HANDBOOK OF SERVICE LEVEL BENCHMARKS

SECTION I –
SERVICE LEVEL BENCHMARKS IN THE CONTEXT OF PERFORMANCE MANAGEMENT OF URBAN SERVICES

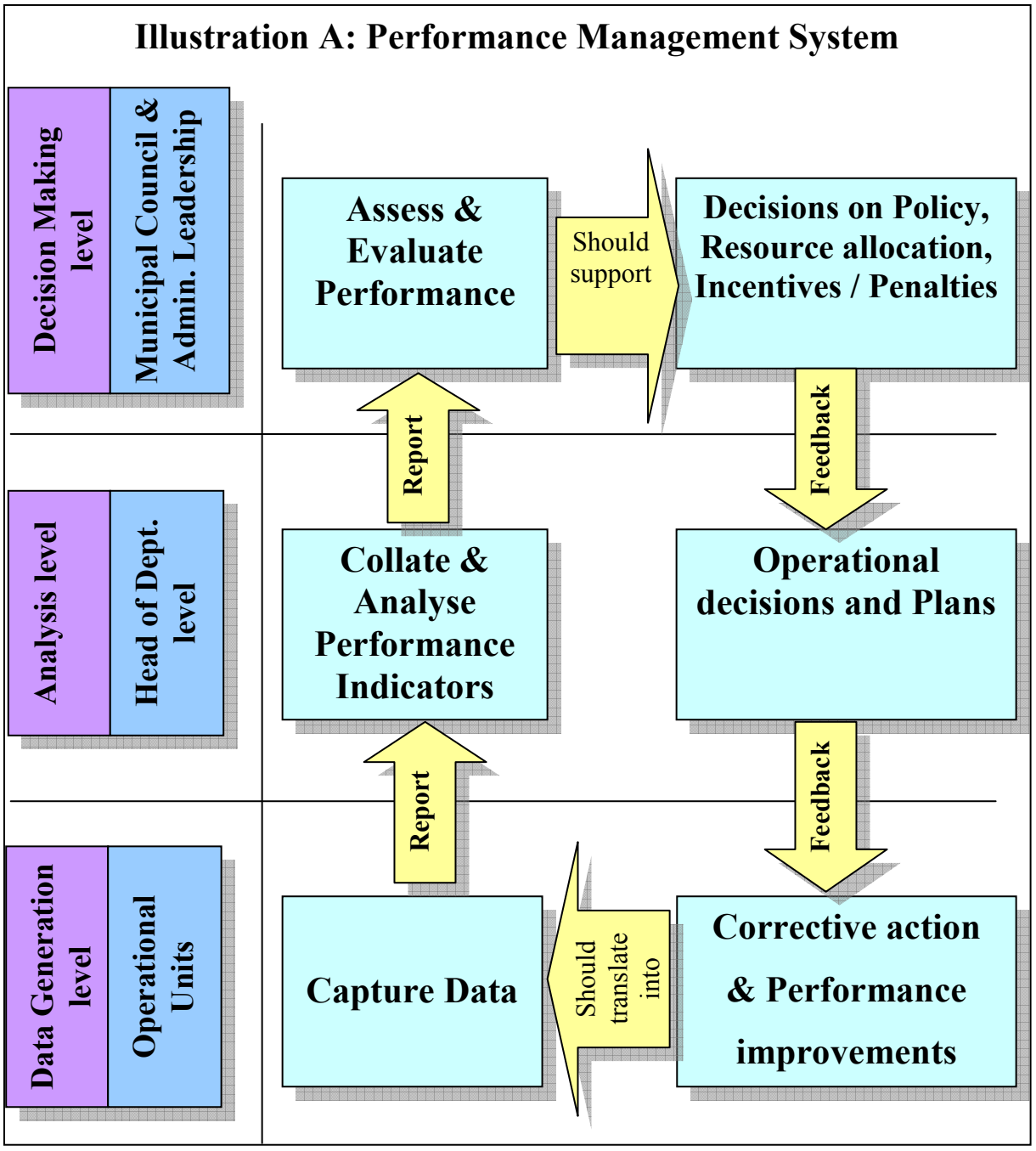
1.0 INTRODUCTION TO SERVICE LEVEL BENCHMARKS (SLBS)

.1 NEED FOR SERVICE LEVEL BENCHMARKS

In every sector, there are few key perfromance indicators that are understood by most stakeholders in that sector. Similarly, in the urban sector too there have been a number of performance indicators related to urban management and service delivery that have been defined, measured and reported. However, most initiatives in performance management so far have been observed to have some key limitations, viz.

a) Different sets of performance indicators have been defined under different initiatives
b) Even for the same performance indicator, the definition may vary or the assessment method may vary, thus inhibiting inter-city or intra-city comparisons
c) Most measurement exercises have been externally driven (by agencies external to the agency responsible for delivery against those performance parameters), and therefore the key issue of ownership of performance reports
d) Most performance measurement initiatives have been one-off exercises and not been institutionalized, limiting the benefits of monitoring trends in performance over time
e) The process of performance measurement has not been taken further into Performance Management (Refer to illustration A)

All of the above means that systems for measuring performance and taking further action on them have not been institutionalized in urban agencies. It is therefore important that the basic minimum **standard** set of performance parameters are commonly understood and used by all stakeholders. Depending on the specific need additional performance parameters can be defined and used.



Measuring service levels of civic agencies implies measuring outcomes, and thereby indirectly also reflects on institutional capacity, financial performance and other parameters. **Service level** parameters can be measured either from a utility manager's / planner's perspective or from a citizen's or consumer's perspective. Further, to facilitate comparison between cities / service delivery jurisdictions, and changes in performance over time, it is important that the performance levels are **benchmarked**, and monitored against those benchmarks.

It is in this context, that the Ministry of Urban Development has initiated an exercise to define **Service Level Benchmarks** (SLBs). MoUD constituted a 'Core Group for SLBs', comprising experts from various institutions to arrive at the SLBs. Drawing on the experiences of various initiatives in measuring service level performance, the Core Group narrowed down the exercise to four basic urban services to begin with, and arrived at sets of indicators in each. After much deliberation, the indicators, their definitions, means of measurement, frequency and jurisdiction of measurement and reporting, etc. were finalized.

The ***Handbook on Service Level Benchmarks***, is a ready reckoner of sorts to enable ULBs and other city level parastatal agencies implement systems for measuring, reporting and monitoring the SSLBs.

.2 PERFORMANCE PARAMETERS FOR BASIC URBAN SERVICES

Service level performance parameters have been identified for four basic urban services, viz.

a) Water Supply
b) Sewerage
c) Solid Waste Management
d) Storm Water Drainage

These parameters have been defined primarily from a utility managers' / planners' perspective. In other words, the parameters highlight the performance as would be monitored by the leadership / management of Urban Local Bodies or other civic agencies. These performance measurements will need to be carried out by the service delivery agencies themselves, reported to higher levels of management and also disseminated widely. Clear definitions and methodologies are expected to eliminate bias in measurement and reporting.

Performance from a citizens' or consumers' point of view is better measured by capturing their perception, rather than data from the delivery agency. Measuring citizen's perception can be in addition to reporting by the agency themselves, and can offer interesting insights when compared with one another.

Performance parameters should be applied in a manner across all cities and be regularly used by all stakeholders. Practical considerations will drive frequency of measurement and reporting; and the jurisdiction of measurement and reporting, both critical aspects in performance measurement. Performance will need to be measured at a frequency higher than or at least equal to the frequency at which it will need to be reported. Frequency should be at such interval at which the variables driving the performance parameter will undergo visible change, and thereby reflect change in performance over different time periods.

Also, to the extent practical, performance should be measured at the smallest geographic jurisdiction as possible. Typically, performance measurements at the

electoral ward level will be of significant value to decision makers, especially elected representatives. Administrative jurisdictions for service delivery departments should ideally be co-terminus with ward boundaries. Service delivery performance at ward levels, when laid out spatially on the city map may also offer interesting insights. Also from a citizen's perspective, 'ward boundaries' are the sub-ULB level jurisdictions that they can possibly relate to.

However, on the other hand, in case of network utilities such as water supply and sewerage, all network management data is ideally reported by Zone / District Metering Area (DMA); which typically represent major branches in the network.

It will therefore be relevant to examine 'network management' related performance indicators by Zone / sub-jurisdictions of the network (for eg. Continuity of water supply), while service delivery as experienced by the citizen is measured by civic ward as the smallest jurisdiction (for e.g. coverage of water supply connections).

For purposes of internal management of the ULB / utility, performance should be reported at the lowest level of jurisdiction and at maximum frequency possible. However, frequency may reduce and city-wide level performance may be reported to higher level of Governments and other external stakeholders.

.3 ROLES OF DIFFERENT STAKEHOLDERS

For the service level performance parameters to come to be accepted as a standard, all stakeholders will need to play their part. The role of different stakeholders and the next steps they will need to pursue are briefly mentioned below.

a) ***Central Government:*** The Ministry of Urban Development, Government of India will take the lead disseminating these service level performance parameters and building wider acceptance. Further SLBs will also be institutionalized through the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and other [programmes of this Ministry through more ways than one, viz.
   - SLBs will be an integral part of City Development Planning processes, both for assessment of current situation, and for setting targets under their plans.
   - Where ever appropriate, SLBs will be dovetailed with the commitment on reforms, and subsequent process of appraisal of reforms
   - The relevant SLBs should be part of Detailed Project Reports for concerned sectors, indicating both the current situation and what change the project will bring about. Subsequent processes of monitoring implementation of the project will also examine these SLBs.
   - Under the JNNURM, support may be extended to enable ULBs and other civic agencies to establish systems in their respective institutions for periodic measurement, reporting and analysis of SLBs.

b) State Governments and its agencies: State Governments and its nodal agencies in the urban sector have a critical role in driving performance of ULBs and city level

civic agencies. State Government will need to periodically examine the SLBs as an input for its decisions related to policy, resource allocations, providing incentives and penalties, channelising technical and manpower support, and regulatory considerations amongst others. The Directorate of Local Bodies / Department of Municipal Administration will need to play a key role in this process through constant inter-city comparisons. These departments should leverage the power of information technology to build and operate systems that periodically capture and report on SLBs. Web-based technologies should be leveraged for managing information flow. For other nodal state level agencies, the SLBs will provide specific inputs for their programs and interface with the ULBs and other civic agencies. SLBs will also be an important input to State Finance Commissions in the course of their work.

c) ***Urban Local Bodies:*** ULBs are the most important stakeholders for institutionalization of SLBs.

- As *service delivery institutions*, ULBs will find it useful to institutionalize systems for performance management using SLBs. Performance data at the sub-ULB level (zone or ward level) is particularly useful for the ULB for taking appropriate decisions and monitoring performance of the various field units. Benchmarking with other cities within the State, or with similar cities facilitate a healthy competitive environment for continuous improvement.
- As the *principal elected institution for self-governance in the city*, ULBs will need to examine performance of other para-statal civic agencies, even if the ULBs are not directly responsible for service delivery in those areas.

Performance management data using SSLBs should be included in the set of information disseminated under mandatory public disclosure, as required by the reforms mandate under JNNURM.

The key next steps for ULBs are to generate performance reports on SLBs periodically beginning FY 08-09. Data can be captured either regularly through systems on the ground (For e.g. weighbridge at the composing plant or land fill site, water meters capturing flow at designated points, demand collection registers for water charges, etc.), or through specific surveys carried out at defined intervals. In parallel, the ULBs will also need to institutionalise systems for the entire cycle of performance management, as depicted in Illustration A. This would imply the following:

i. ***Systems for Capturing Data:*** Design and implement data collection systems for data to be captured at the most disaggregated level. Such data will typically be from field level staff such as sanitary supervisors, water pump operators, accounts clerks, etc. Simple data formats should be designed and provided to them to capture the data and report the same upwards within the organization for collation and determination of the service level performance.

ii. ***Systems for Collation and analysis of Performance Indicators:*** Specific persons should be designated with the mandate to collate the data received from the field and generate the performance reports. Working directly under supervision and guidance from officers at the Head of Department level, young

professionals with good analytical skills and moderate level of technical skills should be able to execute these tasks.

iii. ***Systems for Assessment and Evaluation of Performance:*** In most cases, multiple indicators need to be examined to obtain a holistic picture of service levels in a particular sector. Performance indicators reported by department level should be closely examined at the management level of the ULB. Such reviews by the Mayor / Municipal Commissioner should be at defined periodicity, say monthly.

iv. ***Systems for decision making:*** All ULBs do have systems for decision making, however, many decisions end up being considered in the absence of quality data. To address such gaps, systems such as - periodically tabling the performance reports in the Council / to the Standing Committees should be instituted. Typically, reporting ward level performance parameters wherever applicable will be useful.

v. ***Systems for Operational decisions and plans:*** Decisions and plans will need to be periodically reviewed in light of the performance achieved and follow-on decisions taken up. Additional capital or revenue expenditure may need to be taken up, contracting decisions taken, remedial action taken with respect to deployment of staff, etc. A process of monthly review and follow-up decisions will need to be instituted.

vi. ***Systems to take corrective action for performance improvement:*** To enable the operational staff implement the corrective action on the ground, they will need to be adequately empowered to implement the decisions taken without lengthy approval processes. For networked infrastructure services, which is the case for most urban services, significant efficiency improvements can be brought about through operational improvements without significant capital investment.

A system of incentive and penalties must be instituted for attaining targeted performance levels. This is critical for the field functionaries to respond for making quick operational improvements. Similarly, the system of penalties for errant staff who have lead to poor performance should be institutionalized.

d) ***Other parastatal agencies:*** The significance of SLBs and the next steps parastatal agencies need to undertake is very similar to that for ULBs. Parastatal agencies too need to put in place all the systems for performance management as mentioned above. The need for periodic reporting of SLBs to ULBs concerned and its public disclosure is further highlighted in this case, thereby bringing in higher intensity of accountability of parastatal agencies to elected bodies and public at large.

e) ***Bi-lateral / Multi-lateral aid agencies and other stakeholders:*** Various urban governance and infrastructure improvement programs of bi-lateral and multi-lateral aid agencies can dovetail and further strengthen this initiative, mainly in two ways:

- Enabling State Governments and cities design and implement performance management systems, with a focus on the SLBs defined.
- Extensively using the SLBs defined in the design, implementation and monitoring of the urban programs supported by them. Benchmarking service

levels and achieving targets for each of these SLBs can be built into the design of these programs.

Institutions such as City Manager's Associations, public administration training institutions, Office of the Comptroller and Auditor General (CAG), other external and internal audit agencies, financial institutions and whole range of external stakeholders should commonly examine these SLBs in the course of their interactions with the ULBs.

f) ***Citizens and civil society at large:*** While the SLBs have not been defined from the citizen's perspective as such, the parameters considered provide reasonable indication of performance of the ULB / civic agency. Citizens' should engage with ULBs through Area Sabhas, Resident Welfare Associations and other such civil society organizations, in examining the SLBs and suggesting remedial actions.

.4 LIMITATIONS AND CHALLENGES IN IMPLEMENTING PERFORMANCE MANAGEMENT SYSTEMS USING SLBS

It is recognized that this initiative has a number of limitations. Performance management in ULBs is being triggered from the Central Government, however, the acceptance and capacity at the State and city levels is what will sustain this initiative. While this handbook has attempted to address issues of definition and methodology for the SLBs, it is anticipated that a number of complexities will arise in the course of actual implementation. Field level experience in implementing service delivery performance management systems may also throw up the need for monitoring additional parameters. All of such experience should then provide the feedback for improving the SLBs and preparing the second version of this handbook.

Challenges involved in implementing performance management systems using SLBs will be many. They will include:

- Systems for capturing key data elements identified for the SLBs are not present in many cases at the field level. Ideally data is always captured at the lowest level. Interpreting and understanding performance is always easier at an aggregate level, while the same is not possible at the disaggregated level, if data has not been captured at that level. Also the data at city / ULB level can be credible and reasonably accurate, only if it has been captured at lower levels, such as ward level. For e.g. if ward level data is captured on hours of water supply, the same can be aggregated at a ULB level. However, if the number of hours is only assessed and reported at the city level, ward-wise variances cannot be examined.
- To measure input parameters for a performance indicator, there may be a tendency to measure it through ad hoc systems, which can be a one-off exercise. However, to generate data from the field level on a regular basis to sustain periodic performance measurement, sustainable systems need to be put in place.
- In some cases, there may be resistance of field staff or other stakeholders to collect and report correct information, as vested interests may be involved. Such vested

interest may also want to prevent transparent disclosure of the performance measured. Such hurdles will need to be overcome.

- As mentioned earlier, definition and measurement methodology issues will continue to exist, which should get refined with experience. Also, some other indicators may seem important, or more SLBs may seem to be necessary for interpreting performance.
- The entire loop of performance management will be sustainable only if - disclosure, reporting, monitoring and performance management feedback, incentives and disincentives are also brought into the cycle. Else the system of measurement and disclosure of SLBs may not sustain itself.

.5 STANDARDISATION OF SERVICE LEVEL BENCHMARKS

With a view to the definition and computation methodology of the select SLBs (performance indicators), each of these indicators has been detailed out in a standardized template in the following pages. For each of the selected indicators, the following details have been provided:

a) ***Title, Units and Definition:*** The specific name, the unit of measurement in which the performance is to be measured, and definition for the indicator is provided.

b) ***Data requirements:*** The specific elements of data that need to be captured is identified, and its corresponding unit of measurement. Each data element is described, point and frequency of data capture is mentioned. The specific formulae that should be used to arrive at the performance indicator are mentioned.

c) ***Rationale for the indicator:*** For each performance indicator, the overall significance and rationale for assessing and monitoring the performance indicator has been provided. The benchmark value has been specified in most cases.

d) ***Reliability of measurement:*** The performance measurement is only as reliable for meaningful management decisions, as much as the systems that generate the data to compute the performance. Typically, four levels of reliability of the data systems have been specified, viz. 'A', 'B', 'C', and 'D' with 'A' being highest reliability and 'D' being lowest.

   Reliability of measurement highlights a hitherto ignored aspect in performance management of urban services. This highlights the need to designing, implementing and institutionalizing robust systems and processes that will provide data of high reliability, on a repeated basis, and in a consistent manner. ULBs / urban utilities are advised to institute systems corresponding to the level 'A' specified. Such a transition will not happen in a short time period. Thus, while performance levels are improved over time, so should the data systems through which data is captured. The goal therefore is reaching the benchmark performance level as arrived at by 'A' level reliability of measurement.

e) ***Frequency of measurement:*** Frequency of measurement of the performance indicator refers to the frequency at which the performance level will be assessed and not the frequency at which the data elements will be measured. For each indicator, the minimum frequency at which the performance should be measured is mentioned. The same can then be reported at the same frequency or a lower frequency. The frequency at which performance is measured is very critical since:
   a. There should ideally be visible change or potential for changing performance level between two consecutive time periods. [For e.g. it may not be possible to change availability of treatment plant capacity in a few months; therefore it should be measured and reported on annual basis. However, hours of water supply may vary with season and can be improved during the year, therefore it should be reported at quarterly and annual frequency.]
   b. If the time period is set too large, the performance measured cannot effectively feed back into making operational improvements.
   c. If the time period is set too small, significant time will be lost in only measuring and reporting performance.
   d. Performance cannot be reported at a frequency higher than at what it has been measured.

   Performance should be reported more frequently within the organization, and at lower frequency to higher levels of government. For e.g. performance reports should be tabled to the Standing Committees and Municipal Councils at monthly or quarterly frequency. However, they may be reported at annual frequency to State and Central Governments.

e. ***Jurisdiction of measurement:*** This refers to the geographic jurisdiction for which performance should be measured, and not the point of data collection. Typically, measuring urban service delivery performance at a sub-city level makes more sense for city level stakeholders, than only city-level performance indicators. For e.g. for an urban citizen or municipal councilor, it would be useful to know the performance of a particular service in that ward, especially in relation to other wards. Also measuring performance only at the city level, will disguise huge differences in service levels that exist between different localities in one city, a phenomenon common in most Indian cities.

   Similarly, for stakeholders at the State and Central level, it is useful to have city-level performance indicators, as the same would be useful to compare and contrast cities. Such information will then be useful for formulation of State level and National strategies and policy responses.

   Measuring performance at a lower level jurisdiction enables aggregation of the data to indicate performance at a larger jurisdiction. Thus, if ward level performance is known for all wards, ULB level performance can also be reported.

It may be noted that with respect to geographic jurisdictions for the performance indicators, the terms 'ULB' and 'city' have been used inter-changeably. This is since, in larger cities / urban agglomerations there are multiple ULBs within the city; while in smaller cities, the ULBs typically cover the entire urban boundaries. In many cities, certain services such as water supply, waste water management may be provided and / or managed by a parastatal utility for a larger urban jurisdiction, rather than the limits of the ULB/s. In such cases, the data and performance indicators may pertain to the jurisdictions of the parastatal utility. Therefore, the unit of ULB / city should be interpreted as appropriate to the given context.

.6 STRUCTURE OF THE HANDBOOK

Section II of the handbook provides details regarding each of selected SLBs. The list of indicators has been chosen after taking into account experiences in pilot initiatives in implementing SLBs across ULBs / utilities. Quality of available data, effort required in data collection and significance of the indicator has been considered in arriving at this set of indicators.

Section III of the handbook provides guidance on how the SLBs can be operationalised. Samples of performance reports of SLBs that ULBs / civic agencies can use to set and track their performance improvement are provided.

SECTION II –
STANDARDISED SERVICE LEVEL BENCHMARKS

STANDARDISED SERVICE LEVEL BENCHMARKS

List of SSLBs have to chosen, so as to reflect multiple facets of service delivery performance. SSLBs for which detailed data sheets are provided are:

2.1 **Water Supply:** As water supply is a basic need, emphasis has been laid on performance related to reach and access to quality service; and prevalence and effectiveness of the systems to manage the water supply networks. As financial sustainability is critical for continued effectiveness in service delivery, performance is measured on this aspect too. Indicators selected are:

- 2.1.1 Coverage of water supply connections
- 2.1.2 Per capita supply of water
- 2.1.3 Extent of metering of water connections
- 2.1.4 Extent of Non-Revenue Water
- 2.1.5 Continuity of water supply
- 2.1.6 Efficiency in redressal of customer complaints
- 2.1.7 Quality of water supplied
- 2.1.8 Cost recovery in water supply services
- 2.1.9 Efficiency in collection of water supply related charges

2.2 Waste water management (Sewerage and Sanitation): For waste water management, performance related to reach and access of the service, effectiveness of the network and environmental sustainability have been emphasized, apart from financial sustainability of operations. Indicators selected are:

- 2.2.1 Coverage of toilets
- 2.2.2 Coverage of waste water network services
- 2.2.3 Collection efficiency of waste water network
- 2.2.4 Adequacy of waste water treatment capacity
- 2.2.5 Quality of waste water treatment
- 2.2.6 Extent of reuse and recycling of waste water
- 2.2.7 Extent of cost recovery in waste water management
- 2.2.8 Efficiency in redressal of customer complaints
- 2.2.9 Efficiency in collection of sewerage related charges

2.3 **Solid Waste Management:** Performance related to reach and access, effectiveness of network operations and environmental sustainability have been considered, apart from financial sustainability of operations. Indicators selected are:

- 2.3.1 Household level coverage of Solid Waste Management services
- 2.3.2 Efficiency of collection of municipal solid waste
- 2.3.3 Extent of segregation of municipal solid waste
- 2.3.4 Extent of municipal solid waste recovered
- 2.3.5 Extent of scientific disposal of municipal solid waste
- 2.3.6 Extent of cost recovery in Solid Waste Management services
- 2.3.7 Efficiency in redressal of customer complaints

2.3.8 Efficiency in collection of SWM related user related charges

2.4 Storm Water Drainage: Extent of the network and effectiveness of the network are emphasized to assess storm water drainage systems performance. As this service does not yield any direct revenues, financial sustainability is not considered. Indicators selected are:

2.4.1 Coverage of Storm water drainage network

2.4.2 Incidence of water logging / flooding

2.1 WATER SUPPLY SERVICES

2.1.1 COVERAGE OF WATER SUPPLY CONNECTIONS

Performance Indicator		
Indicator	**Unit**	**Definition**
Household level coverage of direct water supply connections	%	Total number of households in the service area that are connected to the water supply network with a direct service connection, as percentage of Total number of households in that service area. The service area may be either an electoral ward, or the ULB as a whole.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total number of households in the service area	Number	The total number of households (not properties) in the service area should be calculated. Service area refers to either the ward or the ULB limits. Cadastre maps supplemented through actual ground level surveys (carried out once in 4-5 years) should provide this data. Exclusive surveys need not be carried out, and data can be collected during other surveys carried out for property tax, or other such purposes.
b) Total number of households with direct water supply connection	Number	This will include households which receive municipal water supply at one common point, from where it is stored and distributed for all households (for e.g. as in apartment complexes). Households supplied water through public standposts or tankers should be excluded. Households completely dependent on other water sources such as borewells, open wells, etc. should not be included.
Household Coverage for water supply connections	%	**Coverage = [(b/a)*100]**

Rationale for the indicator
The minimum level acceptable standard for water supply service should be a household level water supply connection, i.e. a direct piped connection for water supply within the household. Water provision to households (urban poor or otherwise), at common public standposts cannot be considered as an acceptable / long-term permanent service provision standard. The social costs of not having access to piped water connection at household level are significant. Innovative service delivery options may be adopted for delivery of piped water connections to properties with inappropriate tenure rights (as in many urban slums).

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Estimation of households covered on basis of geographical area of the city covered with pipeline network, as a surrogate indicator for water supply coverage.
Intermediate level (C)	Estimation of households covered on basis of road length in the city covered by pipeline network, as a surrogate indicator for water supply coverage.
Intermediate level (B)	Estimation of households covered computed as total number of connections (for which data is maintained) as a percentage of estimated number of households on basis of population (total population divided by average household size)
Highest/preferred level of reliability (A)	Calculation based on actual number of households with direct service connections (for which data is maintained); and total number of households as revealed in ground level surveys. Data is periodically updated on basis of building units approved, and new household level water connections provided.

Minimum frequency of measurement of performance indicator		Smallest geographical jurisdiction for measurement of performance	
Measurement	Quarterly	Measurement	Ward level

2.1.2 PER CAPITA SUPPLY OF WATER

Performance Indicator		
Indicator	**Unit**	**Definition**
Per capita quantum of water supplied	litres per capita per day (lpcd)	Total water supplied into the distribution system (ex-treatment plant and including purchased water, if any) expressed by population served per day.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Water supplied to the distribution system	litres per month	Daily quantities to be measured through metering, and records should be maintained. Total supply for the month should be based on aggregate of daily quantum. Only treated water input into the distribution system should be measured. If water is distributed from multiple points, aggregate of that quantity should be considered. The quantum should exclude bulk water transmission losses, as measured through water audit tests. This quantum should include water purchased directly from any other sources and put into the distribution system, if any. Water may have been purchased from neighboring ULBs, Cantonment Boards, etc. Water supplied in bulk to large water intensive industries / industrial estates should be excluded.
b) Population served	Number	Number of people in the service area served by the utility. While typically number of residents are considered, if the city has a significant floating population of tourists who temporarily reside in the city, such population should be included. Tourist population estimates can be resonably computed on basis of bed capacity of hotels, and occupancy rates.
c) Number of days in the month	Number	Number of days in the specific month
d) Additional information in respect of areas where water is supplied at a rate less than 70 LPCD	litres per capita per day (lpcd)	Number of people in these service areas served by the utility. The quantity of water supplied to these areas measured through bulk meters or by scientific calculation using flow velocity and head.
Water Produced	lpcd	**Per capita water produced = [(a / c) / b]**

Rationale for the indicator

This frequently used performance indicator provides an overall indication of the adequacy of the water supply to meet the needs of the citizens in the city. Per capita water supplied, expressed in lpcd, indicates the adequacy of the municipal water supply system in being able to source, treat water to potable standards and supply the same into the distribution system. Therefore, this indicator should be periodically measured and monitored. Monitoring this on a monthly basis, will reveal seasonal variations. The key limitation of this indicator is that it provides information on a city wide basis, and does not reveal intra-city variations.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Quantity of water produced is estimated on basis of assumed pump capacity and efficiencies and number of hours of operation. Population served is on basis of past census figures, extrapolated to current levels. Reliable estimates of floating population are not available.
Intermediate level (C)	Quantity of water produced is estimated on basis of measurement of periodic sample surveys of production flows at all bulk production points. Reliable estimates of transmission losses and industrial water consumption are available. Population served is on basis of past census figures, extrapolated to current levels. Reliable estimates of floating population are not available.
Intermediate level (B)	Not applicable
Highest/preferred level of reliability (A)	Quantity of water produced is computed on basis of measurement by bulk flow meters at the outlet of treatment plant and/or at all bulk production points. Quantum of losses and bulk industrial consumption is periodically monitored. Population served is known with reasonable accuracy. Any expansion of municipal limits, and other significant factors are measured and factored into the current population computation. Floating population is estimated with reasonable accuracy.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Monthly	Measurement	ULB level

2.1.3 EXTENT OF METERING OF WATER CONNECTIONS

Performance Indicator		
Indicator	**Unit**	**Definition**
Extent of metering of water connections	%	Total number of functional metered water connections expressed as a percentage of total number of water supply connections. Public stand post connections should also be included.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total number of direct service connections	Number	This will include households and establishments which receive municipal water supply at one common point, from where it may be stored and distributed for all households (for e.g. as in apartment complexes). Households supplied water through public stand posts or tankers should be excluded. Households completely dependent on other water sources such as bore wells, open wells, etc. should not be included.
b) Total number of public standposts	Number	The total number of public stand post connections, which are currently in use should be considered.
c) Number of metered direct service connections	Number	Out of the total number of direct service connections (to all categories of consumers), the number of connections which have functional meters, and metered quantities is the basis for billing of water charges.
d) Number of metered public stand posts	Number	Typically, public stand posts are not metered. However, if some of them are metered, they should be included.
Extent of metering of water connections	%	**Extent of metered connections = [(c + d)/ (a + b)]*100**

Rationale for the indicator
While water is a basic need, supply of potable water to citizens at their doorstep involves significant costs in building, operating and maintaining a system to do so. In a water supply system, quantum of service provided to citizens is directly measurable, and therefore it is necessary that all the water supplied to all categories of consumers should be metered. Metering will also induce efficiency in use of water, reveal physical and administrative leakages in the system, and enable high-end consumers to be charged for consuming more. Therefore, for introduction of volumetric based tariff structure for water charges, metering all connections is essential.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Few meters have been installed. All installed meters assumed to be functional and are assumed used as basis for billing water charges.
Intermediate level (C)	Meters installed for only certain category of consumers. It is assumed all consumers of these categories have meters installed which are functional and used as basis for billing. Records do not reveal exact number of connections which are metered. Water charged on basis of average reading for consumer category or on basis of past trends in most cases.
Intermediate level (B)	Database / records reveal list of consumers that have meters installed in their water connections. However, no clear data on functioning of meters, and no linkage with the billing system that may or may not use metered quantity as basis for billing.
Highest/preferred level of reliability (A)	Billing records and databases clearly identify consumers with meters (against specific meter serial no.). Billing processes reveal regular reading of meters and, meter readings are the basis for charging consumers. Records of stand posts are available. Database of water connections and meters are complete, and spatially referenced with a GIS database. Mechanism in place to repair meters if found faulty. Processes for installation of new water connections, installation of meters and generation of water bills based on the same are interlinked, and the data systems enable such continuity of data flow regarding these.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Quarterly	Measurement	Ward level

2.1.4 EXTENT OF NON-REVENUE WATER

Performance Indicator		
Indicator	**Unit**	**Definition**
Extent of Non-Revenue Water	%	This indicator highlights the extent of water produced which does not earn the utility any revenue. This is computed as - Difference between total water produced (ex-treatment plant) and total water sold expressed as a percentage of total water produced. NRW comprises - 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.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total water produced and put into the transmission and distribution system	million litres per day (or) month	Daily quantities to be measured through metering, and records should be maintained. Total supply for the month should be based on aggregate of daily quantum. Only treated water input into the distribution system should be measured. If water is distributed from multiple points, aggregate of that quantity should be considered. This quantum should include water purchased directly from any other sources and put into the distribution system, if any. Water may have been purchased from neighbouring ULBs, Cantonment Boards, etc.
b) Total water sold	million litres per day (or) month	Actual volume of water supplied to customers who are billed for the water provided. Ideally, this should be the aggregate volume of water consumed as per which consumers have been billed. However, in the absence of a complete and functionally effective metering regimen, alternate methods of measurement need to be evolved, with lower but acceptable levels of reliability.
Non Revenue Water	%	**Non-Revenue Water = [((a - b) / a)*100]**

Rationale for the indicator
Reduction in NRW to acceptable levels is vital for the financial sustainability of the water utility. NRW can be reduced through appropriate technical and managerial actions, and therefore monitoring NRW can trigger such corrective measures. Reduction of real losses can be used to meet currently unsatisfied demand or to defer future capital expenditures to provide additional supply capacity. Reduction of NRW is desirable not just from a financial stand point, but also from economic and environmental benefits point of view.

NRW is also influenced by factors outside the control of the water utility such as - topography of the city, age of network, length of network per connection and water use per capita.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Quantity of water produced is estimated on basis of assumed pump capacity and efficiencies and number of hours of operation. Few meters have been installed, in the distribution system and at the consumer end. Quantity of water sold to the category of consumers to whom bills are raised, is estimated on basis of assumed average consumption in that category and number of consumers in that category.
Intermediate level (C)	Quantity of water produced is estimated on basis of measurement of periodic sample surveys of production flows at all bulk production points. Meters are installed for select category of consumers, such as commercial and bulk consumers. For other category of consumers, such as domestic consumers, average consumption per consumer is considered and number of such consumers is considered, to arrive at quantum of water sold.
Intermediate level (B)	Quantity of water produced is computed on basis of measurement at bulk flow meters at the outlet of treatment plant and/or at all bulk production points. Quantum of water sold is based on metered quantity for bulk and commercial consumers. For households, ferrule size (size of distribution pipe outlet at consumer end) of each consumer connection is known, and hours of supply is known to compute the quantum of water sold.
Highest/preferred level of reliability (A)	Quantity of water produced is computed on basis of measurement at bulk flow meters at the outlet of treatment plant and/or at all bulk production points. Metering is undertaken at all key distribution nodes (entry to District Metering Areas - DMAs) and at consumer's end for all category of consumers. Billing records and databases clearly reveal regular reading of meters and, therefore total quantum of water billed to consumers in the given time period (month / bi-monthly).

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Quarterly	Measurement	ULB level

2.1.5 CONTINUITY OF WATER SUPPLY

Performance Indicator		
Indicator	**Unit**	**Definition**
Continuity of water supply	Hours per day	Continuity of supply is measured as - Average number of hours of pressurized water supply per day. Water pressure should be equal to or more than a head of 7 meters at the ferrule point / meter point for the connection. [7 m head corresponds to ability to supply to a single storey building]

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
Average hours of pressurized supply per day	Hours	The number of hours of supply in each of the operational zones (or District Metering Area - DMA) should be measured, continuously for a period of 7 days. The average of the seven days should be considered for that month. Measurement should exclude hours of supply where the pressure is less than the minimum standards for piped water supply mentioned above. The zone-wise figures should be averaged out to get city-wise data.

Rationale for the indicator
Almost no Indian city has a continous (24 x 7) water supply system, while the same is the norm for all cities in the developed world. From a citizens' perspective, it is desirable to have round the clock water supply daily, as it eliminates the need to provide and manage household / establishment level storage, and other resultant inconveniences. The water utilities in most Indian cities provide intermittent and limited number of hours of supply, as a means to manage inadequate supply. A number of studies have demonstrated the negative fallouts of designing and operating a system for intermittent water supply. A number of cities are undertaking substantial investments to improve this service level. It is therefore critical to monitor this indicator on a city-wide basis.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Estimation of number of hours based on feedback from field level engineers. Zone wise data is not available.
Intermediate level (C)	Not applicable

Intermediate level (B)	Calculation based on detailed operational records at each of the valve operating points. Pressure availability at the consumers' end is assumed to be adequate and meeting the stated norms.
Highest/preferred level of reliability (A)	Calculation based on detailed operational records at each of the valve operating points. Pressure adequacy and number of hours of supply at consumers' end is assessed on basis of statistically valid sample survey, across all zones in the city.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Monthly	Measurement	Zone / DMA level

2.1.6 EFFICIENCY IN REDRESSAL OF CUSTOMER COMPLAINTS

Performance Indicator		
Indicator	**Unit**	**Definition**
Efficiency in redressal of customer complaints	%	Total number of water supply related complaints redressed within 24 hours of receipt of complaint, as a percentage of the total number of water supply related complaints received in the given time period

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total number of water supply related complaints received per month	Number per month	Total number of all supply related complaints from consumers received during the month. Systems for receiving and logging in complaints should be effective and easily accessible to the citizens. Point of customer contact will include Common phone numbers, Written complaint at ward offices, Collection centres, Drop boxes, Online complaints on web-site, etc.
b) Total number of complaints redressed within the month	Number per month	Total number of water supply related complaints that are satisfactorily redressed within 24 hours or the next working day, within that particular month. Satisfactory resolution of the complaint should be endorsed by the person making the complaint in writing, as part of any format / proforma that is used to track complaints.
Efficiency in redressal of complaints	%	**Efficiency in redressal of complaints = [(b / a)*100]**

Rationale for the indicator
It is important that in essential services such as water supply, the ULB / water utility has effective systems to capture customer complaints / grievances, escalate them internally for remedial action and resolve them. While many ULBs / utilities have put in place systems to capture complaints, much more work needs to be done to put in place back-end systems for satisfactorily resolving those complaints in a timely manner. As water supply is an essential service, the benchmark time for redressal is 24 hours or the next working day. It is therefore important to monitor this indicator.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Complaints data not maintained either at ward level or city level.
Intermediate level (C)	Multiple mechanisms/ means by which consumers can register their complaints such as by telephone, in person or by writing or by email. All complaints received are assumed to be resolved quickly.
Intermediate level (B)	Multiple mechanisms/ means by which consumers can register their complaints such as by telephone, in person or by writing or by email. However, systems do not exist for aggregating, sorting and tracking the complaints. Data available for some months has been used as a trend to report the figures for some other months.
Highest/preferred level of reliability (A)	Multiple mechanisms by which consumers can register their complaints such as by telephone, in person or by writing or by email. Complaints segregated into different categories. Complaints are collated through computer network or other systems, and tracked on a daily basis. The status of redressal of complaints is maintained. Consumer's endorse complaint being addressed on the municipal proforma.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Monthly	Measurement	Each water distribution Zone / DMA level

2.1.7 QUALITY OF WATER SUPPLIED

Performance Indicator		
Indicator	**Unit**	**Definition**
Quality of supply supplied	%	Percentage of water samples that meet or exceed the specified potable water standards, as defined by CPHEEO. Sampling regimen should be as per standards and norms laid down for the same.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total number of water samples in a month	Number per month	Actual number of water samples that are taken for testing in the month. Samples should be drawn at both points - outlet of treatment plant and at consumer end. Sampling regimen should be as per laid down standards and norms.
b) Number of samples that meet the specified potable water standards in that month	Number per month	Of the total number of samples drawn in the month, the number of samples that have met or exceeded the specified potable water standards. All parameters of the quality standards should be met. Even if one standard is not met, the sample cannot be assumed to have met the standards.
Quality of water supply	%	**Quality of water supply = [(b / a)*100]**

Rationale for the indicator
The quality of water supplied is as important a performance indicator as other service delivery indicators. Poor water quality can pose serious public health hazards. Water borne diseases are quite common in Indian cities, particularly amongst the urban poor. Although in most cases the sources of water that causes such diseases / epidemics are not municipal piped water supply, it is very important that this performance indicator is monitored regularly.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Sampling done only at treatment plant outlets. Absence of sampling regimen. Absence of required laboratory equipment, and only very basic tests are carried out.

Intermediate level (C)	Sampling done at production and intermediate points along distribution network, but only for residual chlorine. Absence of sampling regimen. Absence of required laboratory equipment, and tests are intermittently carried out through third party.
Intermediate level (B)	Regular sampling done at treatment plant outlet and consumption points. Consumption points are spatially spread across the city. Sampling regimen well documented and practiced. Tests include residual chlorine as well as bacteriological tests. Own laboratory equipment (or) easy and regular access to accredited testing centres.
Highest/preferred level of reliability (A)	Regular sampling done at treatment plant outlet and consumption points. Sampling regimen well documented and practiced. Tests include residual chlorine as well as bacteriological tests. Own laboratory equipment (or) easy and regular access to accredited testing centers. Periodic independent audit of water quality is carried out.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Monthly	Measurement	ULB level

2.1.8 COST RECOVERY IN WATER SUPPLY SERVICES

Performance Indicator		
Indicator	**Unit**	**Definition**
Cost recovery in water supply services	%	Total operating revenues expressed as percentage of total operating expenses incurred in the corresponding time period. Only income and expenditure of the revenue account must be considered, and income and expenditure from the capital account should be excluded.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total annual operating expenses	Rs Crores per quarter	Should include all operating expenses (for the year) such as electricity, chemicals, staff, outsourced operations/staff related to water supply, bulk water purchase costs and other Operations and Maintenance expenses. Should exclude interest payments, principal repayments and other capital expenses.
b) Total annual operating revenues	Rs Crores per quarter	Should include all water supply related revenues (billed) during the corresponding time period. Revenues may be in the form of taxes / cess / surcharges, user charges, connection charges, sale of bulk water, etc. This should exclude capital income such as grants, loans, etc.
Cost recovery in water supply services	%	**Cost recovery = [(b / a) * 100]**

Rationale for the indicator
Financial sustainability is a critical for all basic urban services. In services such as water supply services, benefits received by the consumers are more direct and can be quantified. Through a combination of user charges, fees and taxes, it is possible for all operating costs to be recovered. Cost recovery objectives provide a basis for tariff fixation, enables setting targets for revenue mobilisation and cost control in delivery of water supply services. Therefore, it is critical to monitor this indicator.

Reliability of measurement	
Reliability Scale	**Description of method**

Lowest level of reliability (D)	No segregation of budget heads related to water supply services and sanitation from the rest of the functions of the agency. Cash based accounting system is practiced. No clear systems for reporting unpaid expenditure, or revenues that are due. Disclosures and reporting are not timely. Audits have a time lag and are not regular.
Intermediate level (C)	Not applicable
Intermediate level (B)	Budget heads related to water and sanitation are segregated. Key costs related to water and sanitation are identifiable, although complete segregation is not practiced (for e.g. electricity costs for water supply services is not segregated from overall electricty costs of the ULB). Key income and expenditure are recognised based on accrual principles. Disclosures are complete and are timely.
Highest/preferred level of reliability (A)	In case of multi-function agencies like municipal corporations, the budget heads related to water and sanitation are clearly separated. Cost allocation standards for common costs are in place. Accrual based double entry accounting system is practiced. Accounting standards are comparable to commercial accounting standards with clear guidelines for recognition of income and expenditure. Accounting and budgeting manuals are in place and are adhered to. Financial statements have full disclosure and are audited regularly and in a timely manner.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Quarterly	Measurement	City level

2.1.9 EFFICIENCY IN COLLECTION OF WATER RELATED CHARGES

Performance Indicator		
Indicator	**Unit**	**Definition**
Efficiency in collection of water related charges	%	Efficiency in collection is defined as - Current year revenues collected, expressed as a percentage of the Total operating revenues, for the corresponding time period.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Current revenues collected in the given year	Rs. Crores per annum	Revenues collected for bills raised during the year. This should exclude collection of arrears. Inclusion of arrears will skew the performance reflected. Collection efficiency is infact an indicator of how much arrears are being built up, and therefore only Current Revenues should be considered.
b) Total operating revenues billed during the given year	Rs. Crores per annum	Total quantum of revenues related to water supply services that are billed during the year. This should include revenues from all sources related to water such as taxes, charges, cess, surcharges, sale of bulk water, etc.
Collection efficiency	%	**Collection Efficiency = [(a / b) * 100]**

Rationale for the indicator
For a water utility, it is not just enough to have an appropriate tariff structure that enables cost recovery objectives, but also efficient collection of revenues that are due to the utility. It is also important that the revenues are collected in the same financial year, without allowing for dues to get accumulated as arrears. It is therefore critical to monitor this indicator.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	No segregation of arrears Vs current year revenue collection. Cash basis of accounting is followed. Accounting code structure does not enable clear segregation of water revenues.
Intermediate level (C)	Not applicable

Intermediate level (B)	Clear segregation of Current year revenues collection Versus Arrears collection. However, revenue collection not matched against the specific bill issued. Overall accural principles of accounting are followed, and therefore deposits and advances are not included in income and expenditure respectively.
Highest/preferred level of reliability (A)	Collection records maintained for each billing cycle. Collections are clearly identified against the specific bill which has been issued. Overall accural principles of accounting are followed, and therefore deposits and advances are not included in income and expenditure respectively. Accounting code structure also enables monitoring of billing and collections for each ward within the ULB.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Annual	Measurement	Ward level

2.2 WASTE WATER MANAGEMENT (SEWERAGE AND SANITATION)

2.2.1 COVERAGE OF TOILETS

Indicator	Unit	Definition
Coverage of toilets	%	This indicator denotes the extent to which citizens have access to a toilet (whether individual or community) in a service area. The toilets would include those in the category of residential, commercial, industrial and institutional properties. Service area implies a specific jurisdiction in which the service is required to be provided i.e either an electoral ward or a ULB as a whole.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total number of properties having access to individual toilets or community toilet within walking distance in the service area	Number	The total number of toilets (as against households) should be assessed. A property may have multiple tenants. A property is considered unique, if it is recorded as a unique property in the municipal records. Municipal records should be up-to-date, and preferably backed up by a cadastre map.
b) Total number of properties without individual toilet or community toilet within walking distance.	Number	Only total number of properties without access to an individual or community toilet should be assessed.
Coverage of toilets	**%**	**Coverage of toilets = [b / a+b]*100**

Rationale for the indicator
Last mile access to toilets is a key to improvement in service levels of sanitation facilities. In many Indian cities, there is inadequate access to toilet facilities Therefore, it is important to measure this parameter. Substantial investment in this area is being taken up under BSUP component of JNNURM as well as the ILCS scheme.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (C)	Estimation based on geographical area of the ULB covered with and without toilets facilities as a % of total ULB area, as an indicator of service coverage.
Intermediate level (B)	Estimation based on total number of properties having toilets in the premises or access to a community toilet at walking distance and without such facilities as a percentage of estimated number of properties, to arrive at indicator of service coverage.
Highest/preferred level of reliability (A)	Calculation based on actual number of properties and count of properties with or without toilet facilities, measured through a field survey. This data should be periodically updated on the basis of data regarding provision of toilet facilities and new properties being developed (from building plan approval department). Field surveys throughout the city carried out atleast once in 5 years.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Quarterly	Measurement	Ward level

2.2.2 COVERAGE OF WASTE WATER NETWORK SERVICES

Performance Indicator		
Indicator	**Unit**	**Definition**
Coverage of waste water network services	%	This indicator denotes the extent to which the underground sewerage (or waste water collection) network has reached out to individual properties across the service area. Properties include those in the category of residential, commercial, industrial and institutional. Service area implies a specific jurisdiction in which service is required to be provided, either an electoral ward or the ULB as a whole.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total number of properties in the service area	Number	The total number of properties (as against households) should be assessed. A property may have multiple tenants. A property is considered unique, if it is recorded as a unique property in the municipal records. Municipal records should be up-to-date, and preferably backed up by a cadastre map.
b) Total number of properties with direct connection to the sewerage network	Number	Only properties with access connection to underground sewerage network should be included. Properties that connect their waste water outlet to storm water drains or open drainage systems should not be considered. However, this may include one or more properties with access to decentralized / stand-alone underground sewerage networks, which have treatment and safe effluent disposal facilities, which has been setup and operated as per laid down environmental standards.
Coverage of waste water network	**%**	**Coverage of waste water network services = [b / a]*100**

Rationale for the indicator
Last mile access to waste water networks is key to improvement in service levels of waste water management. In many Indian cities, waste water also flows through open drains / storm water drains, posing serious public health hazards. Also, coverage of sewerage network services is very low across most Indian cities. With substantial investments in this area being taken up programs such as JNNURM, it would be important to monitor this indicator to observe the impact being made on the ground. Therefore, it is important to measure this parameter.

Reliability of measurement

Reliability Scale	Description of method
Lowest level of reliability (D)	Estimation based on geographical area of the ULB covered with sewerage pipeline network, as a % of total ULB area, as an indicator of service coverage.
Intermediate level (C)	Estimation based on road length in the city covered by pipeline network, as % of total road length, as an indicator of service coverage.
Intermediate level (B)	Estimation based on total number of connections as a percentage of estimated number of properties, to arrive at indicator of service coverage.
Highest/preferred level of reliability (A)	Calculation based on actual number of properties and count of properties with direct connection, measured through a field survey. This data should be periodically updated on basis of new sewerage connections taken (from sewerage department), and new properties being developed (from building plan approval department). Field surveys throughout the city carried out atleast once in 5 years.

Minimum frequency of measurement of performance indicator		Smallest geographical jurisdiction for measurement of performance	
Measurement	Quarterly	Measurement	Ward level

2.2.3 COLLECTION EFFICIENCY OF WASTE WATER NETWORK

Performance Indicator		
Indicator	**Unit**	**Definition**
Efficiency in collection of waste water	%	This indicator is measured as - Quantum of wastewater collected as a % of normative waste water generation in the ULB. Water water generation is linked to quantum of water supplied through piped systems, and other sources such as bore-wells, when they are very extensively used. Data should be collected daily for a entire month, so as to measure the quantities per month. While daily variations may be normalised out, monthly variations may exist on account of seasonal variations. Data should be aggregated from multiple points across the ULB.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total water produced	million litres per day (or) month	Total quantum of water supplied to consumers. This data should be based on the water supplied to the distribution system (ex-treatment plant and including purchased water, if any), less physical losses of water in transmission and distribution system through leakages. In case municipal water is supplied through decentralized distribution networks, sourcing water from deep bore wells, the same should be included.
b) Estimated water use from other sources	million litres per day (or) month	An estimate of water drawn from other sources such as private borewells. Data that will drive this estimate include - number of properties with access to bore wells or other sources of water, spatially spread across the city; quantity of water supplied in those areas. Alternately, data may also be collected from sample surveys.
c) Wastewater collected	million litres per day (or) month	Quantum of wastewater measured at the inlet of treatment plants. Quantum of waste water at outfalls of untreated sewerage, leading into rivers, lakes or other water bodies should not be included in the quantum of waste water collected.
Wastewater collection efficiency	**%**	**Collection efficiency of waste water networks = [c / ((a+b)*0.8)]**

Rationale for the indicator

While the performance indicator for coverage provides an idea of infrastructure available for access to sewerage networks, the effectiveness of the system in capturing the waste water may not be adequate. Therefore, the performance indicator related to collection efficiency signifies the effectiveness of the network in capturing and conveying it to the treatment plants. Thus, it is not just adequate to have an effective network that collects waste water, but also one that treats the waste water at the end of the network.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Water production is based on "D" category systems for measuring Non-Revenue Water (NRW). No meters at sewerage treatment plants, intake estimated on basis of flow or treatment plant capacity. No estimates for water consumed from other sources.
Intermediate level (C)	Water production is based on "C" category systems for measuring NRW. No meters at sewerage treatment plants, intake estimated on basis of flow or treatment plant capacity. No estimates for water consumed from other sources.
Intermediate level (B)	Water production is based on "B" category systems for measuring NRW. Periodic measurement of wastewater collection based on storage capacities of ponds / batches that are run for treatment at the Sewerage Treatment Plant (STP). No estimates for water consumed from other sources.
Highest/preferred level of reliability (A)	Water production is based on "A" category measurement systems for measuring NRW. Estimates available for water consumed from other sources. Measurement of wastewater collection at all inlets of sewerage treatment plants by flow meters. Process control automation provides accurate data, for both water production and distribution and for sewerage intake and treatment.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Month	Measurement	ULB level

2.2.4 ADEQUACY OF WASTE WATER TREATMENT CAPACITY

Performance Indicator		
Indicator	**Unit**	**Definition**
Adequacy of capacity for treatment of waste water	%	Adequacy is expressed as - Secondary treatment (i.e. removing oxygen demand as well as solids, normally biological) capacity available as a percentage of normative wastewater generation, for the same time period

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total water consumed	million litres per day (or) month	Total quantum of water supplied to consumers. This data should be based on the water supplied to the distribution system (ex-treatment plant and including purchased water, if any), less physical losses of water in transmission and distribution system through leakages. In case municipal water is supplied through decentralised distribution networks, sourcing water from deep bore wells, the same should be included.
b) Estimated water use from other sources	million litres per day (or) month	An estimate of water drawn from other sources such as private borewells. Data that will drive this estimate include - number of properties with access to bore wells or other sources of water, spatially spread across the city; quantity of water supplied in those areas. Alternately, data may also be collected from sample surveys.
c) Treatment plant capacity	million litres per day (or) month	Total functional capacity of all wastewater treatment plants that can meet secondary treatment standards.
d) Capacity utilization	million litres per day (or) month	**c-b**
Wastewater Treatment capacity	%	**Adequacy of treatment capacity = [c/ ((a+b)*0.8)]**

Rationale for the indicator

Most Indian cities have inadequate capacity for treatment of waste water that is generated in their cities. Significant investments are underway in creating such capacities through programs such as JNNURM. This indicator will highlight the adequacy of available and operational waste water treatment capacity.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Water consumption is based on "D" category systems for measuring Non-Revenue Water (NRW). No estimate of wastewater treatment capacity that is actually functional and in operation. No estimates for water consumed from other sources.
Intermediate level (C)	Water consumption is based on "C" category systems for NRW. No estimate of wastewater treatment capacity that is actually functional and in operation. No estimates for water consumed from other sources.
Intermediate level (B)	Water consumption is based on "B" category systems for NRW. Sound engineering estimates of functional wastewater treatment capacity is available, on basis of reliable operational data that is maintained. No estimates for water consumed from other sources.
Highest/preferred level of reliability (A)	Water consumption is based on "A" category measurement systems for NRW. Reliable estimates are available for quantity of water consumed from non-municipal sources. Water treatment plant system capacity assessed through rigorous testing and commissioning procedures (after which there have been no modifications to the plant). In case any modifications to the treatment plant have been carried out, system capacity is reassessed through measuring peak throughput.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Annually	Measurement	ULB level

2.2.5 QUALITY OF WASTE WATER TREATMENT

Performance Indicator		
Indicator	**Unit**	**Definition**
Quality of treatment	%	Quality of treatment is measured as - Percentage of wastewater samples that pass the specified secondary treatment standards. i.e. Treated water samples from outlet of waste water treatment plants are equal to or better than the standards laid down by Govt. of India agencies for secondary treatment of waste water. While the samples are collected at the waste water treatment plant outlet and results should be computed per treatment plant, this indicator should be reported at city / ULB level.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total number of wastewater samples in a month	Nos. per Month	Sampling (quantity, periodicity, point of sample collection, etc.) should be taken as per good industry practices and laid down norms by environmental agencies, such as Pollution Control Boards of respective State.
b) Number of samples that pass the specified secondary treatment standards	Nos. per Month	Within the total valid samples, the number of samples that pass the specified secondary treatment standards, along all key parameters.
Quality of treatment	%	**Quality of treatment = [(b/a)*100]**

Rationale for the indicator
For sustainable waste water management, it is not just enough to have the infrastructure to collect and convey the waste water, or the installed capacity to treat the same. It is important that the treated water that is discharged back into water bodies, or used for other purposes such as irrigation, meets the laid down environmental standards. It is therefore important to monitor this indicator.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Absence of sampling regimen. Absence of required laboratory equipment. Irregular tests carried out. Not all parameters are tested.
Intermediate level (C)	Not applicable

Intermediate level (B)	Sampling regimen well documented and practiced on most occasions. Own laboratory equipment (or) easy and regular access to accredited testing centres. Only a few key parameters are assessed.
Highest/preferred level of reliability (A)	Sampling regimen well documented and practiced completely. Own laboratory equipment (or) easy and regular access to accredited testing centres. Periodic independent audit of wastewater quality. All parameters are assessed.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Monthly	Measurement	ULB level

2.2.6 EXTENT OF REUSE AND RECYCLING OF WASTE WATER

Performance Indicator		
Indicator	**Unit**	**Definition**
Extent of recycling or reuse of waste water	%	Percentage of wastewater received at the treatment plant that is recycled or reused for various purposes. This should only consider water that is directly conveyed for recycling or reuse, such as use in gardens and parks, use for irrigation, etc. Water that is discharged into water bodies, which is subsequently used for variety of purposes should not be included in this quantum. While measurements are done at treatment plants inlets and outlets, the indicator should be reported at the city / ULB level as a whole.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Wastewater received at the treatment plants	million litres per day (or) month	This should be based on actual flow measurement by functional flow meters, the quantum for which should be measured daily. Daily quantities should be aggregated to arrive at monthly quantum.
b) Wastewater recycled or reused	million litres per day (or) month	This should be based on actual flow measurement by functional flow meters, the quantum for which should be measured daily. Daily quantities should be aggregated to arrive at monthly quantum.
Wastewater recycled or reused	%	**Extent of waste water recycled or reused = [(b/a)*100]**

Rationale for the indicator
For sustainable water management, it is desirable that waste water is recycled or reused after appropriate treatment. Water can be directly reused in a number of areas such as - used in parks and gardens, supplied for irrigation purposes for farmland on city periphery, etc. To maximise the same, it is important that this indicator is measured and monitored.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	No meters at treatment plant inlet or points of supply of recycled water. Estimates based on observation and treatment plant capacity.
Intermediate level (C)	Not applicable
Intermediate level (B)	Not applicable
Highest/preferred level of reliability (A)	Based on data from flow meters at treatment plant inlets and outlets (i.e. points of supply of recycled water). Data should be measured daily, and aggregated for monthly totals.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Annually	Measurement	ULB level

2.2.7 EXTENT OF COST RECOVERY IN WASTE WATER MANAGEMENT

Performance Indicator		
Indicator	**Unit**	**Definition**
Extent of Cost recovery in waste water management	%	Extent of cost recovery is expressed as - Wastewater revenues as a percentage of wastewater expenses, for the corresponding time period.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total annual operating expenses	Rs Crores	Should include all operating expenses (for the year) such as electricity, chemicals, staff and other establishment costs, outsourced operations/staff related to wastewater collection and treatment, and O & M expenses. Should exclude interest payments and principal repayments.
b) Total annual operating revenues	Rs Crores	Should include all wastewater related revenues billed for the year. Revenues may be in the form of taxes / cess / surcharges, user charges, connection charges, sale of sludge, sale of recycled water, etc.
Cost recovery in waste water management	%	**Cost recovery = [(b/a)*100]**

Rationale for the indicator
Financial sustainability is a critical factor for all basic urban services. In services such as waste water management, some benefits are received directly by the consumers, and some benefits accrue indirectly through sustainable environment and public health benefits. Therefore, through a combination of user charges, fees and taxes all operating costs may be recovered. Therefore, it is critical for measuring overall cost recovery.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	No segregation of budget heads related to wastewater from the rest of the functions of the agency. Cash based accounting system is practiced. No clear systems for reporting unpaid expenditure. Disclosures and reporting are not timely. Audits have a time lag and are not regular.

Intermediate level (C)	Not applicable
Intermediate level (B)	Budget heads related to wastewater are segregated. Key costs related to wastewater are identifiable, although complete segregation is not practiced. Key income and expenditure are recognised based on accrual principles. Disclosures are complete and are timely.
Highest/preferred level of reliability (A)	In case of multi-function agencies like municipal corporations, the budget heads related to wastewater are clearly separated. Cost allocation standards for common costs are in place. Accrual based double entry accounting system is practiced. Accounting standards comparable to commercial accounting standards with clear guidelines for recognition of income and expenditure. Accounting and budgeting manuals are in place and are adhered to. Financial statements have full disclosure and are audited regularly and in a timely manner.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Yearly	Measurement	ULB level

2.2.8 EFFICIENCY IN REDRESSAL OF CUSTOMER COMPLAINTS

Performance Indicator		
Indicator	**Unit**	**Definition**
Efficiency in redressal of customer complaints	%	Total number of sewerage related complaints redressed within 24 hours of receipt of complaint, as a percentage of the total number of sewerage related complaints received in the given time period

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total number of sewerage related complaints received per month	Number per month	Total number of all sewerage related complaints from consumers received during the month. Systems for receiving and logging in complaints should be effective and easily accessible to the citizens. Point of customer contact will include Common phone numbers, Written complaint at ward offices, Collection centres, Drop boxes, Online complaints on web-site, etc.
b) Total number of complaints redressed within the month	Number per month	Total number of sewerage related complaints that are satisfactorily redressed within 24 hours or the next working day, within that particular month. Satisfactory resolution of the complaint should be endorsed by the person making the complaint in writing, as part of any format / proforma that is used to track complaints.
Efficiency in redressal of complaints	%	**Efficiency in redressal of complaints = [(b / a)*100]**

Rationale for the indicator
It is important that in essential services such as sewerage, the utility has effective systems to capture customer complaints / grievances, escalate them internally for remedial action and resolve them. While many ULBs / utilities have put in place systems to capture complaints, much more work needs to be done to put in place back-end systems for satisfactorily resolving those complaints in a timely manner. As sewerage is an essential service, the benchmark time for redressal is 24 hours or the next working day. It is therefore important to monitor this indicator.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Complaints data not maintained either at ward level or city level.
Intermediate level (C)	Multiple mechanisms/ means by which consumers can register their complaints such as by telephone, in person or by writing or by email. All complaints received are assumed to be resolved quickly.
Intermediate level (B)	Multiple mechanisms/ means by which consumers can register their complaints such as by telephone, in person or by writing or by email. However, systems do not exist for aggregating, sorting and tracking the complaints. Data available for some months has been used as a trend to report the figures for some other months.
Highest/preferred level of reliability (A)	Multiple mechanisms by which consumers can register their complaints such as by telephone, in person or by writing or by email. Complaints segregated into different categories. Complaints are collated through computer network or other systems, and tracked on a daily basis. The status of redressal of complaints is maintained. Consumer's endorse complaint being addressed on the municipal proforma.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Monthly	Measurement	Each water distribution Zone / DMA level

2.2.9 EFFICIENCY IN COLLECTION OF SEWERAGE CHARGES

Performance Indicator		
Indicator	**Unit**	**Definition**
Efficiency in collection of sewerage charges	%	Efficiency in collection is defined as - Current year revenues collected, expressed as a percentage of the Total operating revenues, for the corresponding time period.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Current revenues collected in the given year	Rs. crores per annum	Revenues collected for bills raised during the year. This should exclude collection of arrears. Inclusion of arrears will skew the performance reflected. Collection efficiency is in fact an indicator of how much arrears are being built up, and therefore only Current Revenues should be considered.
b) Total operating revenues billed during the given year	Rs. Crores per annum	Total quantum of revenues related to sewerage services that are billed during the year. This should include revenues from all sources related to sewerage such as taxes, charges, cess, surcharges, etc.
Collection efficiency	%	**Collection Efficiency = [(a / b) * 100]**

Rationale for the indicator
For a utility, it is not just enough to have an appropriate tariff structure that enables cost recovery objectives, but also efficient collection of revenues that are due to the utility. It is also important that the revenues are collected in the same financial year, without allowing for dues to get accumulated as arrears. It is therefore critical to monitor this indicator.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	No segregation of arrears Vs current year revenue collection. Cash basis of accounting is followed. Accounting code structure does not enable clear segregation of water revenues.
Intermediate level (C)	Not applicable

Intermediate level (B)	Clear segregation of Current year revenues collection Versus Arrears collection. However, revenue collection not matched against the specific bill issued. Overall accural principles of accounting are followed, and therefore deposits and advances are not included in income and expenditure respectively.
Highest/preferred level of reliability (A)	Collection records maintained for each billing cycle. Collections are clearly identified against the specific bill which has been issued. Overall accural principles of accounting are followed, and therefore deposits and advances are not included in income and expenditure respectively. Accounting code structure also enables monitoring of billing and collections for each ward within the ULB.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Annual	Measurement	Ward level

2.3 SOLID WASTE MANAGEMENT

2.3.1 HOUSEHOLD LEVEL COVERAGE OF SOLID WASTE MANAGEMENT SERVICES

Performance Indicator		
Indicator	**Unit**	**Definition**
Household level coverage of SWM services through door-to-door collection of waste	%	Percentage of households and establishments that are covered by daily door-step collection system.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total number of households and establishments in the service area	Number	The total number of households and establishments (not properties) in the service area should be calculated. Service area refers to either the ward or the ULB limits.
b) Total number of households and establishments with daily doorstep collection	Number	Include doorstep collection through ULB itself or ULB approved service providers. This can even include door-to-door collection systems operated by Resident Welfare Associations, etc.
Coverage	%	**Coverage = [(b/a)*100]**

Rationale for the indicator
This indicator provides the coverage of door-to-door solid waste collection services. Door-step level collection is an essential and critical starting point in the entire chain of scientific solid waste management services. Having waste free clean roads and drains, scientific treatment of waste so as to maximise treatment, recycling, and disposal, can all be achieved in a sustainable manner only if door-to-door collection of waste is sustained.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Coverage numbers based on aggregate city level estimate by service provider
Intermediate level (C)	Coverage is estimated on the basis of number of wards serviced by doorstep collection, as percentage of total number of wards in the ULB

Intermediate level (B)	Estimation of coverage based on average daily waste collected by ULB (in tons) from areas serviced by door-step waste collection; divided by estimated daily waste generation (in tons) by entire city. Daily averages based on actual weighment of waste collected on designated weighbridges, measured daily for consecutive seven days in a month.
Highest/preferred level of reliability (A)	Calculation based on actual number of households and establishments with doorstep collection as stated by agency involved in doorstep collection. This may be verified from records of any user charges collected for the doorstep collection services. Total number of households / establishments should be measured from updated GIS spatial data of the city.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Quarterly	Measurement	Ward level

2.3.2 EFFICIENCY OF COLLECTION OF MUNICIPAL SOLID WASTE

Performance Indicator		
Indicator	**Unit**	**Definition**
Collection Efficiency	%	Total waste collected by ULB and authorized service providers versus the total waste generated within the ULB excluding recycling or processing at the generation point. [Typically, some amount of waste generated is either recycled or reused by the citizen itself. This quantity is excluded from the total quantity generated, as reliable estimates will not be available for these.]

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total waste that is generated and which needs to be collected	Tons per month	Total waste generated excluding waste processed or recyled at the generation point. This would depend on the population of the city, and the composition of economic activities.
b) Total quantum of waste that is collected by the ULB or authorized service providers	Tons per month	Total waste collected from households, establishments and common collection points. This should be based on actual weighment of the collected waste. Daily generation should be aggregated to calculate the total monthly quantum. This should exclude any special drives for waste collection, and waste generated from one-off activities such as demolitions, desilting canals, etc.
Collection Efficiency	%	**Collection efficiency = [(b/a)*100]**

Rationale for the indicator
This indicator is relatively easy to measure, and has been used for a long time as an indicator of efficiency in collection of waste. While the indicator is well understood, the reliability varies significantly on account of different methods used for measurement. Collection efficiency should measure waste collected in normal course by the SWM systems. Typically the uncollected waste tends to gradually find its way into recycling, or is strewn along the roads, clogs the drains or in case of bio-degradable waste, it putrefies and degrades. Therefore, collection efficiency is a key performance indicator.

Reliability of measurement

Reliability Scale	**Description of method**
Lowest level of reliability (D)	Waste generation estimates based on empirical standards of per capita waste generation based on size of the city. Inadequate data on waste collection, the same is estimated based on number of trips made by waste collection vehicles to the disposal site.
Intermediate level (C)	Nil
Intermediate level (B)	Waste generation estimates based on empirical standards of per capita waste generation based on size of the city. Data on waste collection, based on waste weighed by weighbridge at the disposal site.
Highest/preferred level of reliability (A)	Waste generation estimates based on quarterly survey/sample of statistically significant and representative number of households and establishments. Seasonal variation in waste quantity generation is captured in these estimates. Waste collection is based on actual weighment of waste on a weighbridge at the disposal site (which is aggregate of waste measured at composting yard, sanitary land fill site, and waste taken out for recycling / reuse after it has been collected.)

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Monthly	Measurement	Ward level

2.3.3 EXTENT OF SEGREGATION OF MUNICIPAL SOLID WASTE

Performance Indicator		
Indicator	**Unit**	**Definition**
Extent of Segregation of waste	%	% of households and establishments that segregate their waste. Segregation should be atleast separation of wet and dry waste at the source, i.e. at household or establishment level. Ideally, the separation should be in following categories: bio-degradeable waste, waste that is non-biodegradeable, and hazardous domestic waste such as batteries, etc. In line with this description, the ULB may further refine the criteria for classifying waste as being "segregated". It is important that waste segregated at source, is not again mixed, but transported through the entire chain in a segregated manner. It is therefore important that this indicator is based on measurement of waste arriving in segregated manner at the treatment / disposal site, rather than measuring the same at collection point.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Quantum of waste that is segregated	tons per month	Total quantum of waste that arrives in segregated manner at the treatment and / or disposal site (viz. composting yards, waste treatment plants, landfill sites, etc.). Waste that arrives at these locations in a un-segregated manner should not be considered.
b) Total quantum of waste that is collected by the ULB or authorised service providers	tons per month	Total waste collected from households, establishments and common collection points. This should be based on actual weighment of the collected waste. This should exclude any special drives for waste collection, and waste generated from one-off activities such as demolitions, desilting canals, etc. [This corresponds to the quantity of (b), as measured for the indicator on Collection Efficiency.]
Extent of Segregation	%	**Extent of segregation = [(a/b)*100]**

Rationale for the indicator
Segregation of waste is a critical requirement for sustainable solid waste management systems. Segregations enables recycling, reuse, treatment and scientific disposal of the different components of waste. Segregation of waste should ideally be at source, and should then also be transported in a segregated manner upto the point of treatment and /or disposal. If waste is received at these points in a segregated manner, it can be safely assumed, that it has been segregated at source and transported so; while the converse may not be true. Therefore, segregation is being measured at this point of receipt, rather than at point of collection.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Segregation estimated by service provider without any documentation of measurement methods adopted.
Intermediate level (C)	All households and establishments provided two separate waste containers assumed to be "segregating" waste. Then % of households provided with two bins, used as basis for estimating extent of segregation.
Intermediate level (B)	Estimates of segregation based on input from agencies engaged in doorstep collection. The aggregates of estimates across all areas should be added up for the ULB-wide estimate.
Highest/preferred level of reliability (A)	The daily total of waste arriving in segregated manner at disposal / treatment sites should be measured, on basis of weighments of individual trips. Waste taken away by recyclers from intermediate points, should be added to this quantum. Waste taken away by recyclers can be assessed from wholesale waste recycling traders *(kabadiwalas)*. Alternately, the quantum of unsegregated waste received at the disposal point, viz. the composting yard, land-fill site, or dump site should be measured through regular weighment on a weighbridge. The daily totals should be arrived at by adding weightments of all trips. The difference between the quantum collected and this quantum (unsegregated waste) should be equal to the quantity that is segregated. Daily log of waste intake at processing facilities is maintained, which is aggregated for monthly data.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Monthly	Measurement	ULB level

2.3.4 EXTENT OF MUNICIPAL SOLID WASTE RECOVERED

Performance Indicator		
Indicator	**Unit**	**Definition**
Extent of recovery of waste collected	%	This is an indication of the quantum of waste collected, which is either recycled or processed. This is expressed in terms of % of waste collected.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Amount of waste that is processed or recycled	tons per month	Total quantum of waste intake by waste processing/ recycling facilities operated by the ULB or operator at a city/ ward/ locality level. Inert matter, and other material refused by the processing / recycling facilities, which will go back to the dumping sites / landfills should be deducted from the intake quantities. Waste collected at intermediate points by informal mechanisms (rag pickers, etc.) and fed back into the recycling chain should be included in this quantity. This can be assessed through data from whole sale traders of such waste at the city level. Typically there would be few wholesalers at the city level, from whom data can be collected.
b) Total quantum of waste that is collected by the ULB or authorised service providers	tons per month	Total waste collected from households, establishments and common collection points. This should be based on actual weighment of the collected waste. This should exclude any special drives for waste collection, and waste generated from one-off activities such as demolitions, desilting canals, etc. [This corresponds to the quantity of (b), as measured for the indicator on Collection Efficiency.]
Recovery	**%**	**Extent of recovery = [a / b] * 100**

Rationale for the indicator
Environmental sustainability demands that maximum extent of waste should be either recycled, reused or processed. While the processing, recycling and reuse should be carried out without creating any health and environmental hazards, the total quantum of waste recovered is in itself a key performance parameter. Therefore, measurement of this indicator is critical. The benchmark value for this indicator will depend on the amount of inert matter comprised in the waste collected by the ULB. Waste composition is typically unique for each city, while being in a broad range of values for similar cities.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Recovery estimates are based on installed capacity of waste processing facilities.
Intermediate level (C)	Estimation of waste recovery is based on an aggregate mass balance. From the total estimated waste collection, the following are reduced to arrive at the extent of recovery. Viz. Moisture loss and amount disposed at landfill / dump sites are deducted from the amount of waste collected.
Intermediate level (B)	Recovery estimates is based on measured consumption /inputs at the organized large waste processing facilities, such as composting yards and waste-to-energy facilities.
Highest/preferred level of reliability (A)	Recovery estimates is based on measured consumption /inputs at the organised large waste processing facilities, such as composting yards and waste-to-energy facilities. To this quantum, unorganised sector waste intake for processing is added. This will typically include - community / colony level composting facilities, waste collected for recycling and reuse through the chain of waste recyclers (aggregates measured at the wholesaler level). Daily log of waste intake at processing facilities is maintained, which is aggregated for monthly data.

Minimum frequency of measurement of performance indicator		Smallest geographical jurisdiction for measurement of performance	
Measurement	Monthly	Measurement	ULB level

2.3.5 EXTENT OF SCIENTIFIC DISPOSAL OF MUNICIPAL SOLID WASTE

Performance Indicator		
Indicator	**Unit**	**Definition**
Extent of scientific disposal of waste in landfill sites	%	Amount of waste that is disposed in landfills that have been designed, built, operated and maintained as per standards laid down by Central agencies. This extent of compliance should be expressed as percentage of total quantum of waste disposed at landfill sites, including open dump sites.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total waste disposed in "compliant" landfills every month	Tons per month	Daily log of waste being disposed at such "compliant" land fill sites should be maintained, based on actual measurement at weighbridges that are preferrably located at the entrance to such sites. Monthly total should be sum of daily totals in the month.
b) Total waste disposed in all landfills every month	Tons per month	Total waste disposed after collection and recovery (if any) at landfills (including compliant landfills and open dumpsites). This quantity should be based on actual measurement at weighbridges that are preferrably located at the entrance to such sites. Monthly total should be sum of daily totals in the month.
Extent of scientific disposal	%	**Extent of scientific disposal = [a / b]*100**

Rationale for the indicator
Inert waste should finally be disposed at landfill sites, which are designed, built, operated and maintained as standards laid down in prevailing laws and manuals of nodal agencies. This includes collection and treatment of leacheate at the landfill site. Extent of compliance should be seen against total quantum of waste that is disposed in landfills. This is a critical performance parameter from an environmental sustainability perspective.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Poor data and records at landfill sites. No documentation of operations. Estimates provided on basis of estimate number of trips of trucks to landfill site.

Intermediate level (C)	Quantity of waste being disposed at landfill site is estimated on basis of mass balance. i.e. total waste collected less (moisture loss and waste recovered through recycling or processing). Actual measurements are not available.
Intermediate level (B)	Records are maintained and good quality data is available on quantity of waste being disposed at the landfill / open dumping sites. However, there are no clear records on operations and maintenance of landfill operations.
Highest/preferred level of reliability (A)	Accurate and detailed records on amount of waste being landfilled is regular collected, and also records are maintained on operating practices and routines carried out at all landfill sites.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Monthly	Measurement	ULB level

2.3.6 EXTENT OF COST RECOVERY IN SWM SERVICES

Performance Indicator		
Indicator	**Unit**	**Definition**
Extent of Cost Recovery for the ULB in SWM services	%	This indicator denotes the extent to which the ULB is able to recover all operating expenses relating to SWM services from operating revenues of sources related exclusively to SWM. This indicator is defined as --> Total annual operating revenues from solid waste management / Total annual operating expenses on solid waste management, expressed in % terms.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total annual operating expenses	Rs Crores	Should include all operating expenses incurred by the ULB towards SWM services. This should include costs related to - operations and maintenance expenses, all directly attributable administrative and establishment expenditure (including salaries, wages, contract labour hire charges, etc.). Operating expenses should also include payments to contractors for activities outsourced by the ULB. Should exclude interest payments and principal repayments.
b) Total annual operating revenues	Rs Crores	Should include all taxes and charges for SWM, plus proceeds from processing or recycling that accrue to the account of the ULB. This should exclude income earned by contractors, or the informal sector that is not passed on to the ULB.
Cost Recovery	**%**	**Cost recovery = [b / a]*100**

Rationale for the indicator
Financial sustainability is a critical factor for all basic urban services. In services such as SWM, some benefits are received directly by the consumers, while some other benefits accrue indirectly through a cleaner and sustainable environment, apart from public health benefits. Therefore, costs related to SWM may be recovered through a combination of taxes and user charges. In case of SWM, there is potential to supplement user charges with revenues that can be gained from recycling, reuse and conversion of waste to either compost or fuel or directly to energy. Therefore, it is critical for measuring overall cost recovery.

Reliability of measurement

Reliability Scale	Description of method
Lowest level of reliability (D)	No segregation of budget heads related to solid waste from other fucntions such as street sweeping and drainage. Cash based accounting system is practiced. Account codes are not function-wise, and difficult to estimate SWM related establishment, administrative and O& M costs. Disclosures and reporting are not timely.
Intermediate level (C)	Not applicable
Intermediate level (B)	Budget heads related to solid waste management are segregated. Key costs related to solid waste management are identifiable, although complete segregation is not practiced. Key income and expenditure are recognised based on accrual principles. Disclosures are complete and are timely. Accounts are finalised and closed, although audit may be pending.
Highest/preferred level of reliability (A)	Budget heads related to SWM are clearly separated and cost allocation standards for common costs are in place. Accrual based double entry accounting system is practised. Accounting standards comparable to commercial accounting standards with clear guidelines for recognition of income and expenditure. Accounting and budgeting manuals are in place and are adhered to. Financial statements have full disclosure and are audited regularly and in a timely manner.

Minimum frequency of measurement of performance indicator		Smallest geographical jurisdiction for measurement of performance	
Measurement	Annually	Measurement	ULB level

2.2.7 EFFICIENCY IN REDRESSAL OF CUSTOMER COMPLAINTS

Performance Indicator		
Indicator	**Unit**	**Definition**
Efficiency in redressal of customer complaints	%	Total number of SWM related complaints redressed within 24 hours of receipt of complaint, as a percentage of the total number of SWM related complaints received in the given time period

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total number of SWM related complaints received per month	Number per month	Total number of all SWM related complaints from consumers received during the month. Systems for receiving and logging in complaints should be effective and easily accessible to the citizens. Point of customer contact will include Common phone numbers, Written complaint at ward offices, Collection centres, Drop boxes, Online complaints on web-site, etc.
b) Total number of complaints redressed within the month	Number per month	Total number of SWM related complaints that are satisfactorily redressed within 24 hours or the next working day, within that particular month. Satisfactory resolution of the complaint should be endorsed by the person making the complaint in writing, as part of any format / proforma that is used to track complaints.
Efficiency in redressal of complaints	%	**Efficiency in redressal of complaints = [(b / a)*100]**

Rationale for the indicator
It is important that in essential services such as SWM, the utility has effective systems to capture customer complaints / grievances, escalate them internally for remedial action and resolve them. While many ULBs / utilities have put in place systems to capture complaints, much more work needs to be done to put in place back-end systems for satisfactorily resolving those complaints in a timely manner. As SWM is an essential service, the benchmark time for redressal is 24 hours or the next working day. It is therefore important to monitor this indicator.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Complaints data not maintained either at ward level or city level.
Intermediate level (C)	Multiple mechanisms/ means by which consumers can register their complaints such as by telephone, in person or by writing or by email. All complaints received are assumed to be resolved quickly.
Intermediate level (B)	Multiple mechanisms/ means by which consumers can register their complaints such as by telephone, in person or by writing or by email. However, systems do not exist for aggregating, sorting and tracking the complaints. Data available for some months has been used as a trend to report the figures for some other months.
Highest/preferred level of reliability (A)	Multiple mechanisms by which consumers can register their complaints such as by telephone, in person or by writing or by email. Complaints segregated into different categories. Complaints are collated through computer network or other systems, and tracked on a daily basis. The status of redressal of complaints is maintained. Consumer's endorse complaint being addressed on the municipal proforma.

Minimum frequency of measurement of performance indicator		Smallest geographical jurisdiction for measurement of performance	
Measurement	Monthly	Measurement	Each water distribution Zone / DMA level

2.2.8 EFFICIENCY IN COLLECTION OF SWM CHARGES

Performance Indicator		
Indicator	**Unit**	**Definition**
Efficiency in collection of SWM charges	%	Efficiency in collection is defined as - Current year revenues collected, expressed as a percentage of the Total operating revenues, for the corresponding time period.

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Current revenues collected in the given year	Rs. crores per annum	Revenues collected for bills raised during the year. This should exclude collection of arrears. Inclusion of arrears will skew the performance reflected. Collection efficiency is in fact an indicator of how much arrears are being built up, and therefore only Current Revenues should be considered.
b) Total operating revenues billed during the given year	Rs. Crores per annum	Total quantum of revenues related to SWM services that are billed during the year. This should include revenues from all sources related to SWM such as taxes, charges, cess, surcharges, etc.
Collection efficiency	%	**Collection Efficiency = [(a / b) * 100]**

Rationale for the indicator
For a utility, it is not just enough to have an appropriate tariff structure that enables cost recovery objectives, but also efficient collection of revenues that are due to the utility. It is also important that the revenues are collected in the same financial year, without allowing for dues to get accumulated as arrears. It is therefore critical to monitor this indicator.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	No segregation of arrears Vs current year revenue collection. Cash basis of accounting is followed. Accounting code structure does not enable clear segregation of water revenues.
Intermediate level (C)	Not applicable

Intermediate level (B)	Clear segregation of Current year revenues collection Versus Arrears collection. However, revenue collection not matched against the specific bill issued. Overall accural principles of accounting are followed, and therefore deposits and advances are not included in income and expenditure respectively.
Highest/preferred level of reliability (A)	Collection records maintained for each billing cycle. Collections are clearly identified against the specific bill which has been issued. Overall accural principles of accounting are followed, and therefore deposits and advances are not included in income and expenditure respectively. Accounting code structure also enables monitoring of billing and collections for each ward within the ULB.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Annual	Measurement	Ward level

STORM WATER DRAINAGE

2.4.1 COVERAGE OF STORM WATER DRAINAGE NETWORK

Performance Indicator		
Indicator	**Unit**	**Definition**
Coverage of storm water drainage network	%	Coverage is defined in terms of - % of road length covered by storm water drainage network

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Total length of road network in the ULB	kms	Only consider roads that are more than 3.5 m wide carriageway
b) Total length of primary, secondary and tertiary drains	kms	Only consider drains that are trained, made of pucca construction and are covered.
Coverage of storm water drainage networks	%	**Coverage = [(b / a)*100]**

Rationale for the indicator
This indicator provides an estimation of the extent of coverage of the storm water drainage network in the city.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Not applicable
Intermediate level (C)	Estimated from city road maps, not updated in past 5 years
Intermediate level (B)	Estimated from city road maps (that are detailed and to scale), which have been updated in past 5 years

Highest/preferred level of reliability (A)	Actual ground levels surveys carried out to measure drain and road length. Surveys to verify that drains are of pucca construction and covered.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Annually	Measurement	Ward level

2.4.2 INCIDENCE OF WATER LOGGING / FLOODING

Performance Indicator		
Indicator	**Unit**	**Definition**
Aggregate number of incidents of water logging reported in a year	Nos. per year	Number of times water logging is reported in a year, at flood prone points within the city

Data Requirements		
Data required for calculating the indicator	**Unit**	**Remarks**
a) Identification of flood prone points within the ULB limits. The points may be named as A1, A2, A3, …. An.	Nos.	Flood prone points within the city should be identified as locations that experience water logging - at key road intersections, or along road length of 50 meters or more, or in a locality affecting 50 households or more.
b) Number of occasions of flooding / water logging in a year	Nos. per year	Occasion or an incident of flooding / water logging should be considered if the same affects transportation and normal life. Typically stagnant water for more than 4 hours of depth more than 6 inches.
The aggregate number of instances or occasions of water logging / flooding reported across the city in a year	Nos. per year	**Aggregate Incidence = (b at A1) + (b at A2) + ….. (b at An)**

Rationale for the indicator
This indicator provides a picture of the extent to which water logging and flooding is reported in the ULB within a year, which has impacted significant number of persons impacting normal life and mobility. This indicator provides an assessment of the impact or outcome of storm water drainage systems.

Reliability of measurement	
Reliability Scale	**Description of method**
Lowest level of reliability (D)	Not applicable
Intermediate level (C)	Not applicable

Intermediate level (B)	Based on reports / complaints filed by citizens
Highest/preferred level of reliability (A)	Flood prone points should be first identified based on reports / complaints filed by citizens, or by direct observations, and reported into a Central Control Room. Monitoring stations (in charge of specific jurisdictions) should regularly monitor in respective wards / zones, instances of flooding as mentioned above. Data should be captured by time, date, location and extent of flooding.

Minimum frequency of measurement of performance indicator		**Smallest geographical jurisdiction for measurement of performance**	
Measurement	Quarterly	Measurement	Ward level

SECTION III –

MAKING STANDARDIZED SERVICE LEVEL

BENCHMARKS OPERATIONAL

3.1 PERFORMANCE REPORT CARDS

Section I of this handbook lays the framework and provides guidance for instituting performance management systems, with the SSLBs as the basis for monitoring and managing performance of urban service delivery. Section II of this handbook defines each of the SSLBs, and outlines the most desirable system that should be applied for measuring the SSLBs.

3.1.1 Initiating performance reporting

Section III provides brief guidance on how the SSLBs may be brought into operation. While each ULB / utility will need to define and institutionalize the systems mentioned in Section I, a few common guidance points are mentioned herein for reference.

a) ***Keep systems simple:*** Data formats and other processes defined for performance measurement should be kept very simple to start with. For ULBs / utilities that have hitherto not had robust management information systems, it is important to take gradual steps.
b) ***Leadership should champion the initiative:*** The Municipal Commissioner / Chief Executive Officer of the ULB / utility should lead this initiative of making SSLBs operational. All Heads of Departments will need to play an active role in the same. Involvement of the Mayor / Chairperson and other key elected representatives from the Standing Committees at the early stages is important to bring in perspective of the elected leadership.
c) ***Training and Orientation:*** Staff at all levels will need to undergo training and orientations on SSLBs, to enable them play their respective role in the overall Performance Management System. Officers at the Heads of Department level should take the lead in orienting their respective staff.

3.1.2 Performance Report Cards

The minimum frequency of computation of the performance indicator, and the lowest level of geographic jurisdiction for which it should be measured have been specified in the data sheets for each indicator. On the basis of these, the suggested frequency of reporting within the ULB / utility, and State / Central Governments is provided in the following table. Also, the geographic jurisdiction for which the indicators should be reported is specified in this table.

ULBs / utilities are advised to follow the framework suggested in the table. However, the ULB / utility may make minor changes in the frequency or jurisdiction of reporting, taking into account the size of the city and its prevailing systems. The endeavor should always be to report performance as disaggregated as possible; i.e. reporting performance at the highest frequency as possible, and at the smallest geographical jurisdiction as possible.

SSLB No.	Urban Service	Frequency of Measurement by ULB / Utility	Frequency of Reporting within ULB / Utility	Frequency of Reporting to State / Central Govt.	Jurisdiction for Measurement by ULB / Utility	Jurisdiction for Reporting within ULB / Utility	Jurisdiction for Reporting to State / Central Govt.
	WATER SUPPLY						
2.1.1	Coverage of water supply connections	Quarterly	Quarterly	Annually	Ward level	Ward level	ULB level
2.1.2	Per capita supply of water	Monthly	Monthly	Annually	ULB level	ULB level	ULB level
2.1.3	Extent of metering of water connections	Quarterly	Quarterly	Annually	Ward level	Ward level	ULB level
2.1.4	Extent of Non-Revenue Water	Quarterly	Quarterly	Annually	ULB level	ULB level	ULB level
2.1.5	Continuity of water supply	Monthly	Monthly	Annually	Zone/DMA level	Zone/DMA level	ULB level
2.1.6	Efficiency in redressal of customer complaints	Monthly	Monthly	Annually	Zone/DMA level	Zone/DMA level	ULB level
2.1.7	Quality of water supplied	Monthly	Monthly	Annually	ULB level	ULB level	ULB level
2.1.8	Cost recovery in water supply services	Quarterly	Quarterly	Annually	ULB level	ULB level	ULB level
2.1.9	Efficiency in collection of water supply related charges	Annually	Annually	Annually	Ward level	Ward level	ULB level
	WASTE WATER MANAGEMENT						
2.2.1	Coverage of toilets	Quarterly	Quarterly	Annually	Ward level	Ward level	ULB level
2.2.2	Coverage of waste water network services	Quarterly	Quarterly	Annually	Ward level	Ward level	ULB level
2.2.3	Collection efficiency of waste water network	Monthly	Monthly	Annually	ULB level	ULB level	ULB level
2.2.4	Adequacy of waste water treatment capacity	Annually	Annually	Annually	ULB level	ULB level	ULB level
2.2.5	Quality of waste water treatment	Monthly	Monthly	Annually	ULB level	ULB level	ULB level
2.2.6	Extent of reuse and recycling of waste water	Monthly	Monthly	Annually	ULB level	ULB level	ULB level
2.2.7	Extent of cost recovery in waste water management	Annually	Annually	Annually	ULB level	ULB level	ULB level
2.2.8	Efficiency in redressal of customer complaints	Monthly	Monthly	Annually	Zone/DMA level	Zone/DMA level	ULB level

2.2.9	Efficiency in collection of sewerage related charges	Annually	Annually	Annually	Ward level	Ward level	ULB level

SSLB No.	Urban Service	Frequency of Measurement by ULB / Utility	Frequency of Reporting within ULB / Utility	Frequency of Reporting to State / Central Govt.	Jurisdiction for Measurement by ULB / Utility	Jurisdiction for Reporting within ULB / Utility	Jurisdiction for Reporting to State / Central Govt.
	SOLID WASTE MANAGEMENT						
2.3.1	Household level coverage of SWM services	Quarterly	Quarterly	Annually	Ward level	Ward level	ULB level
2.3.2	Efficiency of collection of municipal solid waste	Monthly	Monthly	Annually	Ward level	Ward level	ULB level
2.3.3	Extent of segregation of municipal solid waste	Monthly	Monthly	Annually	ULB level	ULB level	ULB level
2.3.4	Extent of municipal solid waste recovered	Monthly	Monthly	Annually	ULB level	ULB level	ULB level
2.3.5	Extent of scientific disposal of municipal solid waste	Monthly	Monthly	Annually	ULB level	ULB level	ULB level
2.3.6	Extent of cost recovery in Solid Waste Management services	Annually	Annually	Annually	ULB level	ULB level	ULB level
2.3.7	Efficiency in redressal of customer complaints	Monthly	Monthly	Annually	Zone/DMA level	Zone/DMA level	ULB level
2.3.8	Efficiency in collection of SWM related charges	Annually	Annually	Annually	Ward level	Ward level	ULB level
	STORM WATER DRAINAGE						
2.4.1	Coverage of Storm water drainage network	Annually	Annually	Annually	Ward level	Ward level	ULB level
2.4.2	Incidence of water logging / flooding	Quarterly	Quarterly	Annually	Ward level	Ward level	ULB level

On the basis of the above framework, ULBs should prepare Performance Report Cards, which would form the basis for reporting and monitoring performance.

The Report Cards should necessarily contain the following information:

a) The time period for which performance is being reported
b) The specific Urban Service and the specific SSLB for which performance is being reported
c) Current baseline and actual accomplishment of performance as time passes
d) Targeted performance levels for subsequent time periods (typically 4-6 time periods). For indicators that are reviewed monthly or quarterly, targets should be set for next 4-6 months / quarters. Only then tangible targets can be set and monitored.
e) The Measure of reliability of the systems, on the basis of which the indicator has been measured (viz. either A or B or C or D)
f) Brief plan of action for achieving the targeted performance level for each of the forthcoming time periods.

Two sample report cards are illustrated in Annex 1. While these report cards are for the ULB as a whole, it may be expected that similar report cards are prepared for smaller areas of jurisdiction (e.g. wards) within the ULB. Each of these *subsidiary* report cards would contain performance levels, targets alongwith associated action plans for their specific areas. When aggregated, these would add up to the ULB-level performance report.

A critical step in the preparation of action plans is that of **Target Setting**. If done judiciously it would enable the adoption of performance incentive programs to motivate personnel, departments and even the organization as a whole.

Targets for performance indicators would need to be initially set against baseline performance levels, keeping in mind the human and financial resources available to execute the underlying action plan. They need to be realistic, yet ambitious. As the performance monitoring and improvement initiatives gather momentum, further target setting may be done using performance data from best-in-class ULBs (within the same state or from across the country).

The process of target setting should not be an adhoc number generation exercise by senior officials. Instead it needs to be done in consultation with the concerned operating staff, to ensure ownership for the performance commitments being made.

ULBs need to finally work towards achieving Service Benchmarks that define international best practice for each of the specified indicators. The values of these Service Benchmarks are provided below in Annex II. While the Benchmark Values for some indicators may initially appear unrealistic, they need to be recognized and internalized as the performance levels that service providers need to achieve in due course of time.

3.2 Sustaining the Performance Management System

It would be as much a challenge to sustain a good performance management system, as much to set up and operationalise the same. Listed below are a few critical success factors for sustaining a performance management system for urban services:

a) ***Improvement in data systems:*** Along with review of the performance levels, the review should also continuously focus on the data systems through which data is collected and performance reported. Through a process of continuous improvement, the data systems should be brought to the desired levels of highest reliability of measurement. Independent third party agencies may be engaged for verification of the performance reports on a selective basis. Data collection and reporting should however always be with the ULB / utility, else ownership of performance may be compromised.

b) ***Maintaining performance reporting and review time cycles:*** To maintain the sanctity of the system, performance should be diligently reported and reviewed at the scheduled time period. If review is not periodically undertaken, the data collection, analysis and reporting systems are likely to degenerate over time.

c) ***Dissemination and Disclosure:*** Dissemination and disclosure should be essential elements of the performance management system. Performance data should be reported in the ULB's / utility's annual reports, be shared with media and other stakeholders in the interest of transparency and for enhanced accountability.

d) ***Considered as input for planning and resource allocation:*** Performance reports should form an important input for planning investments in capital works and operational improvements, and therefore in the budgeting process.

e) ***System of awards and incentives:*** System of awards and incentives is a very important and essential component of a performance management system. Awards and incentives should be directed to the field level staffs who are responsible for direct impact on service delivery.

ANNEX I: Illustrative performance report card

Sector: ***Water Supply*** **SSLB:** ***Coverage of water supply connections***

Reporting Frequency: ***Annual*** **Reporting Period:** ***FY 07-08***

Reporting jurisdiction: ***Limits of **** Municipal Corporation*** **Performance Report submitted to:** ***State Government***

All figures are in %

Time Period	Performance Actually Achieved	Performance Targeted	Performance achieved as per Reliability of Measurement level	Action Plan for achieving the target
FY 07-08 (baseline)	***71***		***B***	
FY 08-09		***75***		• *All backlog applications for new connections will be cleared in next 12 months*
FY 09-10		***85***		• *Major source augmentation & transmission project will be completed* • *Regularization of all illegal connection in north of the city*
FY 10-11		***90***		• *Distribution improvement project will be taken up* • *Stand posts will be replaced in slums in Ward nos ___ to ___* • *Regularization of all illegal connections in south of the city*
FY 11-12		***95***		• *Stand posts will be replaced in slums in Ward nos ___ to ___*

Sector: ***Solid Waste Management*** **SSLB:** ***Household level Coverage of SWM services***

Reporting Frequency: ***Quarterly*** **Reporting Period:** ***Jan – Mar 2008***

Reporting jurisdiction: ***Ward No. 11 of **** Municipal Corporation*** **Performance Report submitted to:** ***Standing Committee***

All figures are in %

Time Period	Performance Actually Achieved	Performance Targeted	Performance achieved as per Reliability of Measurement level	Action Plan for achieving the target
Jan- Mar. 2008 (baseline)	***nil***		***B***	
Apr. – Jun 2008		***75***		• *An NGO from the area will be encouraged and supported to start the door-step collection process. If NGO does not start the activity, it will be contracted out. Operations will commence by May 2008.* • *All RWAs and apartments in the ward will be encouraged to keep waste at door-step and not dispose it directly into municipal bin.* • *Councilor for Ward will lead the process.*
Jul – Sept. 2008		***90***		• *The shop keepers association will next be brought into the loop. The market association will be encouraged to either pay user charges to the NGO / contractor, or alternately collect waste at door-step through own arrangements.* • *Fine for littering will be introduced.* • *Collection beats network will be reviewed and expanded.*
Oct. – Dec 2008		***95***		• *Balance houses, those not within RWAs or apartments will be encouraged to keep waste at door step for collection.* • *Slums / poor households will be provided street corner bins, at multiple points in each slum, from where waste will be collected.*
Jan – Mar 2009		***100***		• *Intensive communication will be introduced. Road side bins / dhalos will be demolished.*

ANNEX II: List of Benchmark Values *(International best practice)*

Indicators	Benchmark Value
Water Supply	
Coverage of water supply connections	100 %.
Per capita supply of water	135 lpcd [a]
Extent of metering of water connections	100%
Extent of Non-Revenue Water	20% [b]
Continuity of water supply	24 hours
Efficiency in redressal of customer complaints	80% [c]
Quality of water supplied	100%
Cost recovery in water supply services	100%
Efficiency in collection of water supply related charges	90% [d]
Waste water management (Sewerage & Sanitation)	
Coverage of toilets	100%
Coverage of waste water network services	100%
Collection efficiency of waste water network	100%
Adequacy of waste water treatment capacity	100%
Quality of waste water treatment	100%
Extent of reuse and recycling of waste water	20%
Extent of cost recovery in waste water management	100%
Efficiency in redressal of customer complaints	80% [c]
Efficiency in collection of sewerage related charges	90% [d]
Solid Waste Management	
Household level coverage of SWM services	100%
Efficiency of collection of municipal solid waste	100%
Extent of segregation of municipal solid waste	100% [e]
Extent of municipal solid waste recovered	80%
Extent of scientific disposal of municipal solid waste	100%
Extent of cost recovery in SWM services	100%
Efficiency in redressal of customer complaints	80% [c]
Efficiency in collection of SWM related user related charges	90% [d]
Storm Water Drainage	
Coverage of Storm water drainage network	100%
Incidence of water logging / flooding	Zero

NOTES:-

[a] Additional information in respect of the areas where water is supplied at the rate of 70 LPCD should also be indicated.

[b] NRW is also influenced by factors outside the control of the water utility such as - topography of the city, age of network, length of network per connection and water use per capita.

[c] The benchmark value will depend on a number of factors such as size of the city, age of the network, etc.

[d] It is possible that about 10 % of the dues may be delayed to the next year.

[e] In cases where the ULB is adopting an integrated approach incorporating various options for waste treatment, and where segregation is done at the end of the chain or is not required, compliance with this provision may not be mandatory.