

PERFORMANCE MEASUREMENT FOR URBAN WATER SUPPLY AND SANITATION



List and Definition of Key Performance Indicators

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1. Summary List of KPIs 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'		

2. Description of the Key Performance 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>

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>

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>

