

PERFORMANCE MEASUREMENT FOR URBAN WATER SUPPLY AND SANITATION



List and Definition of KPIs and Local Action Indicators

January 2011

1. Summary List of KPIs and Local Action Indicators for Water, Waste Water and SWM

	Water supply	Waste water	Solid waste management (SWM)	Storm water drainage
Indicators for Goals				
Access and coverage	1. Coverage of water supply connections at HH level	1. Coverage of toilets 2. Coverage of connections to sewage network	1. Household level coverage of SWM services	1. Coverage of storm water drainage network
Service levels and quality	2. Per capita supply of water at consumer end	3. Collection efficiency of sewage network	2. Efficiency of collection of municipal solid waste	2. Incidence of water logging/flooding
	3. Continuity of water supply	4. Adequacy of sewage treatment capacity	3. Extent of segregation of municipal solid waste	
	4. Quality of water supplied		4. Extent of municipal solid waste processed and recycled	
Financial Sustainability	5. Extent of cost recovery (O&M) in water supply services	5. Extent of cost recovery (O&M) in sewage management	5. Extent of cost recovery (O&M) in SWM services	
Indicators for Reform Actions				
Efficiency in Service Operation	6. Extent of non-revenue water	6. Quality of sewage treatment	6. Extent of scientific disposal of municipal solid waste	
		7. Extent of reuse and recycling of sewage		
	7. Efficiency in redressal of customer complaints	8. Efficiency in redressal of customer complaints	7. Efficiency in redressal of customer complaints	
	8. Extent of metering of water connections			
9. Efficiency in collection of water supply related charges	9. Efficiency in collection of sewerage related charges	8. Efficiency in collection of SWM related user charges		
Equity	10. Coverage of water supply connections in 'slum settlements'	10. Coverage of toilets in 'slum settlements'	9. Household level coverage of SWM services in 'slum settlements'	
		11. Coverage of connections to sewage network in 'slum settlements'		

Indicators for Local Actions				
	Water supply	Waste water	SWM	
Access and Coverage	1. % of population with access to improved water services	1. Coverage of households with toilets	1. Sweepers per road length swept	
	2. Coverage of distribution network	2. Coverage of properties with safe disposal system	2. Secondary collection frequency	
		3. Coverage of households with sewer connections		
		4. Coverage of sewerage network		
		5. Coverage of sullage network (open + covered)		
	3. Drive for identifying and regularizing illegal connections taken up			
	4. % illegal connections	6. % illegal connections		
5. % of identified illegal connections that are regularized	7. % of identified illegal connections that are regularized			
Service levels and quality	6. Percentage of estimated water demand over next 3 years to available supply from all current sources and immediate plans to augment through ongoing projects	8. Staff per length of sewer		
	7. Regular annual assessment of available sources	9. % of sewer network replaced/repaired in last 3 years		
	8. Reused supply water	10. % capacity of plant to wastewater generated	3. % treatment capacity to solid waste generated	
	9. Per capita supply of water	11. Adequacy of primary sewage treatment capacity	4. Adequacy of solid waste treatment facilities	
	10. Average pressure at WDS	12. Presence of master plan for sewage system	5. PSP in secondary collection and transportation	
	11. Average pressure at consumer end	13. PSP in construction/operation/maintenance in STP	6. PSP in treatment and disposal of MSW	
	12. Days of supply	14. Extent of primary treatment		
	13. % of tests for RC	15. Number of connections to septic tanks in the city		
	14. % of tests for bacteriological	16. Presence of septage treatment facilities		
		17. Number of septage sucking machines/1000 septic tanks		
		18. % of septic tanks cleaned annually		
	Financial Sustainability	15. Pump replacement		
		16. Unit electricity cost of production of water	19. Unit electricity cost of collection/disposal of wastewater	7. Unit cost of solid waste management services
		17. Recruited to sanctioned staff in water supply	20. Recruited to sanctioned staff in wastewater	8. Recruited to sanctioned staff in SWM
18. Total Staff (regular and contract) per 1000 water supply connections		21. Total Staff (regular and contract) per 1000 waste water connections	9. Total Staff (regular and contract) per 1000 households	
19. Per capita revenue expenditure				
20. Studies/ actions on detailed energy audits				
21. Average revenue per connection		22. Average revenue per connection	10. Average revenue per HH	
22. Per capita revenue income				

Indicators for Local Actions			
	Water supply	Waste water	SWM
Efficiency in service operations	23. Studies and actions for preliminary water audit	23. Quality of untreated wastewater disposed (BOD & COD)	
	24. % Losses from source to water treatment plant (WTP)		
	25. % Losses from WTP to water distribution station (WDS)		
	26. % Losses from WDS to final consumption (includes both leakage on service connections and unauthorized consumption)		
	27. Pipe breaks		
	28. Length of network refurbished		
	29. % Authorized and unbilled consumption to total supply		
	30. Periodic monitoring and analysis of complaints		
	31. Total complaints in water supply per 1000 connections per year	24. Total complaints in waste water per 1000 connections	11. Total complaints in solid waste per 1000 HH
		25. Frequency of sewer overflows	
	32. % of meters that are functional		
	33. Annual cost of losses (real and apparent)		
	34. % of connections that are metered		
	35. Presence of automated billing systems		
	36. Billed arrears to total billed demand	26. Billed arrears to total billed demand	12. Billed arrears to total billed demand
	37. Updation and linkage of connections with billing systems		
	38. Outsourcing collection systems		
	Equity	39. % of slum settlements having internal water supply network	27. % of slum settlements having internal wastewater network
40. Presence of policy enabling provision for services in slums			
41. Efforts made to simplify connection procedures for slum HHs			
42. % of uncovered HHs covered with water connections in slums during the year		28. Number of toilets constructed during the year	
43. % of population with access to improved water services in slums		29. % of households defecating in open in slums	
44. % budget for pro poor activities		30. % of population with access to improved sanitation services in slums	
45. Connection charge for urban poor to non poor HHs in water supply		31. Connection charge for urban poor to non poor HHs in wastewater	
46. % of expenditure in slums to total ULB expenditure			

2. Description of the KPIs and Local Action Indicators

Water supply	Unit	Description of KPIs
Access and coverage		
1. Coverage of water supply connections	%	The indicator captures the extent of the household / individual water supply connections in the ULB. It is an important factor to measure the extent of service delivery of the ULB.
		<i>Total households connected to the water supply network with a private (not shared) service connection, as percentage of total households in the ULB.</i>
Service levels and quality		
2. Per capita supply of water at consumer end	lpcd	This indicator captures the quantity of water supplied to consumers daily. This considers only authorized billed and unbilled residential consumers.
		<i>Total water supplied to consumers expressed by population served per day</i>
3. Continuity of water supply	hrs	This indicator captures the number of hours of supply at the consumer end. This indicator coupled with the per capita supply of water denotes a key aspect of the service delivery of the ULB.
		<i>Continuity of supply is measured as - Average number of hours of pressurized water supply per day</i>
4. Quality of water supplied	%	This indicator captures the extent of samples for residual chlorine and bacteriological tests, and fluoride and TDS tests for surface and ground water sources, that have passed (at treatment plant and consumer end) as per the standards.
		<i>Percentage of water samples that meet or exceed the specified potable water standards and sampling regime, at treatment plant outlet and consumer points as defined by CPHEEO</i>
Financial Sustainability		
5. Cost recovery (O&M) in water supply services	%	This indicator captures the revenues (taxes, user charges, fees) recovered by the ULB against the expenses incurred. This denotes the cost control measures, if any, that need to be considered by the ULB, and also a critical factor in tariff charges.
		<i>Percentage of total operating revenues from water supply related charges to total operating expenses on water supply</i>
Efficiency in Service Operations		
6. Extent of non-revenue water	%	This indicator captures the quantum of water losses occurring through physical losses, unauthorized consumption, and authorized but unbilled consumption. It indicates the extent of revenue losses incurred by the ULB.
		<i>Difference between total water produced (ex-treatment plant) and total water sold expressed as a percentage of total water produced. NRW includes: a) consumption which is authorized but not billed, such as public stand posts; b) apparent losses such as illegal water connections, water theft and metering inaccuracies; c) real losses which are leakages in the transmission and distribution networks.</i>
7. Efficiency in redressal of customer complaints	%	This indicator captures the number of complaints made by consumers that have been redressed by the ULB, as per service charter standards. It is an important indicator which a direct assessment of the customer satisfaction levels.
		<i>Total number of water supply related complaints redressed within time as stipulated in service charter of the ULB, as a percentage of the total number of water supply related complaints received in the year</i>
8. Extent of functional metering of water connections	%	This indicator captures the extent to which the connections that are metered and functional. Functional metering of connections is an important aspect in understanding the accuracy of consumption quantities in each city.
		<i>Total number of functional metered water connections expressed as a percentage of total number of water supply connections (including public stand post connections)</i>
9. Efficiency in collection of water supply related charges	%	This indicator captures the extent of collection of revenues that are billed by the ULB. It denotes the revenues that are due to the ULB, and hence an important factor in its cost recovery efforts.
		<i>Percentage of current year revenues collected from water supply related taxes and charges as a percentage of total billed amounts (for water supply)</i>
Equity		
10. Coverage of water supply connections in 'slum settlements'	%	This indicator captures the number of individual water connections that are provided by the ULB in slum settlements. This assesses the level of service delivery to the urban poor.
		<i>Total households in slum settlements connected to water supply network with a private (not shared) service connection, as percentage of total households in all slum settlements in the ULB</i>

Water Supply	Unit	Description of Local Action Indicators
Access and Coverage		
1. % of population with access to improved water services	%	This indicator captures the extent of population in a city that has access to safe sources of water supply, including both individual connections as well as public stand posts
		<i>Percentage of population with access to potable water (including household level connection and public stand posts) to total population in the city</i>
2. Coverage of distribution network	%	This indicator captures the geographical area of the water supply network with respect to total area of the city. It is an important indicator in assessing the physical water network in the city.
		<i>Percentage of municipal area covered by water supply network to total area of the city.</i>
3. Drive for identifying and regularizing illegal connections taken up		This indicator captures the initiatives carried out by the local government to identify and/or regularize illegal connections in water supply and/or wastewater
		<i>Drives conducted by ULB to identify and/or regularize illegal connections in water supply and/or wastewater</i>
4. % illegal connections	%	This indicator captures the number of illegal connections in the ULB
		<i>Percentage of illegal connections to total number of connections in water supply</i>
5. % of identified illegal connections that are regularized	%	This indicator captures the number of illegal connections that have been identified and regularized. This essentially forms the unbilled unauthorized consumption within the system.
		<i>Percentage of illegal connections that have been identified and regularized to total number of connections in water supply.</i>
Service levels and Quality		
6. Percentage of estimated water demand over next 3 years to available supply from all current sources and immediate plans to augment through ongoing projects	%	This indicator captures the percentage of water demand that is estimated over the next 3 years to the available supply in the ULB.
		<i>Percentage of estimated water demand, over next 3 years, to available supply from current sources and immediate plans to augment through ongoing projects.</i>
7. Regular annual assessment of available sources		This indicator helps to monitor the ULB's level of preparation in each year to assess the available sources of water supply
		<i>Regular annual assessment of available sources of water supply</i>
8. Reused supply water	%	This indicator captures the extent of reuse of recycled wastewater after treatment to secondary standards.
		<i>Percentage of wastewater reused, after secondary treatment, to total water supplied</i>
9. Per capita supply of water	lpcd	This indicator captures the quantity of treated water that is supplied to the consumer daily. It is the aggregate of all sources of water from which the ULB supplies water.
		<i>Total water supplied to consumers expressed by population served per day</i>
10. Average pressure at WDS	meters	This indicator captures the average pressure of water supplied from distribution points within the city
		<i>Average pressure at water distribution stations within the city</i>
11. Average pressure at consumer end	meters	This indicator captures the average pressure of water at the consumer end
		<i>Average pressure at various consumer endpoints in the city</i>
12. Days of supply	days	This indicator captures the number of days of water supplied in a month.
		<i>Number of days of water supply in a month</i>
13. % of tests for RC	%	This indicator captures the number of samples that have been taken for RC to total number of samples required as per standards
		<i>Percentage of tests conducted for RC to number of tests required as per standards</i>
14. % of tests for bacteriological	%	This indicator captures the number of samples that have been taken for bacteriological to total number of samples required as per standards
		<i>Percentage of tests conducted for bacteriological samples to number of tests required as per standards</i>

Water Supply	Unit	Description of Local Action Indicators
Financial Sustainability		
15. Pump replacement	%	This indicator captures the extent of operation and maintenance carried out by ULB for pump maintenance and replacement
		<i>Total nominal power of pumps replaced in the current year to total nominal power of pumps</i>
16. Unit electricity cost of production of water	Rs/Kl	This indicator captures the expenditure of electricity incurred in daily production of water supply.
		<i>Total expenditure on electricity on water supply services per day (total expenditure during the year divided by number of days in the year) divided by average water supplied per day in Kl.</i>
17. Recruited to sanctioned staff in water supply		This indicator captures the total staff recruited to total staff sanctioned
		<i>Percentage of recruited to sanctioned staff in the city for water supply</i>
18. Total Staff (regular and contract) per 1000 water supply connections	Ratio	This indicator captures the staffing ratio for each city. This is an important indicator for comparisons across cities.
		<i>Total staff, including regular and contracted, employed in water supply per 1000 water supply connections.</i>
19. Per capita revenue expenditure		This indicator captures the revenue expenses incurred per person for all services provided in the city
		<i>Ratio of total revenue expenditure for water supplied by population of city</i>
20. Studies/ actions on detailed energy audits		This indicator captures whether the ULB has carried out detailed energy audits to improve revenues/ decrease expenses
		<i>Studies/ actions taken for detailed energy audits</i>
21. Average revenue per connection	Rs	This indicator captures the average revenue charged to the consumer per connection. This indicator is relevant in terms of the affordability aspect of the consumer.
		<i>Average revenue per water connection as charged by ULB.</i>
22. Per capita revenue income		This indicator captures the revenue income generated per person for all services provided in the city
		<i>Ratio of total revenue income for water supplied by population of city</i>
Efficiency in Service Operations		
23. Studies and actions for preliminary/ detailed water audit		This indicator captures whether the ULB has carried out preliminary/ detailed water audits to improve revenues/ decrease expenses
		<i>Studies/ actions taken for preliminary/ detailed water audits</i>
24. % Losses from source to water treatment plant (WTP)	%	This indicator captures the losses in transmission of water from source to treatment plant, and is a sub-component of non-revenue water.
		<i>Percentage of losses in water supplied from source to water treatment plant</i>
25. % Losses from WTP to water distribution station (WDS)	%	This indicator captures the losses in transmission of water from treatment plant to water distribution station, and is a sub-component of non-revenue water.
		<i>Percentage of losses in water supplied from water treatment plant to water distribution station</i>
26. % Losses from WDS to final consumption	%	This indicator captures the losses in transmission of water from water distribution station till consumer point, and is a sub-component of non-revenue water.
		<i>Percentage of losses in water supplied from water distribution station to final consumption point (includes both leakage on service connections and unauthorized consumption)</i>
27. Pipe breaks		This indicator captures the number of pipe breaks occurring annually; relevant as it reveals the efficiency of the network
		<i>Number of pipe breaks per year expressed per km of water distribution network</i>
28. % of network refurbished	%	This indicator captures the extent to which the sewerage network is refurbished/ replaced annually
		<i>Percentage of length of network that has been replaced/refurbished to total network length</i>

Water Supply	Unit	Description of Local Action Indicators
Efficiency in Service Operations		
29. % Authorized and unbilled consumption to total supply	%	This indicator captures the extent of authorized and unbilled consumption. This indicator is used for policy level decision.
		<i>Percentage of authorized and unbilled consumption (municipal buildings, parks, institutions, etc) to total water supply.</i>
30. Periodic monitoring and analysis of complaints		This indicator captures the presence of consumer grievance redressal systems in the ULB
		<i>Presence of periodic monitoring and analysis of complaints based on type and location of complaint.</i>
31. Total complaints in water supply per 1000 connections per year	Ratio	This indicator captures the complaints in water supply per 1000 water connections. This is an important indicator to understand the level of service provided across cities.
		<i>Total complaints received per 1000 water supply connections in a year.</i>
32. % of meters that are functional	%	This indicator captures the functional meters of the total number of meters installed.
		<i>Percentage of meters that is functional to total number of meters.</i>
33. Annual cost of losses (real and apparent)	Rs	This indicator captures the yearly production cost occurring due to losses in quantity of water supplied. This indicator gives the annual production cost of real losses.
		<i>Real losses in Non-Revenue Water (losses from source to consumer point) expressed in terms of production cost</i>
34. % of connections that are metered	%	This indicator captures the percentage of connections that are metered to the total connections in the ULB. This indicator coupled with functional metering of connections gives the actual extent of metering of connections in the ULB.
		<i>Percentage of connections metered to total connections in the ULB.</i>
35. Presence of automated billing systems		This indicator captures the presence of automated billing systems within the ULB
		<i>Presence of billing systems to automatically generate the bills for water supply/wastewater/ and SWM services</i>
36. Billed arrears to total billed demand	%	This indicator captures the percentage of arrears for billed demand.
		<i>Percentage of billed arrears to total billed demand in water supply</i>
37. Updation and linkage of connections with billing systems		This indicator captures the presence of systems to update and link the connections database with tariff charges
		<i>Updation and linkage of connections with billing systems</i>
38. Outsourcing collection systems		This indicator captures the provisions for ULB to outsource its collection of bills to private or other agencies
		<i>Provision/ practice of outsourcing collection of bills in the ULB</i>
Equity		
39. % of slum settlements having internal water supply network	%	This indicator captures the extent to which the slum settlements are connected to a water supply network
		<i>Percentage of slum settlements with internal access to water supply network to total number of slum settlements in the ULB</i>
40. Presence of policy enabling provision for services in slums	%	This indicator captures the policy initiatives undertaken by cities to provide individual water supply and sanitation services to urban poor
		<i>Presence of policy indicating provision of individual water supply and sanitation services to urban poor in the city.</i>
41. Efforts made to simplify connection procedures for slum HHs		This indicator captures the efforts that are made by the ULB to simplify or ease the procedures involved for slum HHs to apply for water connection
		<i>Efforts made by ULB to simplify connection procedures in slums</i>
42. % of uncovered HHs covered with water connections in slums during the year	%	This indicator captures the slum households that have been provided with individual water connections in the current year.
		<i>Percentage of individual water connections in slum households in the current year to total slum households in the city</i>

Water Supply	Unit	Description of Local Action Indicators
Equity		
43. % of population with access to improved water services in slums	%	This indicator captures the extent of slum population in a city that has access to safe sources of water supply, including individual connections as well as stand posts in slums
		<i>Percentage of slum population having access to individual water connections as well as shared connections like public stand posts to total slum population in the city.</i>
44. % budget for pro poor activities	%	This indicator captures the percentage of budget allocated to pro poor/ slum settlement activities
		<i>Percentage of budget allocated for pro poor activities to total budget of the ULB</i>
45. Connection charge for urban poor to non poor HHs in water supply	%	This indicator captures the variation in connection charges for poor and non poor households for water supply. This indirectly helps to assess the affordability for the poor.
		<i>% of connection charges for poor households to non poor households for water supply</i>
46. % of expenditure in slums to total ULB expenditure	%	This indicator captures the actual expenditure incurred towards upgrading services in slum settlements of the city
		<i>Percentage of capital and operating expenses for upgrading water supply and sanitation services in slums to total capital and operating expenditure of the city</i>

Waste Water	Unit	Description of KPIs
Access and coverage		
1. Coverage of toilets	%	This indicator captures the properties with access to toilets, either individual or community toilets, and assesses the level of sanitation services in the city.
		<i>Total number of properties with access to individual or community toilets as a percentage of total number of properties in the city.</i>
2. Coverage of connections to sewage network	%	This indicator captures the property level connections to sewage network, and is significant in estimating the safe sanitation levels of the city
		<i>Total number of properties with individual connections to sewage network as a percentage of total number of properties in the city.</i>
Service levels and quality		
3. Collection efficiency of sewerage network	%	This is an important indicator to understand the efficiency of the network in collecting and conveying the waste water to the treatment plant.
		<i>Quantum of waste water collected at the intake of the treatment plant to the quantity of waste water generated (as per CPHEEO, 80% of water consumed is waste water generated)</i>
4. Sewage treatment capacity	%	This indicator captures the adequacy of treatment plants to treat waste water collected to secondary treatment standards. This is important to measure as in most cities where treatment plant exists, it is not functional.
		<i>Quantum of waste water that can be treated to secondary treatment standards (removal of BOD and COD) as a percentage of normative waste water generated.</i>
Financial Management		
5. Cost recovery (O&M) in waste water management	%	This indicator captures the revenues (taxes, user charges, fees) recovered by the ULB against the expenses incurred. This denotes the cost control measures, if any, that need to be considered by the ULB, and also a critical factor in tariff charges.
		<i>Percentage of total operating revenues from sewerage related charges to total operating expenses.</i>
Efficiency in Service Operations		
6. Quality of sewage treatment	%	This indicator captures the quality of waste water that is released into the environment after treatment.
		<i>Total number of waste water samples (BOD and COD) that have passed the specified secondary treatment standards to number of waste water samples conducted, at the outlet of the plant.</i>
7. Extent of reuse and recycling of sewage	%	This indicator captures the quantity of waste water that is reused after treatment for purposes like irrigation, gardening, etc. This is an important indicator as it helps to assess the efficient use of the available water resources.
		<i>Quantity of waste water that is recycled or reused after secondary treatment as a percentage of quantity of waste water received at the treatment plant.</i>
8. Efficiency in redressal of customer complaints	%	This indicator captures the number of complaints made by consumers that have been redressed by the ULB, as per service charter standards. It is an important indicator which a direct assessment of the customer satisfaction levels
		<i>Total number of waste water related complaints redressed within time as stipulated in service charter of the ULB, as a percentage of the total number of waste water related complaints received in the year</i>
9. Efficiency in collection of sewerage related charges	%	This indicator captures the extent of collection of revenues that are billed by the ULB, and denotes the revenues that are due to the ULB.
		<i>Percentage of current year revenues collected from waste water related taxes and charges as a percentage of total billed amounts (for waste water)</i>
Equity		
10. Coverage of toilets in 'slum settlements'	%	This indicator captures the number of individual toilets that are provided in slum settlements, and indicates the level of services that are provided to the urban poor.
		<i>Percentage of total number of slum HHs with individual toilets to total number of slum HHs.</i>
11. Coverage of connections to sewage network in 'slum settlements'	%	This indicator captures the extent of connections to sewage network in the slum settlements, and indicates the level of services that are provided to the urban poor.
		<i>Percentage of total number of slum HHs connected to sewage network to total number of slum HHs.</i>

Waste Water	Unit	Description of Local Action Indicators
Access and Coverage		
1. Coverage of households with toilets	%	This indicator captures the households having access to either individual or community toilets.
		<i>Percentage of households with access to either individual or community toilets to total households in the city</i>
2. Coverage of properties with safe disposal system	%	This indicator captures the extent of safe disposal of sewage in the ULB at property level
		<i>Percentage of properties with access to safe disposal systems to total properties in the ULB</i>
3. Coverage of households with sewer connections	%	This indicator captures extent of residential coverage of sewage network in the city.
		<i>Percentage of households with connections to sewage network to total number of households in the city</i>
4. Coverage of sewerage network	%	This indicator captures the geographical area of the sewerage network with respect to total area of the city. It is an important indicator in assessing the coverage of sewerage connections in the city.
		<i>Percentage of municipal area covered by sewerage network to total area of the city.</i>
5. Coverage of sullage network (open + covered)	%	This indicator captures the geographical coverage of both open and covered drains. This is important to measure as in most cities, only sullage systems exist.
		<i>Percentage of municipal area covered by sullage network (open and covered drains), to the total area of the city.</i>
6. % illegal connections	%	This indicator captures the percentage of illegal connections , estimated/surveyed, existing in the ULB
		<i>Percentage of illegal connections to total number of connections in wastewater</i>
7. % of identified illegal connections that are regularized	%	This indicator captures the number of illegal connections that have been identified and regularized. This essentially forms the unbilled unauthorized consumption within the system.
		<i>Percentage of illegal connections that have been identified and regularized to total number of connections in wastewater</i>
Service levels and Quality		
8. Staff per length of sewer	Ratio	This indicator captures the number of staff recruited as a ratio of sewerage network in the city. It is relevant as it assesses the efficiency of the staff operations
		<i>Number of staff recruited for wastewater to the total length of the sewer network</i>
9. % of sewer network replaced/repared in last 3 years	%	This indicator captures the extent to which the sewer network has been replaced/ repaired in past three years.
		<i>Percentage of network length that has been re-laid/ replaced to total sewer length</i>
10. % capacity of plant to wastewater generated	%	This indicator captures the extent of treatment capacity for the wastewater generated in the ULB. This helps to assess if capacities need to be augmented based on wastewater generated.
		<i>Percentage of installed capacity of wastewater treatment plant to wastewater generated</i>
11. Adequacy of primary sewage treatment capacity	%	This indicator captures the adequacy of treatment plants to treat waste water collected to primary treatment standards. This is important to measure given that most cities have only oxidation ponds of primary treatment capacity.
		<i>Quantum of waste water that can be treated to at least primary treatment standards (removal of suspended solids) as a percentage of normative waste water generated.</i>
12. Presence of master plan for sewage system		This indicator assesses whether the ULB has a master plan in place to provide for sewerage services, including collection, treatment and disposal of wastewater
		<i>Presence of master plan for collection, treatment and disposal of sewage</i>
13. PSP in construction/ operation/maintenance in STP		This indicator assesses the private sector participation in construction, operation and maintenance of sewage treatment plants
		<i>Presence of private sector participation in construction, operation and maintenance of STP</i>
14. Extent of primary treatment	%	This indicator captures the quantity of wastewater treated to primary standards, against the installed capacity of the plant.
		<i>Percentage of wastewater that is treated to primary level to total installed capacity.</i>
15. Number of connections to septic tanks in the city	No	This indicator assesses the extent of safe disposal of septage in cities which are not or partially covered by sewer network
		<i>Number of toilets connected to septic tanks in the city</i>

Waste Water	Unit	Description of Local Action Indicators
Service levels and Quality		
16. Presence of septage treatment facilities		This indicator assesses whether the ULB has facilities to treat septage in the absence of wastewater treatment facilities <i>Presence of septage treatment facilities in the ULB</i>
17. Number of septage sucking machines/1000 septic tanks	No	This indicator assesses the vehicle capacity available with ULB or licensed by private agencies for septage collection and disposal <i>Number of septage sucking machines (owned by ULB and private) per 1000 septic tanks</i>
18. % of septic tanks cleaned annually	%	This indicator assesses whether the septage management is regularly carried out by ULB <i>Percentage of septic tanks cleaned annually to total number of septic tanks in the ULB</i>
Efficiency in Service Operations		
19. Frequency of sewer overflows	No	This indicator captures the efficiency of the sewer network by capturing incidents of sewer overflows <i>Number of incidents reporting sewer overflows in a year</i>
20. Quality of untreated WW disposed (BOD & COD)	%	This indicator captures the quality of waste water that is released into the environment without treatment. <i>Total number of waste water samples (BOD and COD) that have passed the secondary treatment standards to number of waste water samples collected at outlet points</i>
21. Total complaints in waste water per 1000 connections	Ratio	This indicator captures the complaints in waste water per 1000 sewerage connections, which indicates the level of service provided across cities. <i>Total complaints received that is recorded per 1000 sewerage connections in a year.</i>
22. Unit electricity cost of collection/disposal of WW	Rs/Kl	This indicator captures the expenditure of electricity incurred in daily collection, treatment and disposal of wastewater <i>Total expenditure on electricity on wastewater services per day (total expenditure during the year divided by number of days in the year) by wastewater collected per day in Kl.</i>
23. Recruited to sanctioned staff in wastewater	%	This indicator captures the total staff recruited to total staff sanctioned <i>Percentage of recruited to sanctioned staff in the city for wastewater</i>
24. Total staff per 1000 waste water connections	Ratio	This indicator captures the staffing ratio for each city. This is an important indicator for comparisons across cities. <i>Total staff, including regular and contracted, employed in waste water per 1000 waste water connections.</i>
25. Average revenue per connection	Rs	This indicator captures the average revenue charged to the consumer per connection, which is relevant in terms of the affordability aspect of the consumer. <i>Average revenue per waste water connection as charged by ULB.</i>
26. Billed arrears to total billed demand	%	This indicator captures the percentage of arrears for billed demand. <i>Percentage of billed arrears to total billed demand in waste water</i>
Equity		
27. % of slum settlements having internal WW network	%	This indicator captures the extent to which the slum settlements are connected to a wastewater network <i>Percentage of slum settlements with internal access to wastewater network to total number of slum settlements in the ULB</i>
28. Number of toilets constructed during the year	No	This indicator captures the number of toilets constructed in slum settlements in the current year. It is relevant as it indicates the sanitation levels provided for slums <i>Number of toilets constructed in the current year in slum settlements</i>
29. % of households defecating in open in slums	%	This indicator captures the households which lack sanitation facilities in the city. <i>Percentage of households without access to individual or community toilets in the city.</i>
30. % of population with access to improved sanitation services in slums	%	This indicator captures the extent of slum population in a city that has access to safe sanitation, i.e., access to individual toilets or community toilets in slums <i>Percentage of slum population having access to individual toilets as well as community toilets to total slum population in the city.</i>
31. Connection charge for urban poor to non poor HHs in WW	%	This indicator captures the variation in connection charges for poor and non poor households for wastewater, indirectly helps to assess affordability for the poor. <i>% of connection charges for poor households to non poor households for wastewater</i>

Storm Water Drainage	Unit	Description of KPIs
Access and coverage		
1. Coverage of storm water drainage network	%	This indicator captures the properties with access to toilets, either individual or community toilets, and assesses the level of sanitation services in the city.
		<i>Percentage of road length covered by storm water drainage network</i>
Service levels and quality		
2. Incidence of water logging/flooding	%	This is an important indicator to understand the efficiency of the network in collecting and conveying the waste water to the treatment plant.
		<i>Number of times water logging is reported in a year, at flood prone points within the city.</i>

SWM	Unit	Description
Access and coverage		
1. Household level coverage of SWM services	%	This indicator captures the door to door collection of MSW. This is relevant as it forms a major part in the quantum of waste that can be treated, and scientifically disposed.
		<i>Total no. of HHs and establishments with door to door collection of MSW to the total no. of HHs and establishments in the city.</i>
Service levels and quality		
2. Efficiency of collection of municipal solid waste	%	This indicator captures the total quantum of waste that is collected at the treatment and/or disposal sites. This is relevant as it forms a major part in the quantum of waste that can be treated/ disposed.
		<i>Quantum of waste that is collected at the treatment/disposal sites to the total quantity of waste that is generated in the city.</i>
3. Extent of segregation of municipal solid waste	%	This indicator captures the segregation of waste, typically as dry and wet waste, but ideally as bio-degradable and non bio-degradable waste. Segregated waste enables increased efficiencies in treatment, recycling and scientific disposal of waste.
		<i>Quantity of segregated waste received at treatment/ disposal sites to the total waste collected by the service providers.</i>
4. Extent of municipal solid waste processed/ recycled	%	This indicator captures the quantity of waste that is recycled or processed at the treatment plant.
		<i>Quantum of waste that is recycled or processed to the total waste that is collected by the service providers.</i>
Financial Sustainability		
5. Extent of cost recovery (O&M) in SWM services	%	This indicator captures the revenues (taxes, user charges, fees) recovered by the ULB against the expenses incurred. This denotes the cost control measures, if any, that need to be considered by the ULB, and also a critical factor in tariff charges.
		<i>Percentage of total operating revenues from SWM related charges to total operating expenses on SWM</i>
Efficiency in Service Operations		
6. Extent of scientific disposal of municipal solid waste	%	This indicator captures the quantum of waste that is disposed in scientific engineered landfills. This is an important indicator as it assesses the amount of waste that is safely disposed as against waste that is disposed in open dumps.
		<i>Quantum of waste that is disposed in scientific/compliant landfills to the total quantum of waste disposed in compliant and open disposal sites.</i>
7. Efficiency in redressal of customer complaints	%	This indicator captures the number of complaints made by consumers that have been resolved by the ULB, as per service charter standards. It is an important indicator which directly assesses the consumer satisfaction level.
		<i>Total number of SWM related complaints redressed within time as stipulated in service charter of the ULB, as a percentage of the total number of SWM related complaints received in the year</i>
8. Efficiency in collection of SWM related charges	%	This indicator captures the extent of collection of revenues billed by the ULB. It denotes the revenues that are due to the ULB from taxes and charges.
		<i>Percentage of current year revenues collected from SWM related taxes and charges as a percentage of total billed amounts (for SWM)</i>
Equity		
9. HH level coverage of SWM services in 'slum settlements'	%	This indicator captures the number of HHs serviced by door to door MSW collection in slum settlements. This measures the service level provision to the urban poor.
		<i>Total households in slum settlements serviced by door-to-door collection of MSW as a percentage of total number of HHs in slums.</i>

SWM	Unit	Description
Access and Coverage		
1. Sweepers per road length swept		This indicator assesses the number of sweepers employed per length of road swept.
		<i>Number of sweepers per length of road swept</i>
2. Secondary collection frequency		This indicator captures the number of times waste is collected from community bins and other secondary collection points
		<i>Number of times of emptying waste from community bins and other secondary collection points</i>
Service levels and Quality		
3. % treatment capacity to solid waste generated		This indicator captures the extent of treatment capacity for the solid waste generated in the ULB. This helps to assess if capacities need to be augmented based on solid waste generated.
		<i>Percentage of installed capacity of solid waste treatment plant to solid waste generated</i>
4. Adequacy of solid waste treatment facilities		This indicator captures the adequacy of treatment plants to treat municipal waste collected. This is important to measure given that most cities have only dumping sites
		<i>Quantity of solid waste that can be treated as a percentage of normative solid waste generated.</i>
5. PSP in secondary collection and transportation		This indicator assesses the private sector participation in secondary collection and transportation of municipal solid waste
		<i>Presence of private sector participation in secondary collection and transportation of municipal solid waste</i>
6. PSP in treatment and disposal of MSW		This indicator assesses the private sector participation in treatment and disposal of municipal solid waste
		<i>Presence of private sector participation in treatment and disposal of municipal solid waste</i>
Efficiency in service operations		
7. Total complaints in solid waste per 1000 HH	Ratio	This indicator captures the complaints in SWM per 1000 HHs.
		<i>Total complaints received in SWM that is recorded per 1000 HHs in a year.</i>
8. Unit cost of solid waste management services	Rs/ton	This indicator captures the cost of municipal solid waste collected. This is an important indicator for comparisons across cities.
		<i>O&M cost of collection of municipal solid waste, excluding depreciation and loan interest payment.</i>
9. Recruited to sanctioned staff in SWM		This indicator captures the total staff recruited to total staff sanctioned
		<i>Percentage of recruited to sanctioned staff in the city for solid waste management</i>
10. Total Staff (regular and contract) per 1000 households	Ratio	This indicator captures the staffing ratio for each city. This is an important indicator for comparisons across cities.
		<i>Total staff, including regular and contracted, employed in SWM per 1000 HHs.</i>
11. Average revenue per HH	Rs	This indicator captures the average revenue charged to the consumer per connection. This indicator is relevant in terms of the affordability aspect of the consumer.
		<i>Average revenue per HHs charged by ULB.</i>
12. Billed arrears to total billed demand	%	This indicator captures the percentage of arrears for billed demand.
		<i>Percentage of billed arrears to total billed demand in SWM</i>

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