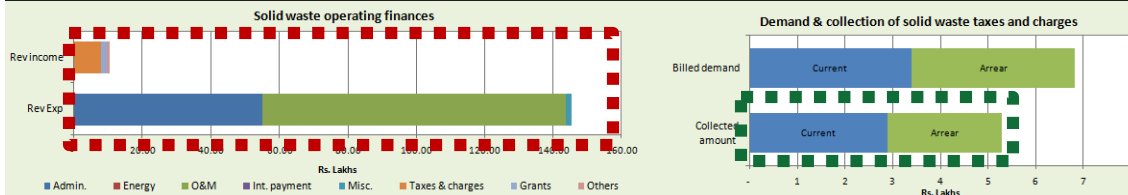
Households not served by D2D collection system of the city

EFFICIENCY IN SERVICE OPERATIONS [Click here](#) [Simulate Performance](#)



Waste dumped without any treatment

FINANCIAL SUSTAINABILITY [Click here](#) [Simulate Performance Improvement Plan](#)



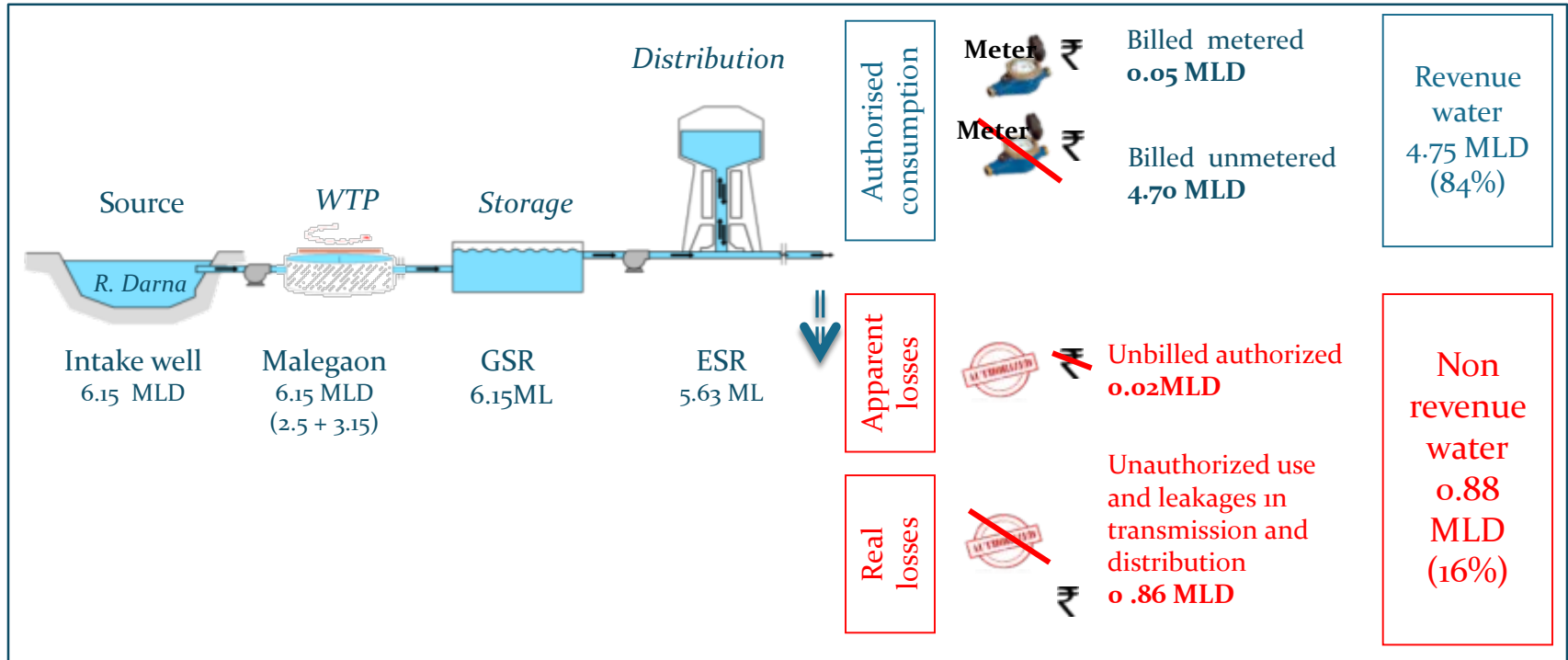
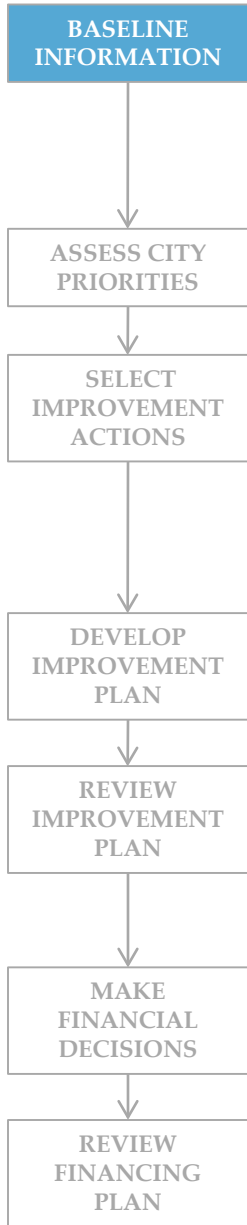
A substantial amount of demand is collected

Compared to operating expenses, receipts are miniscule

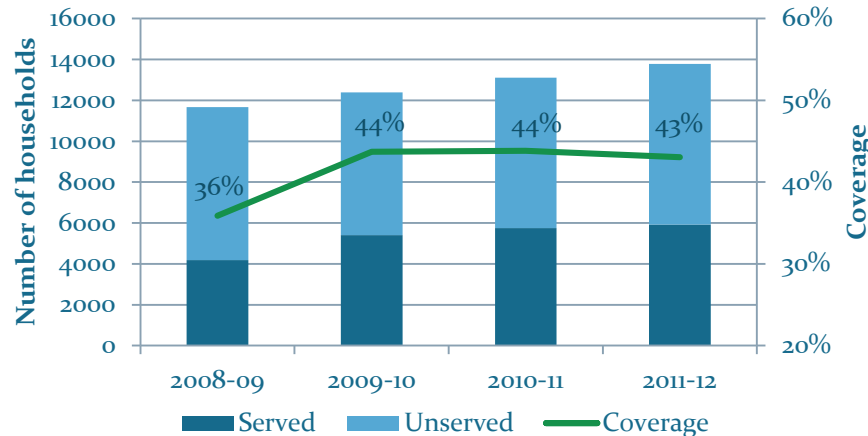


Water Supply

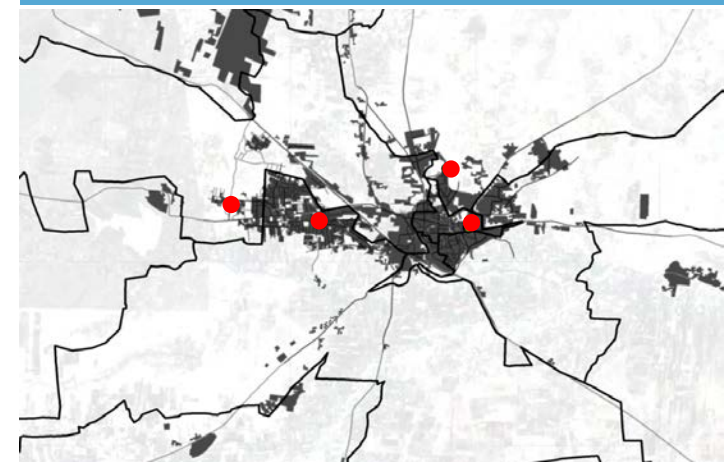
Water Supply



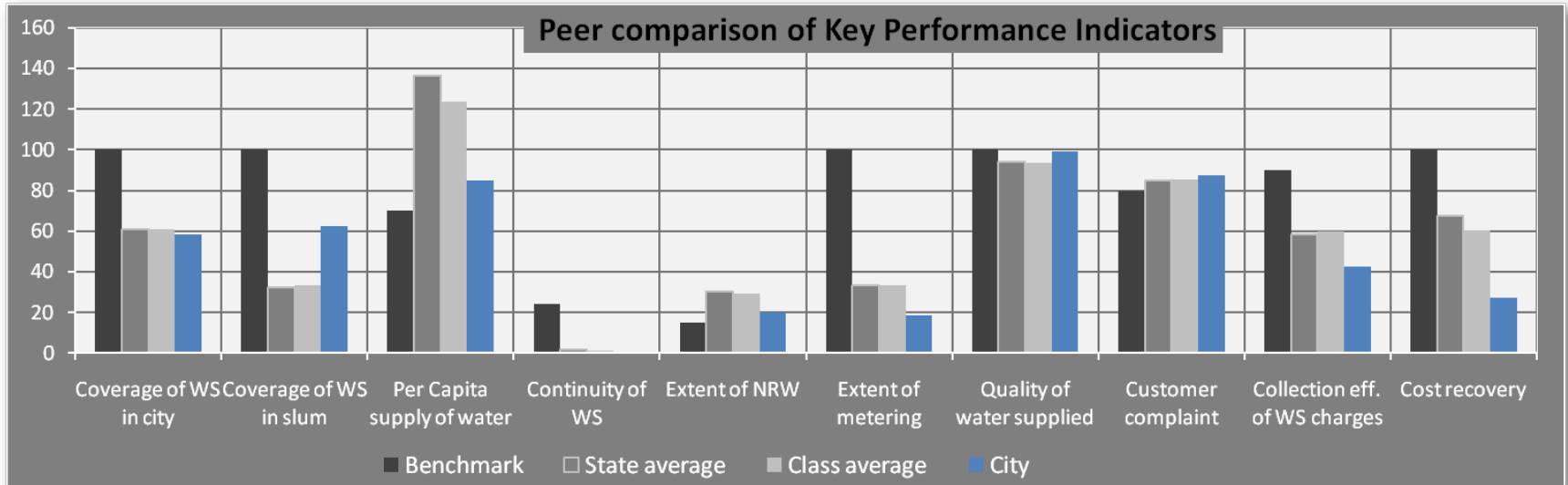
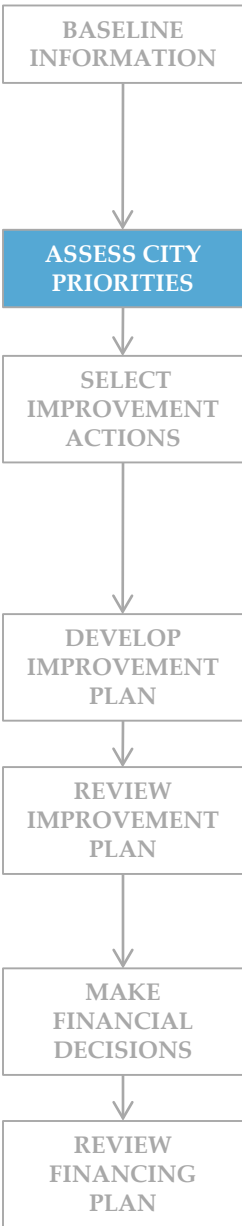
Coverage of WS connections



Location of ESRs



Water Supply



Access & Coverage

- Fares lower than peer average on individual water supply connections
- Slum level coverage is better than peer average and state average

Service level & Quality

- Per capita supply less than state average and peer average
- Water supplied for 45 minutes on alternate days

Efficiency in service operation

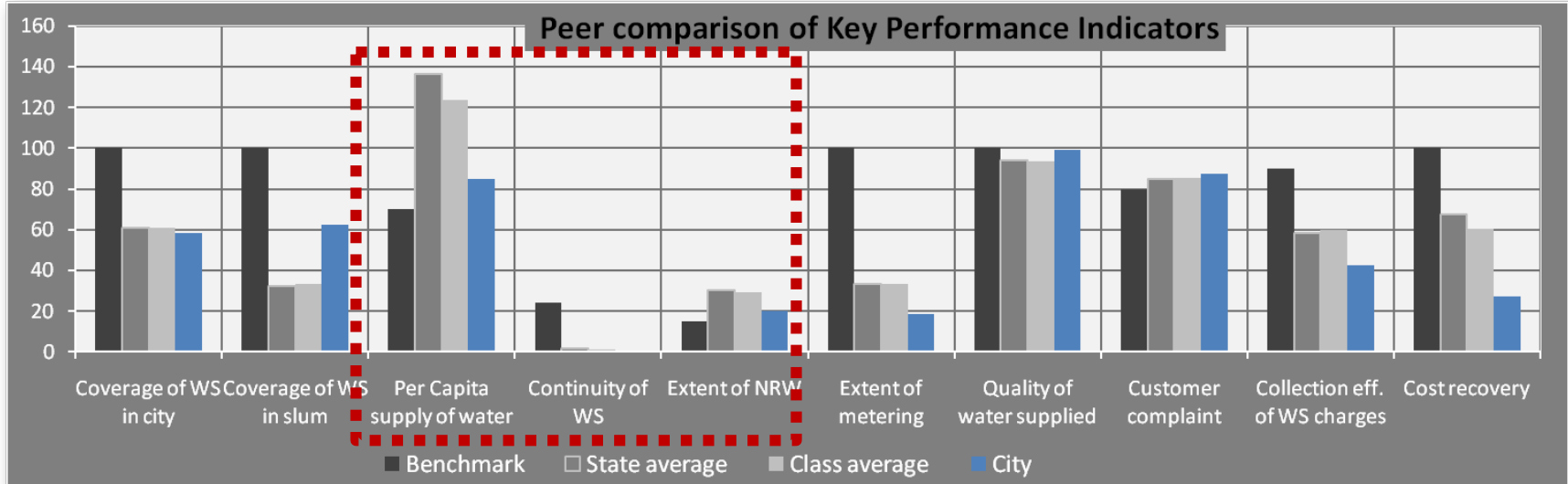
- Has only begun metering water supply connections
- NRW is lower than state and peer group average but higher than benchmark

Financial Sustainability

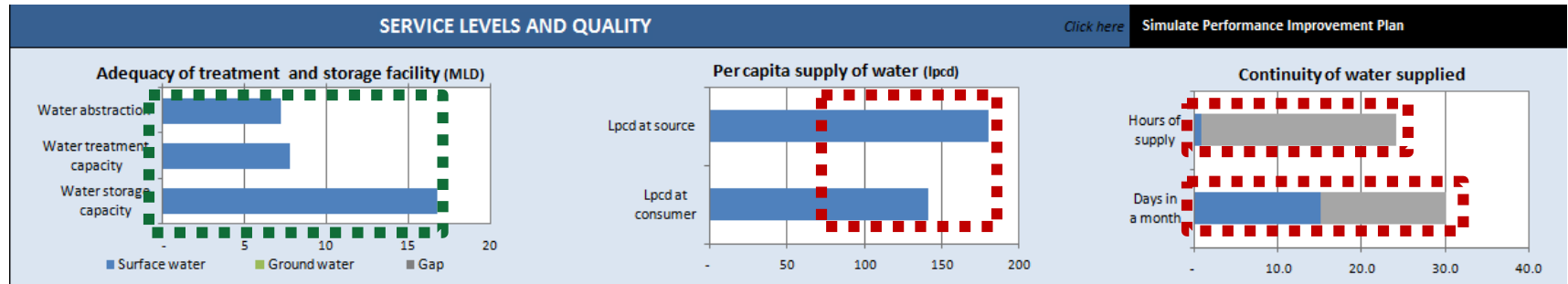
- Both cost recovery and collection efficiency of charges is less than state and class average

Water Supply

Per capita supply at 83 lpcd



Water is supplied on alternate days



Adequate water at source, adequate treatment and storage capacity

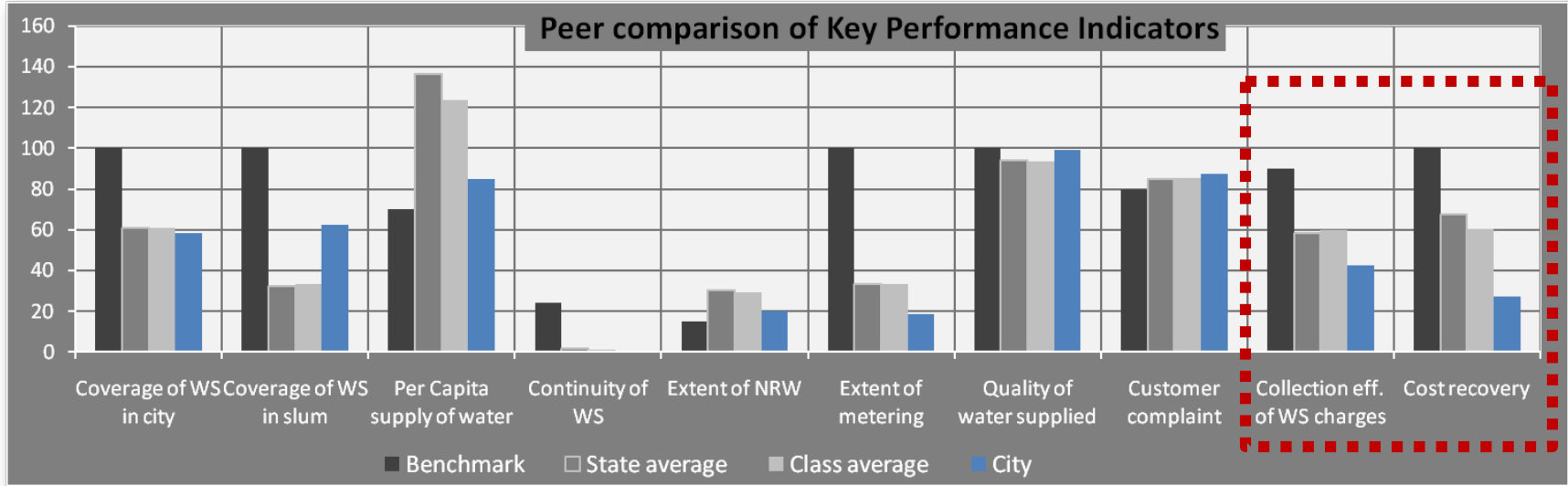
Adequate supply at consumer end

NRW much more than benchmark

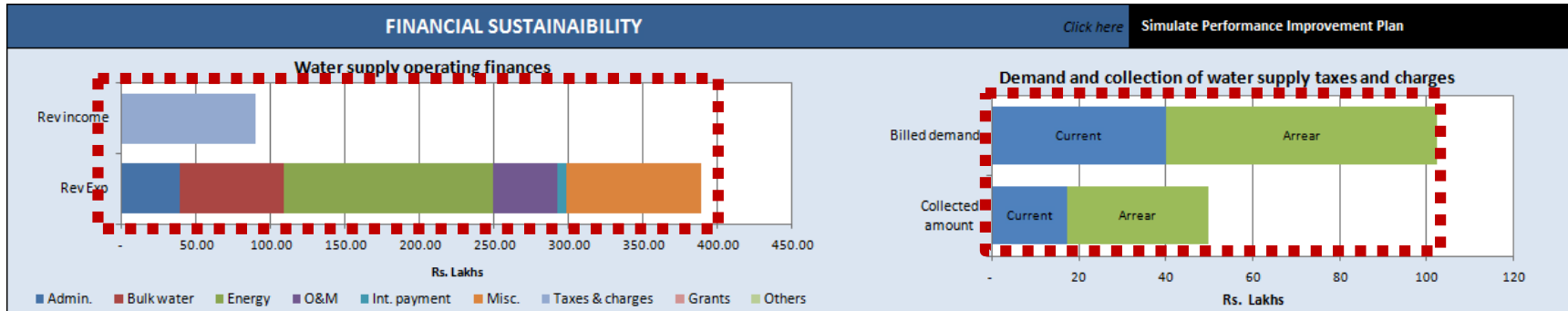
Water is supplied only for 45 mins

Water is supplied on alternate days

Water Supply



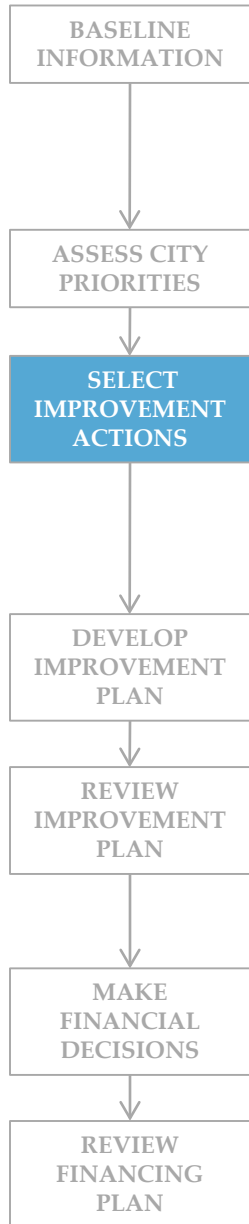
Flat rate tariff of Rs 960 per water connection per annum yet only 27% cost recovery



Revenue receipts are far lesser than operating expenses for water supply services.

Real cost recovery further reduces with low collection efficiency

Summary

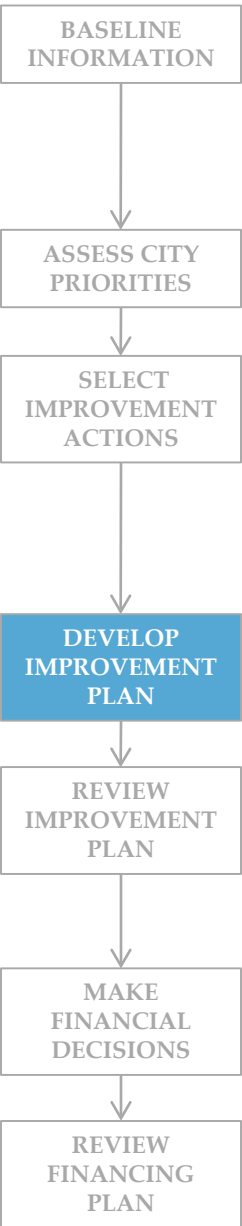


City Priorities		
WATER SUPPLY	WASTEWATER	SOLID WASTE
SECTOR GOALS		
Coverage of individual water supply connection in slum	Coverage of households with individual toilets in slums	Coverage of household level solid waste services in slums
Extent of functional metering of water supply connections	Coverage of households with adequate sanitation system	Extent of segregation of solid waste
Efficiency in collection of water supply charges and taxes	Efficiency of wastewater and septage collection system	Extent of solid waste recovered
Cost recovery in water supply services	Adequacy of wastewater and septage treatment capacity	Extent of scientific disposal of solid waste
	Quality of wastewater and septage treatment	Extent of cost recovery in solid waste services
	Extent of reuse/recycling of treated wastewater and septage	
	Extent of cost recovery in wastewater services	
PLANNING OBJECTIVES		
Household survey to assess water supply services	Household survey to assess wastewater services	Procure equipments for door to door solid waste collection (collection bins, ghandagaadis, containerised cycle rickshaw, handcarts etc.)
Policy for providing individual water connections in slums	Policy for providing sanitation services in slums	Engage with private service providers to provide solid waste services
Regularise unauthorised water supply connections	Provision of safe on-site sanitation system for individual toilets in non-sewered areas	Improve processes for maintaining daily logs of solid waste across SWM value chain
Increase connections using existing water supply distribution network	Provision of safe sanitation system for community and public toilet blocks	Improve collection efficiency of solid waste with existing vehicles
Convert stand posts/public taps into group connections	Provide individual toilet facilities with on-site sanitation system	Procure new vehicles for solid waste collection and transportation
Lay internal infrastructure of water supply lines in slums	Upgrade open surface drains to closed drains for storm water drainage	Process for allotment of government land for processing and disposal of solid waste
Increase continuity of water supply services	Procure new suction emptier trucks	Construct sanitary landfill facility for solid waste disposal
Improvement in water supply distribution network	Expand or lay new settled sewer for wastewater conveyance	
Plugging of leakages at valves	Construct/augment treatment plant for effluent and sullage	
Replacement of service line connections	Construct/augment faecal sludge treatment plant	
Reduce free water supply	Increase in reuse/recycling of treated wastewater and septage	
Metering of consumer water supply connections		
Improve collection efficiency of water supply charges and taxes		



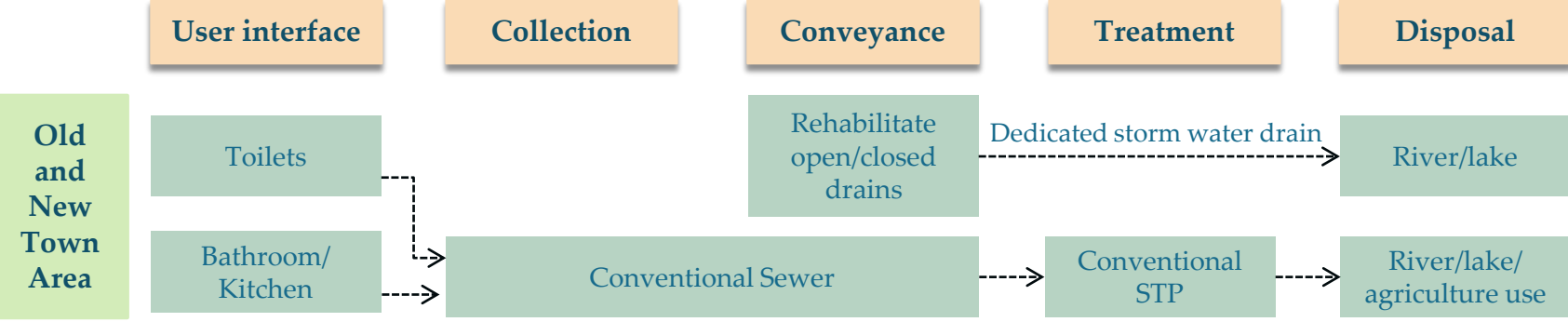
Action Planning

Sanitation: Action Planning

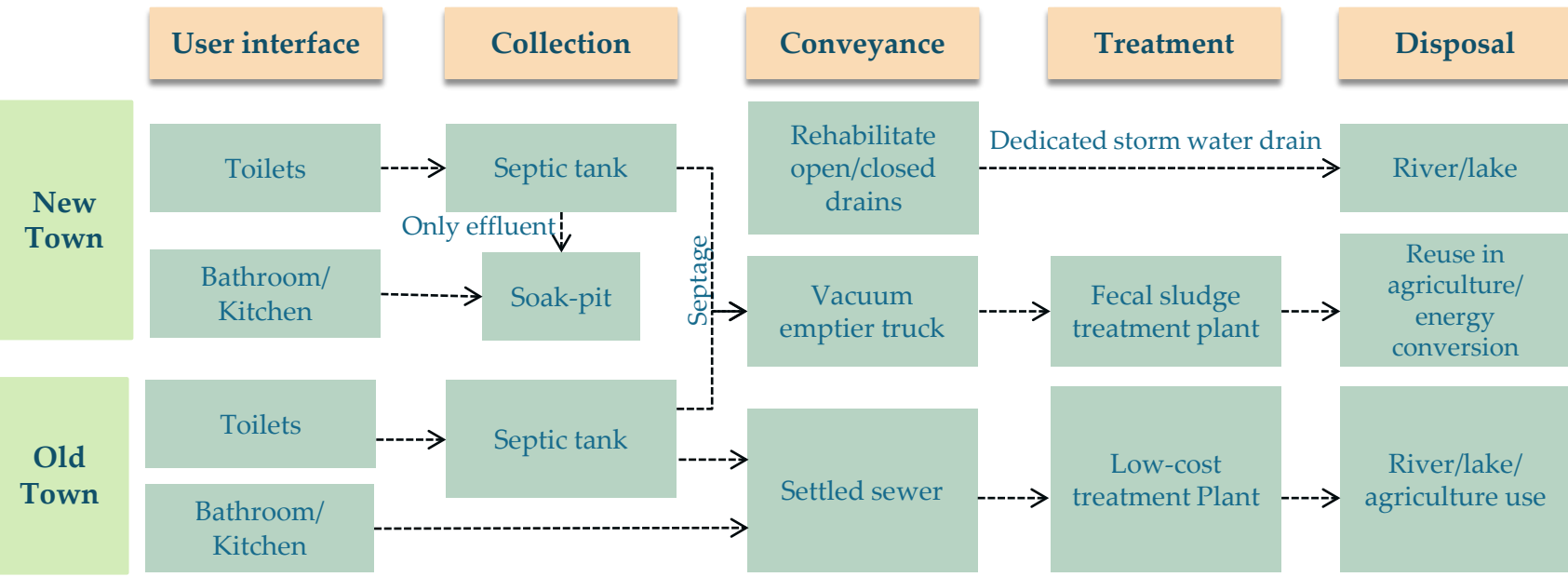


The following Technology options are considered to improve sanitation in the city

Option 1 - Citywide Conventional Sewer and Conventional STP

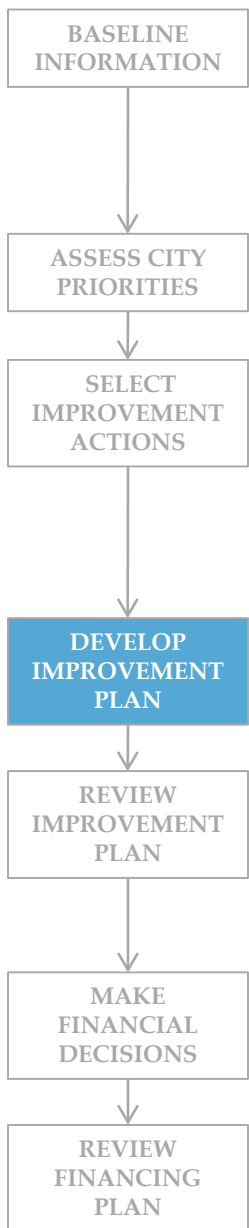
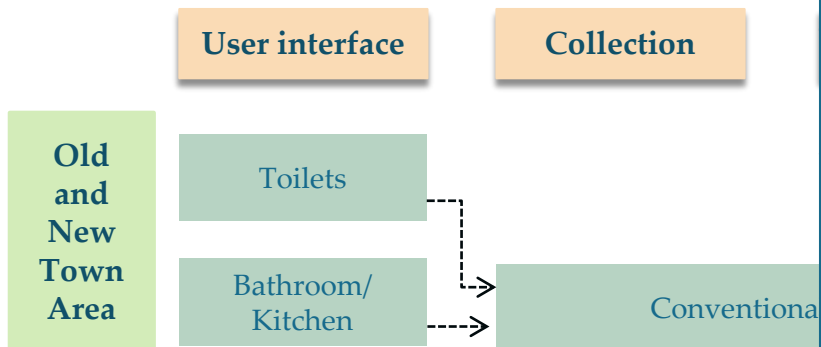


Option 2 - Mix of settled sewer and On-site System



Sanitation: Action Planning

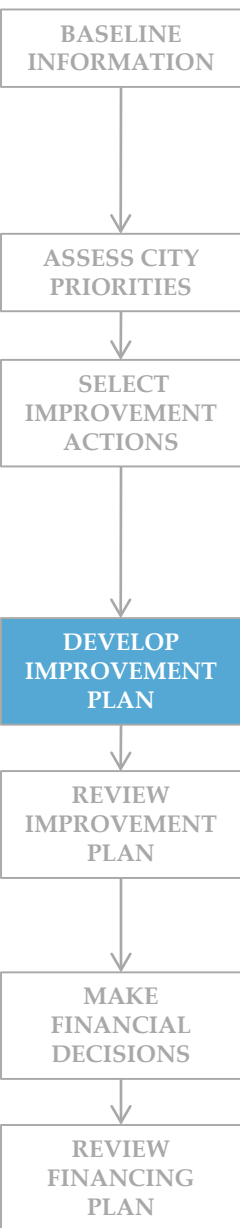
Option 1 - Citywide Conventional Sewer and Convent



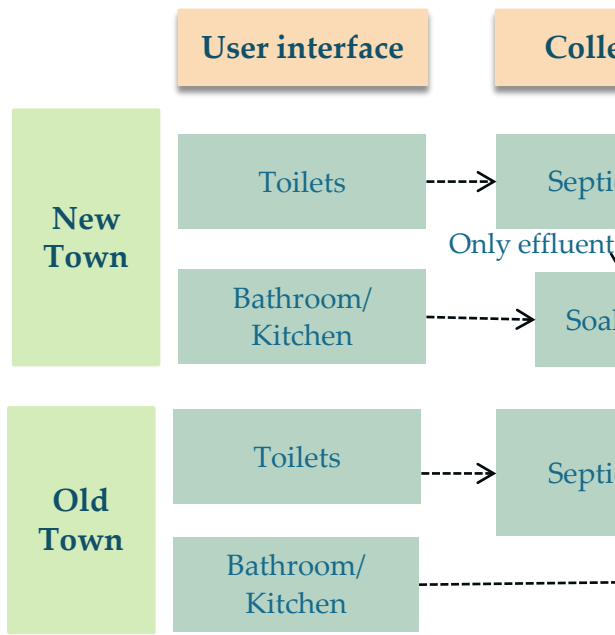
Actions	Type	Start Year	End year	Cap Ex *
Improve condition of existing community and public toilets	Existing system	2014	2015	6
Information, education and communication (IEC) campaigns for sanitation awareness	Existing system	2016	2019	51
Provide sewered sanitation system in non-slum areas	New infra	2014	2016	5,336
Provide sewered sanitation system in slums	New infra	2015	2016	472
Construct new community and public toilet blocks	New Infra	2015	2015	11
Upgrade open surface drains to closed drains for storm water drainage	Existing system	2014	2017	589
Construct/augment sewage treatment plant	New infra	2018	2019	2,035
Interceptor sewer along the river	New infra	2017	2019	1,313
Total				9,813

* CAPEX in INR Lakhs

Sanitation: Action Planning

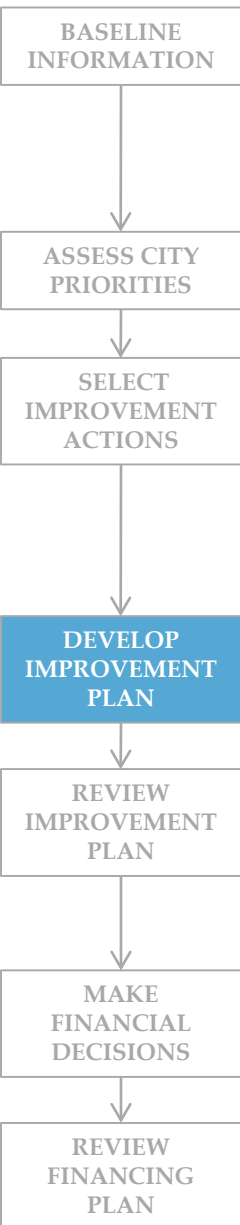


Option 2 - Mix of settled sewer and On-site



Actions	Type	Start Year	End year	Cap Ex *
Provision of safe on-site sanitation system for individual toilets in non-sewered areas	Existing system	2014	2016	1
Provision of safe sanitation system for community and public toilet blocks	Existing system	2014	2016	3
Improve condition of existing community and public toilets	Existing system	2014	2015	6
IEC campaigns for sanitation awareness	Existing system	2016	2019	51
Provide individual toilet facilities with on-site sanitation system	New infra	2017	2019	256
Construct new community and public toilet blocks	New infra	2015	2015	11
Upgrade open surface drains to closed drains for storm water drainage	Existing system	2014	2017	589
Procure new suction emptier trucks	New infra	2014	2014	8
Provide soak-pits for waste water disposal in non-sewered areas	New infra	2014	2018	28
Expand or lay new settled sewer for wastewater conveyance	New infra	2014	2018	621
Construct closed surface drains for storm water drainage	New infra	2017	2018	61
Construct/augment treatment plant for effluent and sullage	New infra	2017	2018	240
Construct/augment faecal sludge treatment plant	New infra	2014	2015	10
Interceptor sewer along the river	New infra	2017	2019	1,313
Total				3,198

Sanitation: Action Planning



Option 1: Conventional Sewer

Actions	Type	Start Year	End year	Cap Ex
Improve condition of existing community and public toilets	Existing system	2014	2015	6
Information, education and communication (IEC) campaigns for sanitation awareness	Existing system	2016	2019	51
Provide sewered sanitation system in non-slum areas	New infra	2014	2016	5,336
Provide sewered sanitation system in slums	New infra	2015	2016	472
Construct new community and public toilet blocks	New infra	2015	2015	11
Upgrade open surface drains to closed drains for storm water drainage	Existing system	2014	2017	589
Construct/augment sewage treatment plant	New infra	2018	2019	2,035
Interceptor sewer along the river	New infra	2017	2019	1,313
Total				9,813

Option 2: Mix o Settled sewer and OSS

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Provision of safe sanitation system for community and public toilet blocks	Existing system	2014	2016	3
Improve condition of existing community and public toilets	Existing system	2014	2015	6
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Total				3,198

Sanitation: Impact of Improvement Actions

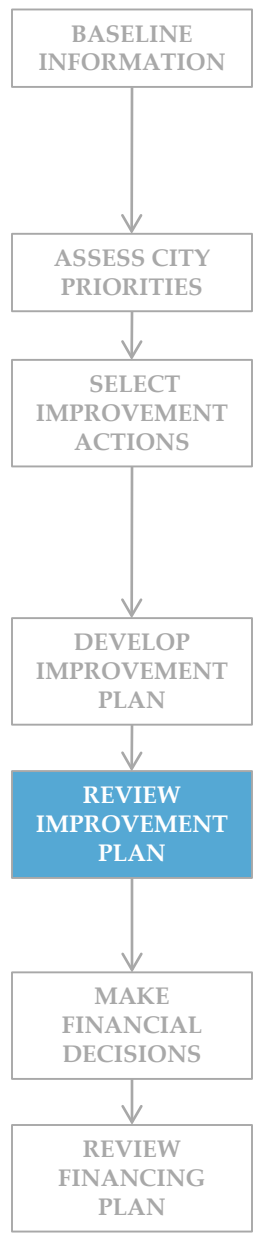
**Business as usual
(BAU)**

Wastewater services	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Coverage of Toilets	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%
Coverage of sewerage network services	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Collection efficiency of sewerage network	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adequacy of sewage treatment capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Quality of sewage treatment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Extent of reuse and recycling of sewage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Efficiency in redressal of customer complaints	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Extent of cost recovery in sewage management	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Efficiency in collection of sewage charges	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

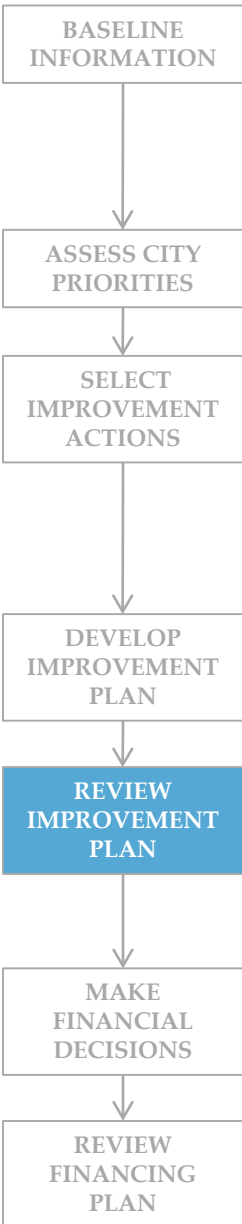
Wastewater services	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Coverage of Toilets	83%	83%	83%	83%	83%	83%	83%	83%	83%	83%	83%
Coverage of sewerage network services	0%	42%	84%	83%	83%	83%	83%	83%	83%	83%	83%
Collection efficiency of sewerage network	0%	22%	44%	64%	76%	88%	100%	98%	96%	94%	92%
Adequacy of sewage treatment capacity	0%	0%	0%	0%	0%	0%	0%	150%	148%	145%	142%
Quality of sewage treatment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Extent of reuse and recycling of sewage	0%	0%	0%	0%	0%	0%	0%	14%	28%	42%	56%
Efficiency in redressal of customer complaints	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Performance levels	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Access and coverage											
Households dependent on community toilet facilities	23%	19%	18%	18%	18%	17%	17%	17%	16%	16%	15%
Households with sewerage network services	0%	22%	43%	56%	68%	80%	78%	77%	75%	73%	72%
Households with adequate on-site sanitation system	59%	45%	31%	17%	4%	0%	1%	2%	4%	5%	6%
Community and public toilets with adequate sanitation system	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
Service level and quality											
Households with on-site grey water disposal	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Households with networked system for grey water disposal	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Spatial coverage of closed surface drains	2%	3%	5%	116%	225%	225%	225%	225%	225%	225%	225%
Efficiency in service operation											
Extent of sewage reuse/recycle	0%	0%	0%	0%	0%	0%	14%	28%	42%	56%	70%
Extent of wastewater or sullage reuse/recycle	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Extent of septage reuse/recycle	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

After Improvement plan (Option 1)



Sanitation: Impact of Improvement Actions



Wastewater services	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Coverage of Toilets	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%
Coverage of sewerage network services	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Collection efficiency of sewerage network	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adequacy of sewage treatment capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Quality of sewage treatment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Extent of reuse and recycling of sewage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Efficiency in redressal of customer complaints	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Extent of cost recovery in sewage management	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Efficiency in collection of sewage charges	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

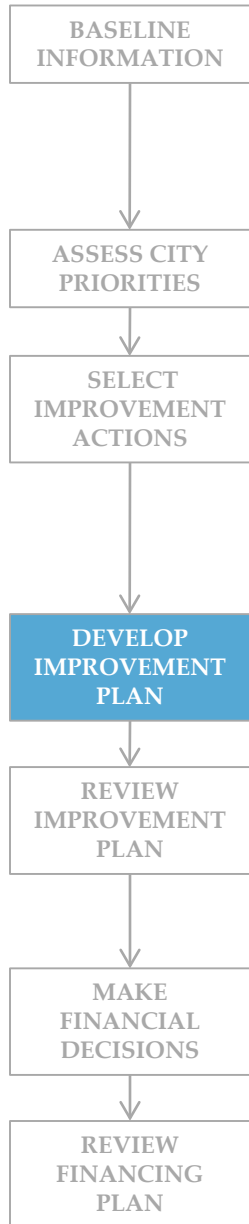
Business as usual (BAU)

Wastewater services	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
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Same Service levels are achieved through both the technology options.

Option 2: Mix of settled sewer and on-site	Quality of sewage treatment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Performance levels	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Access and coverage												
Households dependent on community toilet facilities		23%	19%	19%	18%	18%	17%	17%	17%	16%	16%	16%
Households with adequate on-site sanitation system		59%	59%	60%	66%	71%	77%	76%	76%	75%	75%	75%
Community and public toilets with adequate sanitation system		90%	93%	97%	97%	97%	97%	97%	97%	97%	97%	97%
Service level and quality												
Households with on-site grey water disposal		40%	43%	45%	47%	50%	49%	48%	47%	46%	45%	44%
Households with networked system for grey water disposal		0%	10%	19%	29%	37%	36%	36%	35%	34%	33%	33%
Spatial coverage of closed surface drains		2%	3%	5%	116%	225%	225%	225%	225%	225%	225%	225%
Adequacy of treatment plant capacity for effluent and sullage		0%	0%	0%	0%	0%	185%	185%	185%	185%	185%	185%
Adequacy of septage treatment capacity		0%	0%	119%	117%	116%	114%	113%	111%	110%	108%	107%
Efficiency in service operation												
Extent of sewage reuse/recycle		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Extent of wastewater or sullage reuse/recycle		0%	0%	0%	0%	0%	6%	11%	17%	22%	28%	33%
Extent of septage reuse/recycle		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

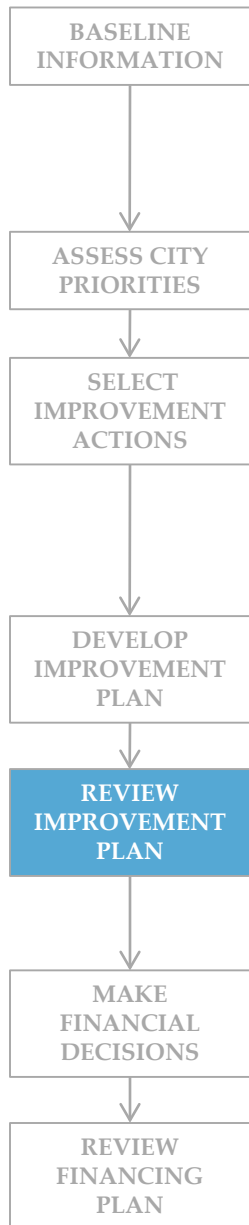
Solid Waste Management: Action Planning



Actions	Type	Start Year	End Year	Capital Expenditure*
Prepare management plan to efficiently deploy manpower and resources	Process/ Policy	2014	2014	0
Procure equipment for door to door solid waste collection (collection bins, ghantagaadis, containerised cycle rickshaw, handcarts etc.)	Existing system	2014	2015	10
Information, education and communication (IEC) campaign for awareness of solid waste management	Existing system	2014	2016	16
Improve collection efficiency of solid waste with existing vehicles	Existing system	2014	2015	0
Procure new vehicles for solid waste collection and transportation	New infra	2014	2016	30
Improve collection efficiency of solid waste charges and taxes	Existing system	2014	2015	0
Total				56

* CAPEX in INR Lakhs

SWM: Impact of Improvement Actions



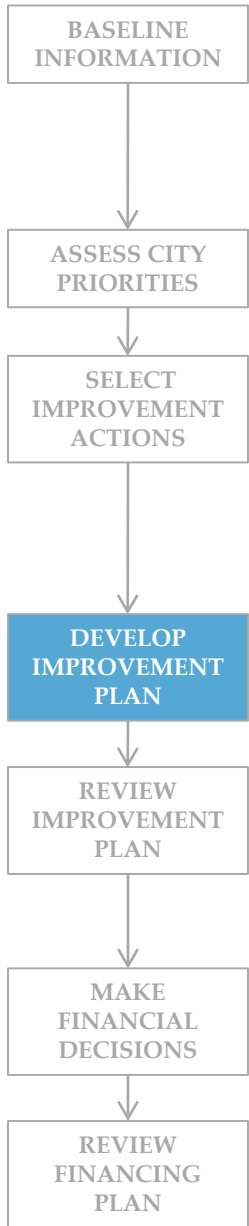
Business as usual (BAU)

Solid waste management	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Household level coverage of SWM services through door-to-door collection of waste	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%	59%
Efficiency of collection of municipal solid waste	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%	81%
Extent of segregation of municipal solid waste	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Extent of municipal solid waste recovered	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Extent of scientific disposal of municipal solid waste	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Efficiency in redressal of customer complaints	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Extent of cost recovery in solid waste management services	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Efficiency in collection of solid waste charges	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%

After Improvement plan

Solid waste management	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Household level coverage of SWM services through door-to-door collection of waste	59%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Efficiency of collection of municipal solid waste	81%	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%
Extent of segregation of municipal solid waste	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Extent of municipal solid waste recovered	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Extent of scientific disposal of municipal solid waste	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Efficiency in redressal of customer complaints	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Extent of cost recovery in solid waste management services	2%	5%	5%	5%	5%	5%	4%	8%	8%	8%	16%
Efficiency in collection of solid waste charges	85%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%

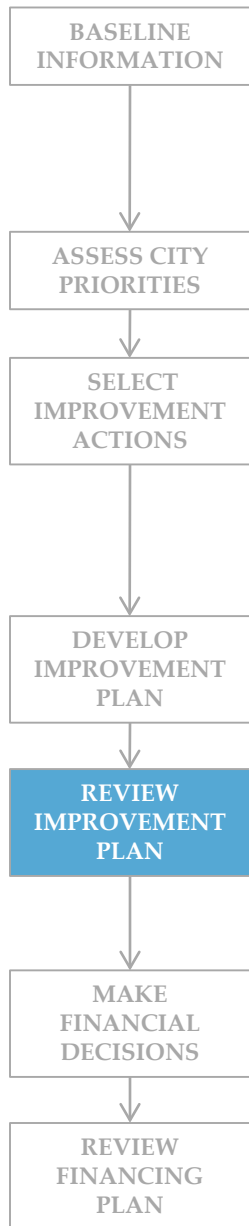
Water Supply: Action Planning



Actions	Type	Start Year	End Year	Capital Expenditure*
Regularise unauthorised water supply connections	Existing system	2014	2014	0
Increase connections using existing water supply distribution network	Existing system	2014	2017	0
Convert stand posts/public taps into group connections	Existing system	2014	2014	0
Lay new water supply distribution network	New infra	2014	2017	1,481
Lay internal infrastructure of water supply lines in slums	New infrastructure	2014	2017	138
Conduct energy audit	Data system	2014	2015	20
Improve collection efficiency of water supply charges and taxes	Existing system	2014	2016	0
Total				1,639

* CAPEX in INR Lakhs

Water Supply: Impact of Improvement Actions



Business as usual (BAU)

Water supply services	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Coverage of water supply connections	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%	57%
Per capita available of water at consumer end (lpcd)	83	81	79	77	76	74	73	71	70	68	66
Extent of metering of water connections	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
Extent of Non-Revenue Water	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
Continuity of water supply (hours/day)	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Quality of water supplied	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%
Efficiency in redressal of customer complaints	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%
Cost recovery in water supply services	27%	52%	81%	79%	76%	74%	77%	75%	72%	70%	68%
Efficiency in collection of water supply related charges	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%

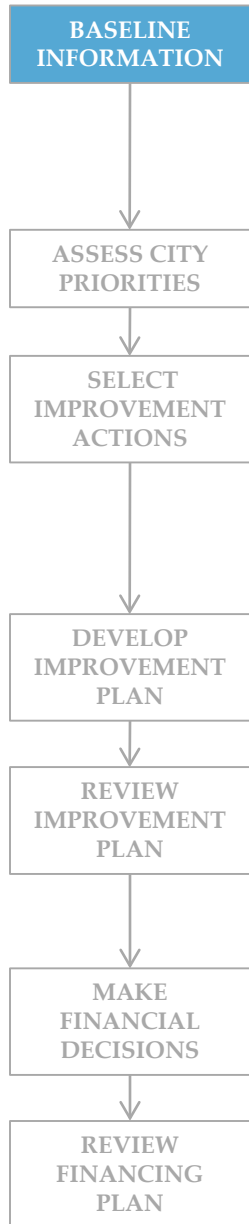
Business as usual (BAU)

Water supply services	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Coverage of water supply connections	57%	73%	88%	100%	100%	99%	99%	98%	97%	96%	95%
Per capita available of water at consumer end (lpcd)	83	82	80	79	77	75	74	72	71	69	67
Extent of metering of water connections	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
Extent of Non-Revenue Water	17%	16%	16%	15%	15%	15%	15%	15%	15%	15%	15%
Continuity of water supply (hours/day)	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Quality of water supplied	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%
Efficiency in redressal of customer complaints	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%
Cost recovery in water supply services	27%	61%	66%	122%	105%	101%	98%	94%	91%	87%	84%
Efficiency in collection of water supply related charges	43%	58%	74%	74%	74%	74%	74%	74%	74%	74%	74%



Financial Planning

Municipal Finance



Summary of Municipal finance						
	2008 (A)	2009 (A)	2010 (A)	2011 (A)	2012 (A)	2013 (A)
Opening Balance	327	238	361	269	542	1,167
Revenue Account						
Revenue Receipts	429	462	465	844	1,202	1,432
Revenue Expenditure	375	400	597	684	1,159	1,470
Operating ratio	0.87	0.87	1.28	0.81	0.96	1.03
Capital Account						
Capital Receipts	219	62	183	275	1,717	4,556
Capital Expenditure	199	195	238	269	1,309	2,931
Capital Utilisation	91%	313%	130%	98%	76%	64%
Extra-ordinary Account						
Ex-O Receipts	75	50	68	138	340	386
Ex-O Expenditure	62	37	50	97	316	370
Summary						
Total Receipts	723	574	716	1,257	3,259	6,373
Total Expenditure	636	632	885	1,050	2,784	4,770

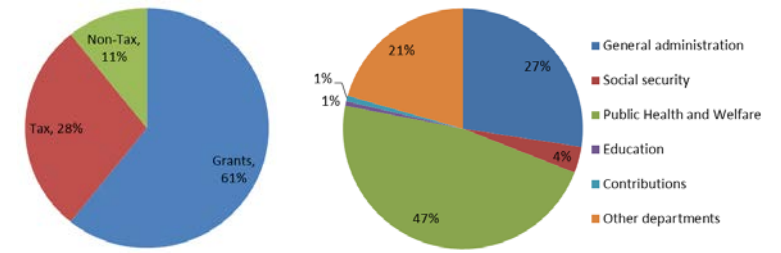
All figures in INR Lakhs

While expenses because of addition in jurisdictional area increased from 2010-11, receipts from taxes increased in 2011-12; hence operating ratio >1 in 2010-11

Revenue account receipts have grown at a marginally higher CAGR than operating expenses

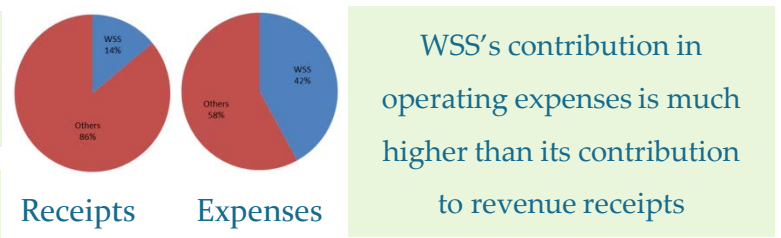
Annual per capita expenses is Rs 1609.
Per capita expense in WSS at Rs 444 for FY 2010-11 is only 38% of the HPEC norm of Rs 1176

Revenue Account Receipts & Expenditures



- Very high dependence on grants
- 42% of total expenses are towards establishments
- Property tax & water charges majorly contribute to own sources, but collection efficiency is very low
- Majority of operating expenses are towards public health (47%) and Gen. admin (27%)

WSS Finances



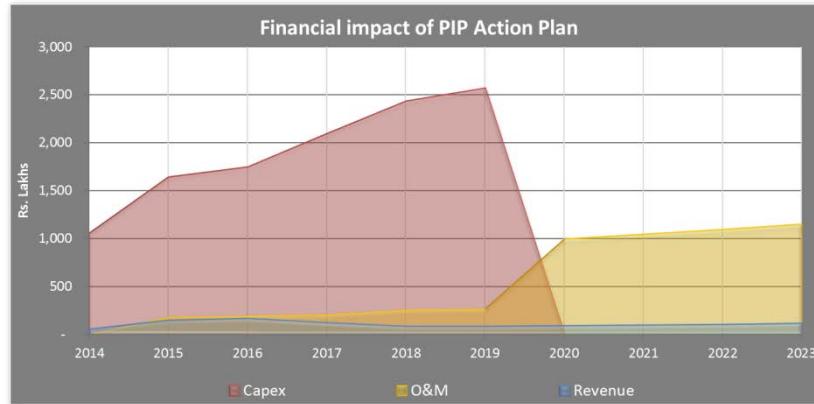
WSS's contribution in operating expenses is much higher than its contribution to revenue receipts

- Water charges is the only major revenue stream; special conservancy tax is levied but does not amount much.
- Collection efficiency of water tax is only 47%

Financial Requirements for SANIPLAN

Option 1: Improvement in Water Supply, SWM and Sanitation with Conventional Sewerage

Financial Requirements	Rs lakhs
Capital expenditure	11,551
Additional O&M expense	5,351
Additional revenue	1,055



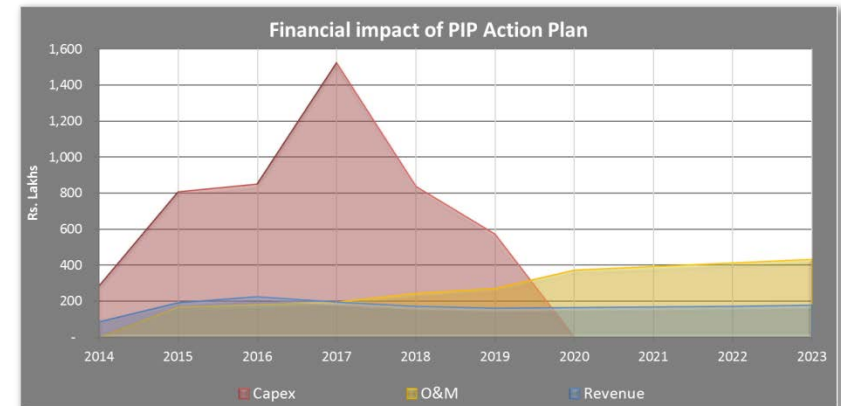
i.e. an investment of more than **Rs 115 Crores** and an additional **burden of 43 Cr** to operate and maintain the assets over 10 year planning period

Financing Plans for both technology option are prepared for two financial iterations each

Option 2: Improvement in Water Supply, SWM and Sanitation with a mix of settled sewer and on-site sanitation

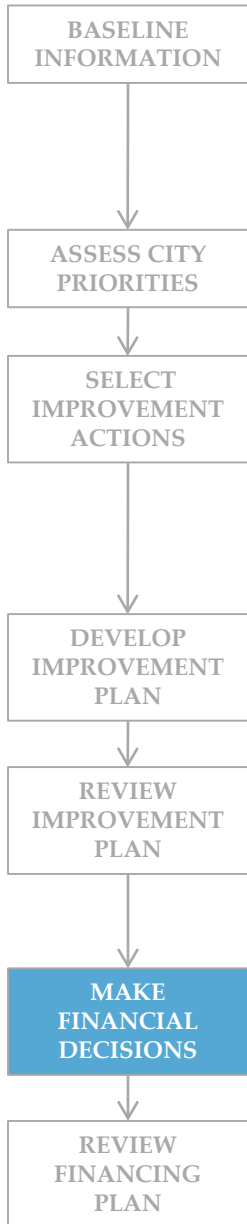
Financial Requirements	Rs lakhs
Capital expenditure	4,874
Additional O&M expense	2,679
Additional revenue	1,715

i.e. an investment of nearly **Rs 49 Crores** and an additional **burden of nearly 10 Cr** to operate and maintain the assets over 10 year planning period



Capital Expenditure through

- A. **Inter-governmental grants**
- B. **Creative Financing**



Financial Forecasts

BASELINE
INFORMATION

ASSESS CITY
PRIORITIES

SELECT
IMPROVEMENT
ACTIONS

DEVELOP
IMPROVEMENT
PLAN

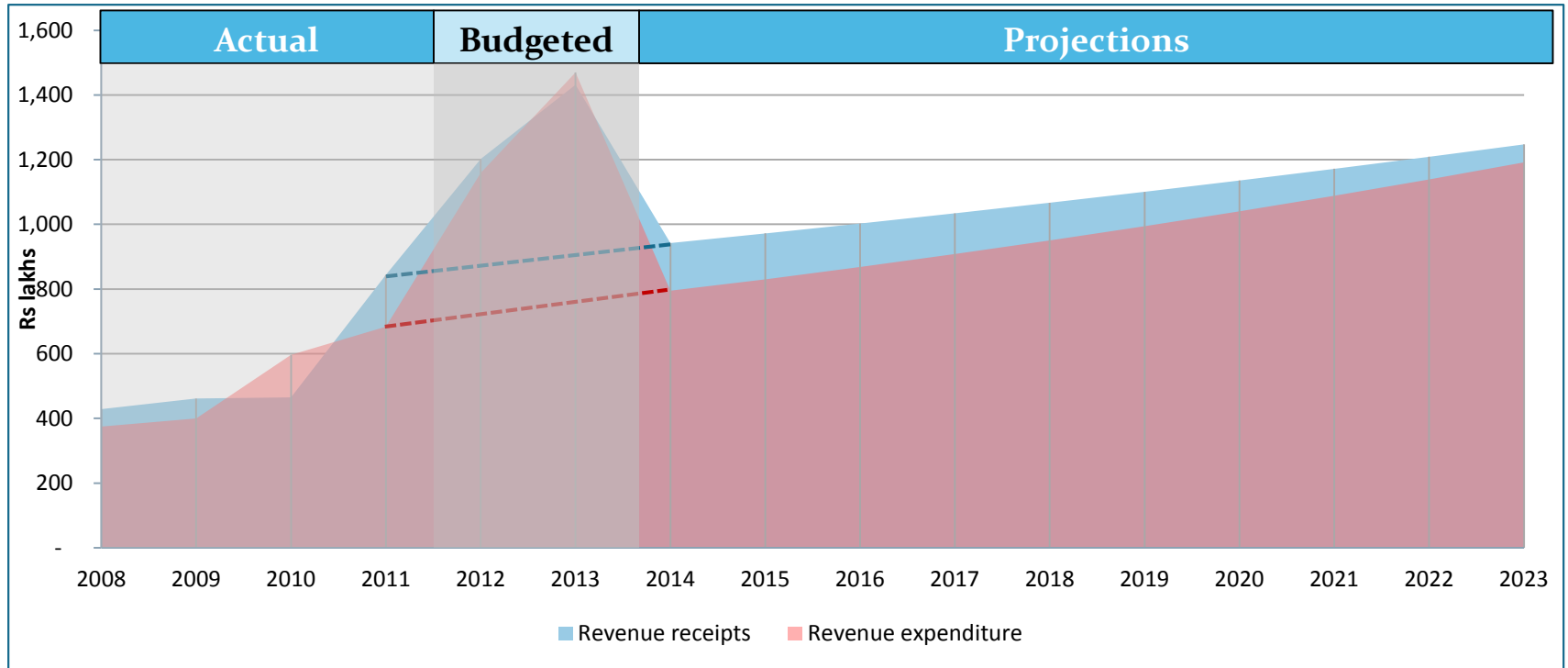
REVIEW
IMPROVEMENT
PLAN

MAKE
FINANCIAL
DECISIONS

REVIEW
FINANCING
PLAN

Operating expenses and receipts are estimated to grow at CAGR of 3% and 5% respectively

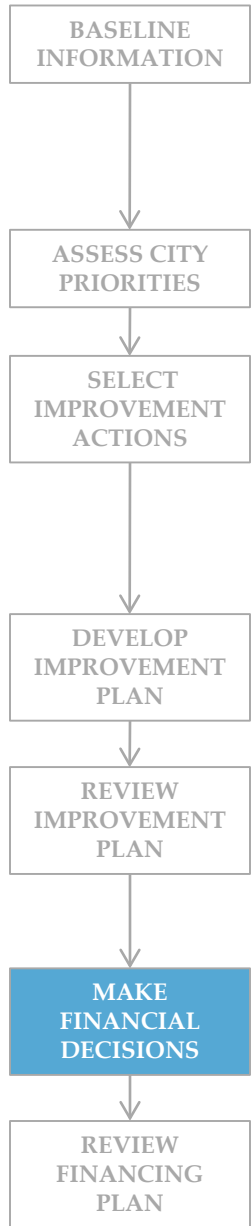
- The budget size is estimated to be nearly Rs 3300 Lakhs by 2023
- The revenue receipts are estimated to be around Rs 1250 lakhs against expenses of more than Rs 1200 Lakhs in 2023
- Non-WSS surplus is estimated to cover the WSS deficit in ten years period



Plan 1A Financial Decisions

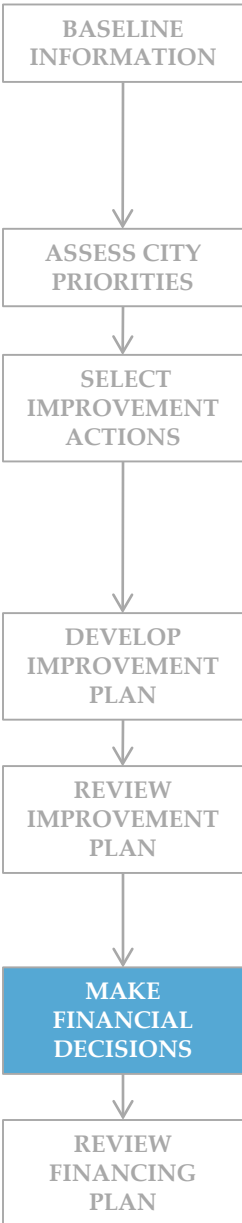
Sources of Capital

IMPROVEMENT ACTIONS		PHASING OF SANIPLAN											SOURCES OF FUNDS FOR CAPITAL EXPENDITURE					
Sector colour code Water supply Wastewater Solid waste		Click here to view Summary of											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	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total CapEx required	Central Grants	State Grants	Debt	Private/PPP	Beneficiary	ULB share (% and Rs. lakhs)
Regularise unauthorised water supply connections	Existing system											0						
Increase connections using existing water supply distribution network	Existing system											0						
Convert stand posts/public taps into group connections	Existing system											0						
Lay new water supply distribution network	New infrastructure											1,481	50%	40%				10% 148
Lay internal infrastructure of water supply lines in slums	New infrastructure											138	50%	40%				10% 14
Conduct energy audit	Data system											2						100% 2
Improve collection efficiency of water supply charges and taxes	Existing system											0						
Improve condition of existing community and public toilets	Existing system											6						100% 6
Information, education and communication (IEC) campaigns for sanitation awareness	Existing system											51						100% 51
Provide sewerage sanitation system in city	New infrastructure											5,336	40%	30%			3%	27% 1415
Provide sewerage sanitation system in slums	New infrastructure											472	40%	25%			32%	3% 14
Construct new community and public toilet blocks	New infrastructure											11						100% 11
Upgrade open surface drains to closed drains for storm water drainage	Existing system											589						100% 589
Construct closed surface drains for storm water drainage	New infrastructure											61						100% 61
Construct/augment sewage treatment plant	New infrastructure											2,035	50%	40%				10% 204
WW Customised action 1	Customise action											1,313	50%	40%				10% 131
Prepare management plan to efficiently deploy manpower and resources	Process/ Policy											0						
Procure equipments for door to door solid waste collection (collection bins, ghantagaadis, containerised cycle rickshaw, handcarts etc.)	Existing system											10						100% 10
Information, education and communication (IEC) campaign for awareness of solid waste management	Existing system											16						100% 16
Engage with private service providers to provide solid waste services	New infrastructure											0						
Improve collection efficiency of solid waste with existing vehicles	Existing system											0						
Procure new vehicles for solid waste collection and transportation	New infrastructure											30						100% 30
Improve collection efficiency of solid waste charges and taxes	Existing system											0						



Plan 1A Financial Decisions

Transfer of non-WSS surplus for WSS



KEY FINANCING DECISIONS

Financing Plan	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
WATER SUPPLY AND SANITATION OPERATING PLAN										
1. Income generated from PIP actions										
Additional income generated	54	146	164	121	82	84	90	97	105	112
2. Revise WSS charges and tariffs Link to Revise WSS tariffs										
Additional income generated	117	210	302	492	570	636	675	717	720	724
3. Revise own income sources like Property tax Link to Revise own tax sources										
Additional income generated	84	99	84	158	166	166	391	414	416	416
4. Allocate Non-WSS revenue surplus for WSS services Link to Review past trends										
Non-WSS revenue surplus	214	276	286	359	331	410	606	680	711	734
Propose allocation of surplus for WSS services	86%	86%	80%	80%	88%	86%	86%	86%	80%	80%
Operating ratio	0.7	0.7	0.7	0.6	0.6	0.6	1.0	1.0	1.0	1.0

IMPACT OF FINANCING PLAN ON MUNICIPAL FINANCES

Budget heads	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
REVENUE ACCOUNT										
Water supply and sanitation services (WSS)										
Opening balance	-	-	-	-	-	-	32	-	28	31
Revenue receipts	492	747	872	1,087	1,167	1,255	1,499	1,624	1,668	1,707
Revenue expenditure	333	535	604	664	749	787	1,531	1,596	1,665	1,738
WSS Revenue account status	159	212	268	423	418	468	-	28	31	-
Services other than water supply and sanitation (Non-WSS)										
Opening balance	1	53	69	79	90	98	102	152	170	178
Revenue receipts	917	985	1,026	1,161	1,233	1,303	1,602	1,705	1,792	1,884
Revenue expenditure	510	543	578	616	656	699	746	795	848	905
Non-WSS Revenue account status	408	495	517	617	667	702	959	1,062	1,114	1,157

Revise Tariffs (property tax and WSS taxes/charges)

ENHANCE REVENUES FROM OWN INCOME SOURCES

[Back to WSS O&M Plan](#)

1. Review number of properties assessed for taxation in ULB										
Improve billing efficiency of property tax by increasing number of properties assessed	%	Current billing efficiency	Targeted efficiency	Year to start improvement	Year for completion					
		100%								
2. Review collection efficiency of Property Tax										
Improve collection efficiency of property tax	%	Current collection efficiency	Targeted efficiency	Year to start improvement	Year for completion					
Collection efficiency of current demand	%	80%	90%	2013	2014					
Collection efficiency of arrear demand	%	67%	90%	2013	2014					
3. Review average Property tax demand per property										
Average general property tax demand per property (Rs/property/annum)						568				
Percentage increment in property tax demand/property	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	100%			50%			100%			
4. Review of other taxes and charges of ULB										
Aggregate demand of other taxes and charges in last year (Rs. lakhs)						57				
Percentage increment in other taxes and charges	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023

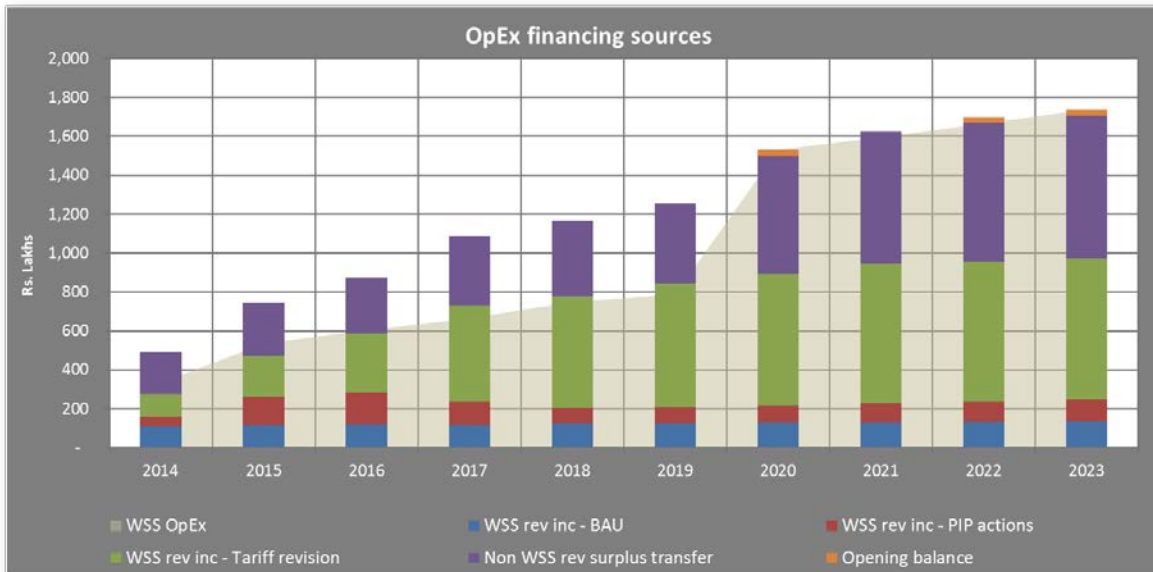
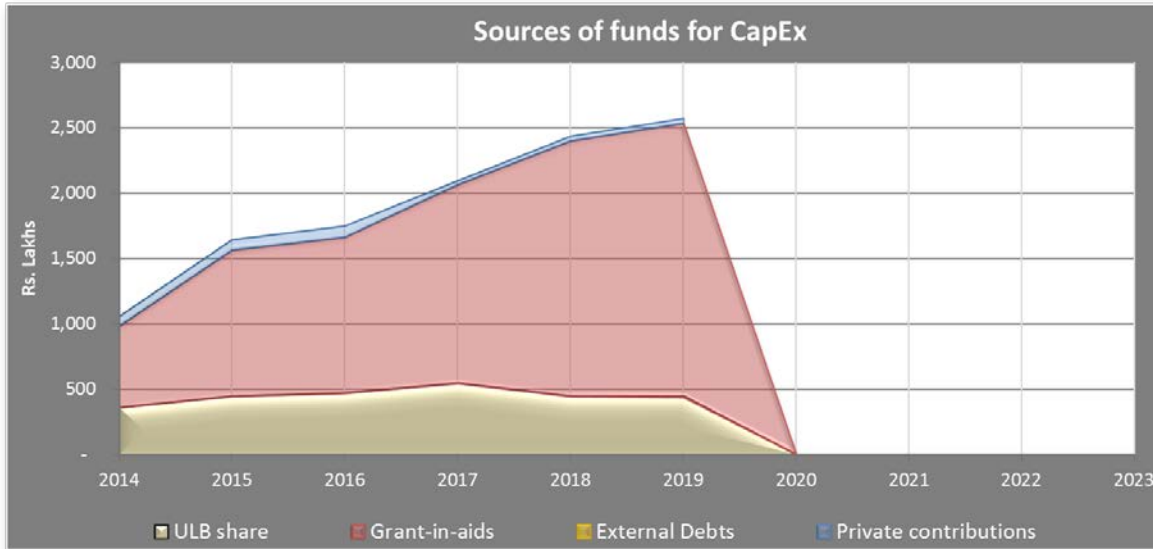
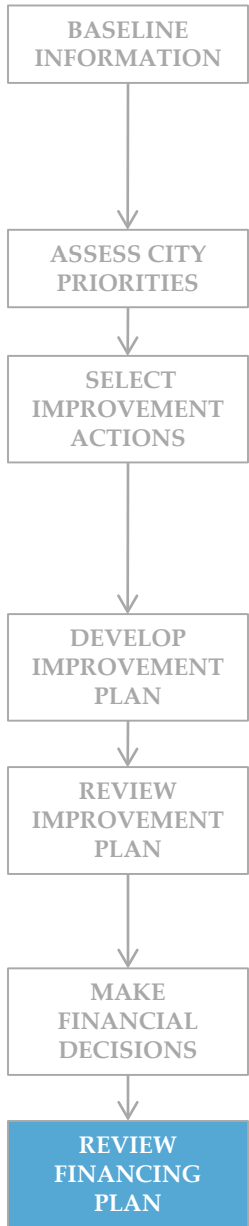
WSS revenue surplus for Capital Funding

2. Allocate WSS revenue surplus for capital funding										
WSS revenue surplus	159	212	268	423	418	468	0	28	31	0
Propose allocation of surplus for WSS C&F	159	212	268	423	418	436				
2. Allocate WSS revenue surplus for capital funding										
WSS revenue surplus	1	85	108	124	85	72	-	-	-	-

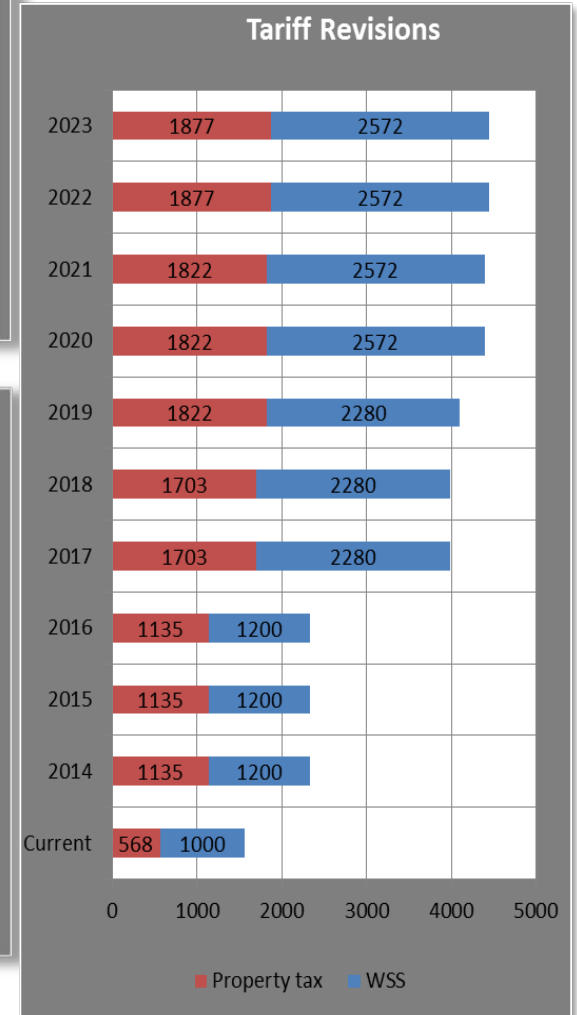
Debt for Capital Funding

4. External borrowings																																											
Debt from Action Plan finance																																											
Additional debt required	197	231	196	115	21																																						
Terms of conditions	<table border="1"> <tr> <td>Rate of interest (%)</td> <td colspan="10"></td> </tr> <tr> <td>Moratorium period (Number of years)</td> <td colspan="5"></td> <td colspan="5">1</td> </tr> <tr> <td>Period of Borrowing (Number of years)</td> <td colspan="5"></td> <td colspan="5">15</td> </tr> </table>										Rate of interest (%)											Moratorium period (Number of years)						1					Period of Borrowing (Number of years)						15				
Rate of interest (%)																																											
Moratorium period (Number of years)						1																																					
Period of Borrowing (Number of years)						15																																					
Debt servicing requirement	-	20	55	87	107	112	108	103	98	93																																	
Debt service coverage ratio	NA	11.60	5.87	5.86	4.91	5.18	1.00	1.27	1.32	1.00																																	

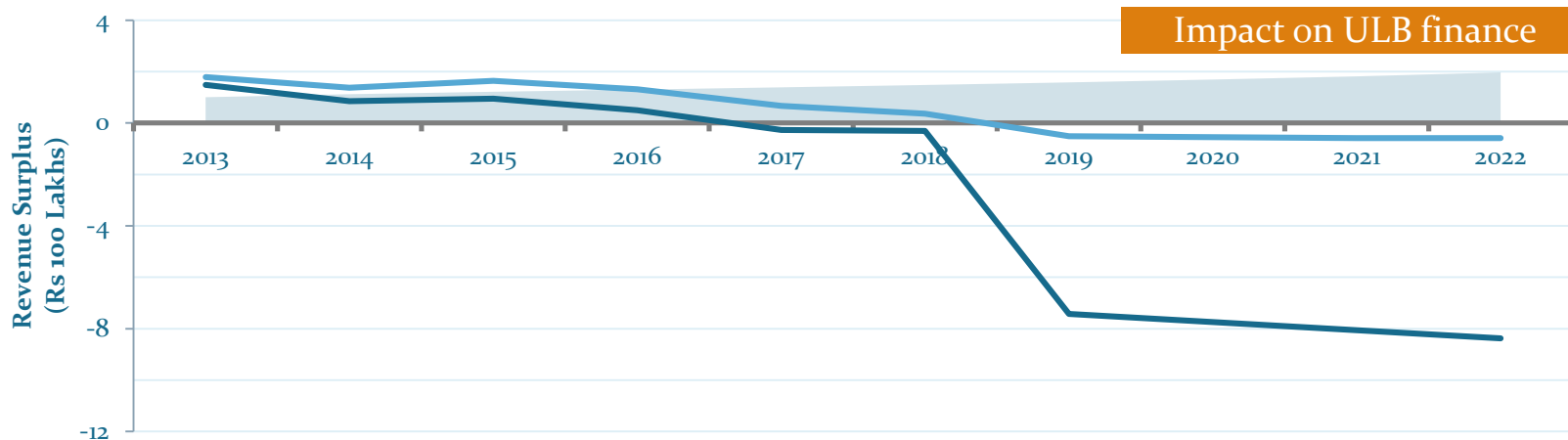
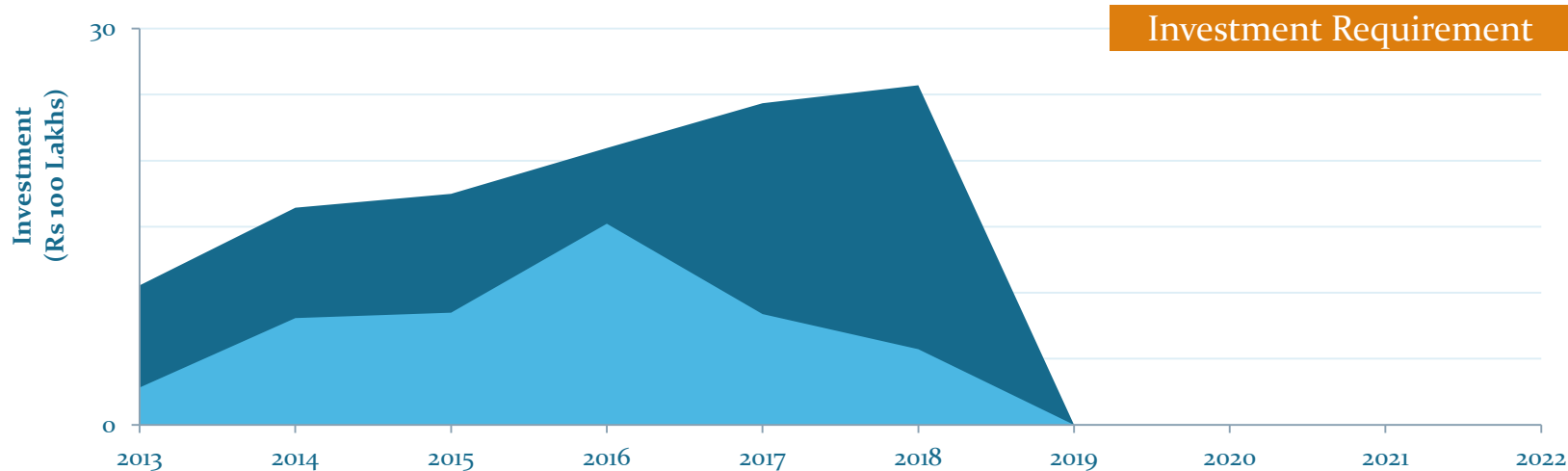
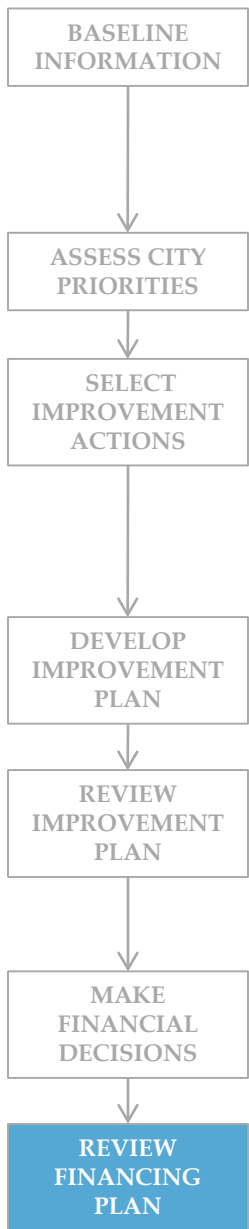
Option 1A (Conventional Sewerage through grants)



Increment in tariff required to sustain operating costs
 Property tax, water supply tax, waste water tax and solid waste charges



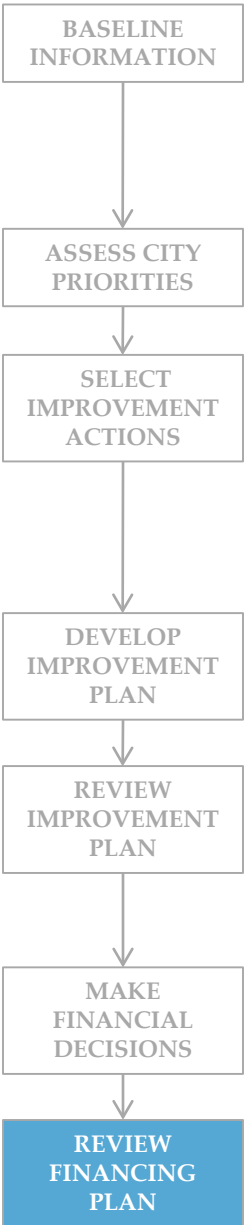
Comparison of 2 Options



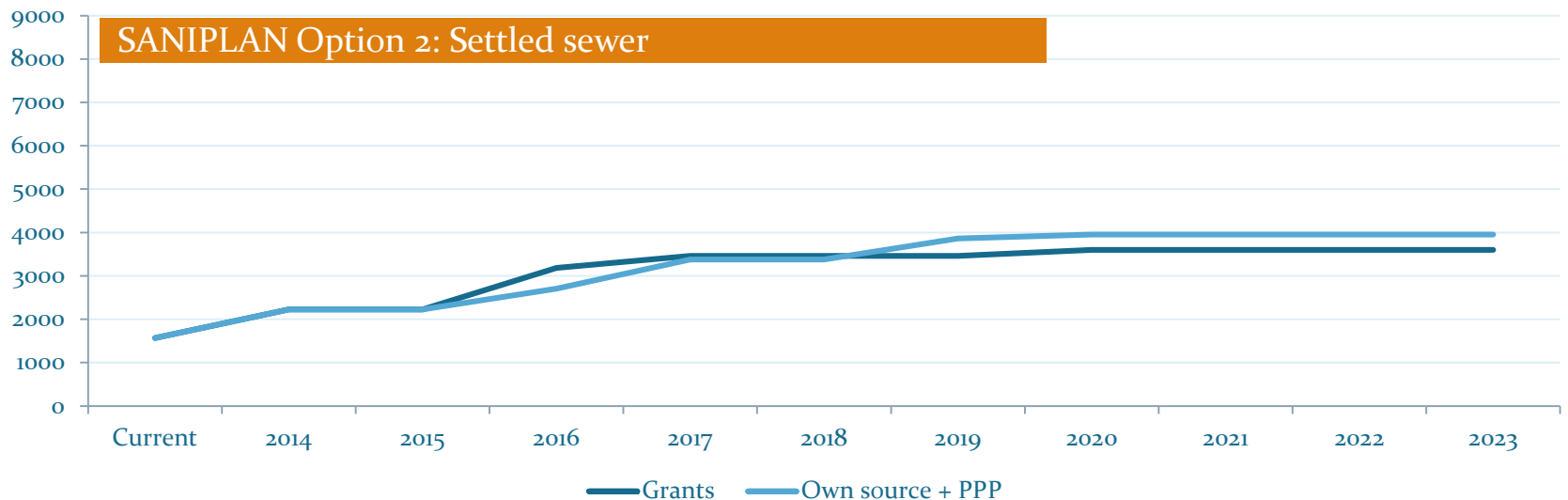
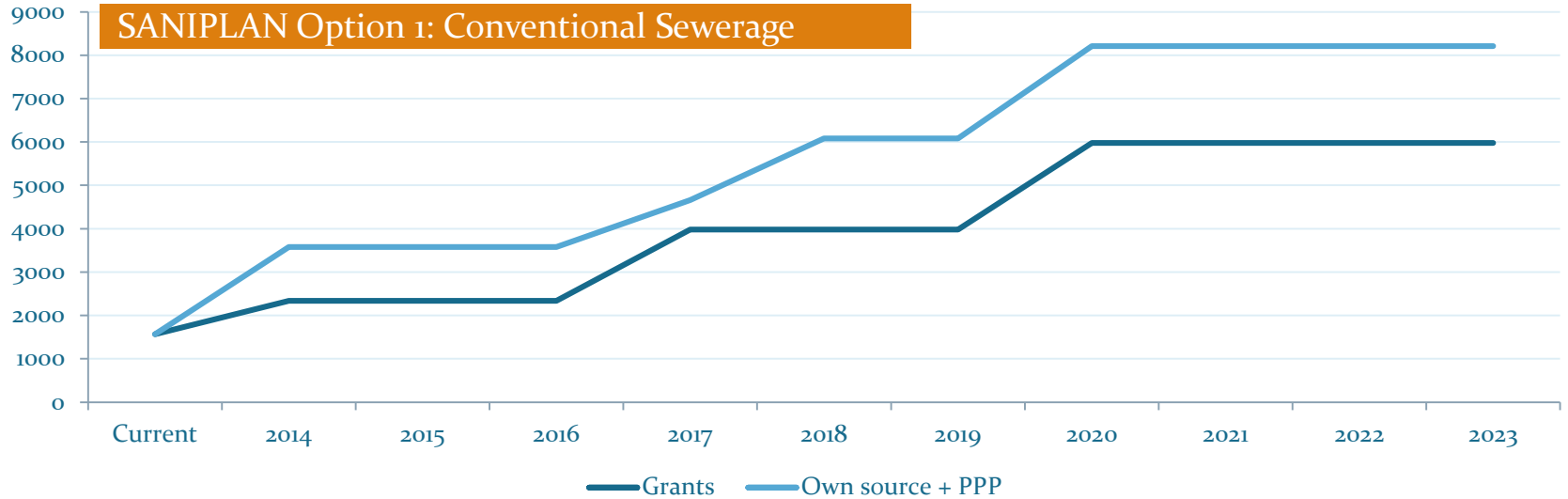
SANIPLAN Option 1:
Conventional Sewerage network

Saniplan Option 2:
Settled Sewer

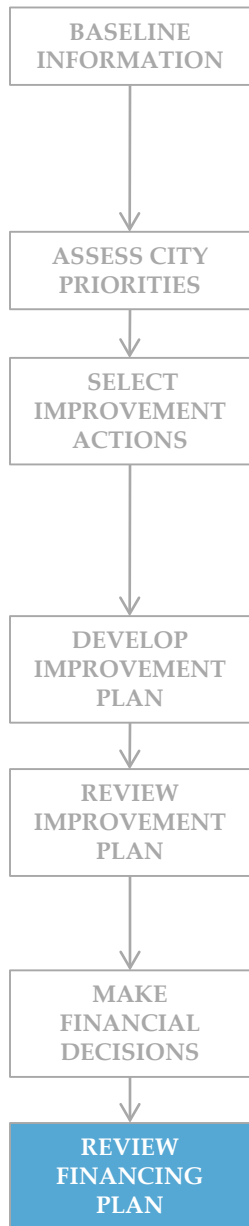
Comparison of Financing options



Comparison of tariffs



Comparison of the 4 options



SANIPLAN options for water supply, solid waste and waste water services	Funding type	Sources of funds (Rs crore)				Total	Tariff required (Base year tariff = Rs.2085/HH/yr) 10th year
		Grants	ULB funds		Private (HHs, PPP, micro - credit)		
			Internal funds	Debt			
Conventional Sewerage	Grants	85.2	19.2	7.6	3.4	115.5	6000
	Own Sources and PPP	26.4	16.3	54.9	17.6	115.5	8200
Mix of settled sewer and on-site systems	Grants	34.3	7.4	5.3	1.5	48.7	3600
	Own Sources and PPP	26.4	4.2	15.1	2.7	48.7	3950

Thank you



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