

# **Tools and Resource Kit**

**For RSLP and TLBN**

**Project: Laying the Foundations - UIRF, SOHS, TISS**

**By**

**Resources and Livelihoods Group  
First Draft for**

- 1) Urban water,**
- 2) Solid Waste Management,**
- 3) Sewerage and Sanitation, and**
- 4) Town Level Background Note**

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## Section A: THE TEMPLATE APPROACH

### 1. Introduction: The template Approach

#### 1.1. Template, RSLP and TLBN

This document is aimed at providing a *template* for making of the two independent research based documents: *Report on Solutions to Local Problems (RSLP)* and *Town Level Background Note (TLBN)*. Both the documents aim at enabling individuals or entities to critique and engage in the urban development process aided recently through the JNNURM reforms regime<sup>1</sup>.

The RSLP is a sector-specific document or a document specific to municipal service, analyzing the problems and issues in the sector, and search for the solutions to the local problems faced by citizens, residents or the other stakeholders. It also aims to facilitate the analysis of various development initiatives to assess their impacts on public interests.

On the other hand, the TLBN aims at compiling and analyzing information pertaining to the ULB as well as the town in general, in order to provide a broader, background including the economy, development, resources as well as the status of reforms and the ULB's strengths and weaknesses. Thus, the TLBN aims to support preparation of RSLP by going beyond a mere 'status report' on reform and projects, and is also expected to prompt local agencies to prepare RSLP.

The following three are the desired main characteristics of the RSLP or TLBN

- It is a document prepared at the level of individual town or city.
- It would present and assess the status and the impacts of the projects and reforms under the JNNURM regime. This would include the committed, underway or planned initiatives, as well as those already implemented.
- It also is aimed at supporting or facilitating public-spirited action at the town level, aimed at protecting and promoting public interest.

In order to possess the aforementioned characteristics, the RSLP should also:

- Assess the impact on public interest of (i) implementation of infrastructure projects, (ii) implementation of reform proposals, and also examine the link, or absence of it, between the two; and
- Contribute to creation of a forum for exchange of information/ experiences

Such report could, as the name suggests, be prepared on problem affecting even a part of the town or a *basti* (community).

#### 1.2. Components of the Template-TRK

A Template is both, a framework as well as a research design, for creating the sector-specific RSLPs and TLBNs of small and medium towns. Even then, the overall analysis framework could be adapted by and large, for any size of a town. It aims at providing ready-to-use procedures for collecting and analyzing data, and using the findings for taking appropriate actions at the local level. These procedures involve (a) (Core) Methodology to be adopted while carrying out procedures, (b) Tools to

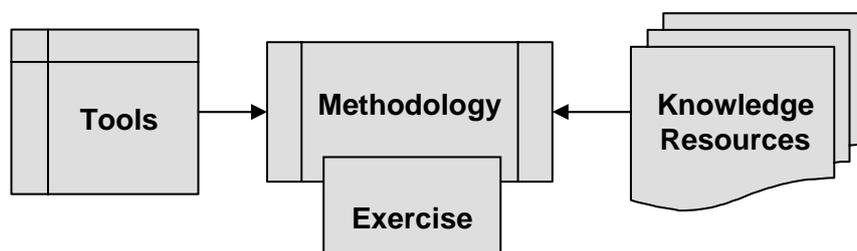
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<sup>1</sup> Refer concept notes as well as actual documents to read more on RSLPs and TLBN. Both the documents wrote for different cities in Maharashtra are available at [www.tiss-uirf.org/.../...](http://www.tiss-uirf.org/.../...)

be used for carrying out the procedures and (c) (Knowledge) Resources providing necessary support to implement the Methodology and use the Tools effectively and efficiently. Thus, despite the approach taken here is called as a template approach, actually this document is appropriately called Tools and Resources Kit (TRK).

The core methodology component provides logical backbone to the process of using the TRK. It enunciates the steps to be taken and activities to be carried out, and is shaped by the objectives to be achieved by the RSLP, as well as the TLBN as well as capabilities and resources available at user-end. Effort is also made to embrace or accommodate contextual factors related to the ground reality in the sector, region, and community of users.

The tools component is expected to be used while carrying out the steps and activities enunciated in the methodology. Tools essentially provide an easy framework for carrying out activities and thus simplify work for users. Tools include different types, such as templates to be filled up (e.g., of Table-Formats), Checklists / Guidelines (or points to be considered) etc.



**Figure 1 Interlinkages amongst various TRK components**

The knowledge resources component is essentially an input in the form of different types of information and analysis. These are classified in two types at present (a) The Methodological information resource included in this part of the document, and (b) Substantive/ Sector-specific knowledge resources included in the respective sectoral sections of the document. The methodological resources contain information and explanations on different methods and tools in order to use them for execution of core methodology, by covering different aspects of research methods and tools, especially procedural aspects, and their applicability.

Thus the core purpose underlying the Template Approach or of providing the Tool and Resources Kit is to empower the end-users by helping them to prepare a knowledge product that would significantly contribute to achievement of their strategic objectives, including those mentioned before.

The Tool and Resource Kit thus specifically aims:

1. To channel the efforts to cover the capability gaps at the TRK-users' end,
2. To ensure a certain level of quality and consistency in the report prepared,
3. To save on time and other resources at the users' end,
  - i. Without compromising on the efficacy or efficiency of the procedures involved; and
  - ii. While empowering the users at a knowledge level

### **1.3. Intended Users of the TRK**

The Tool Kit is expected to serve a large number and a broad range of organizations from different locations, situated in diverse social, political, economic, institutional, and cultural settings. Further, there is going to be a significant level of diversity among these organizations, in terms of their objectives, capabilities, skills, resource availability, and styles of functioning. These factors make the

challenge before developers of the Tool Kit more serious, as the factors make it imperative that the Tool Kit responds to the demands placed by such diverse organizations.

It is expected that the end-users would be able to use the Tool Kit independently, i.e. without any help from the producer of the tools and templates or any external expert agency.

#### **1.4. Methodology for preparing the TRK**

The TRK has been prepared in parallel to the town level field studies carried out for preparation of the RSLP. This was intentionally practiced, since the TRK is envisaged to have an evolving structure. The preparation of this TRK has therefore been an iterative process. The components of the TRK (methodological, tools and formats) were prepared and simultaneously observed for their utility in preparation of the RSLP.

Such iterative nature of the process of TRK preparation was because of a) the diversity in situations across towns/ cities studied b) diversity across various areas of a selected town, and c) the diversity in sources of data. That is, a preliminary structure of the TRK was applied to the initial towns studied, changes were made in the framework depending on the three aforementioned factors, and such modified TRK was applied to the further town/s studied, and so on.

In such iterative process, the TRK also is envisaged to gain a certain amount of flexibility. It also leaves the TRK open for further evolution.

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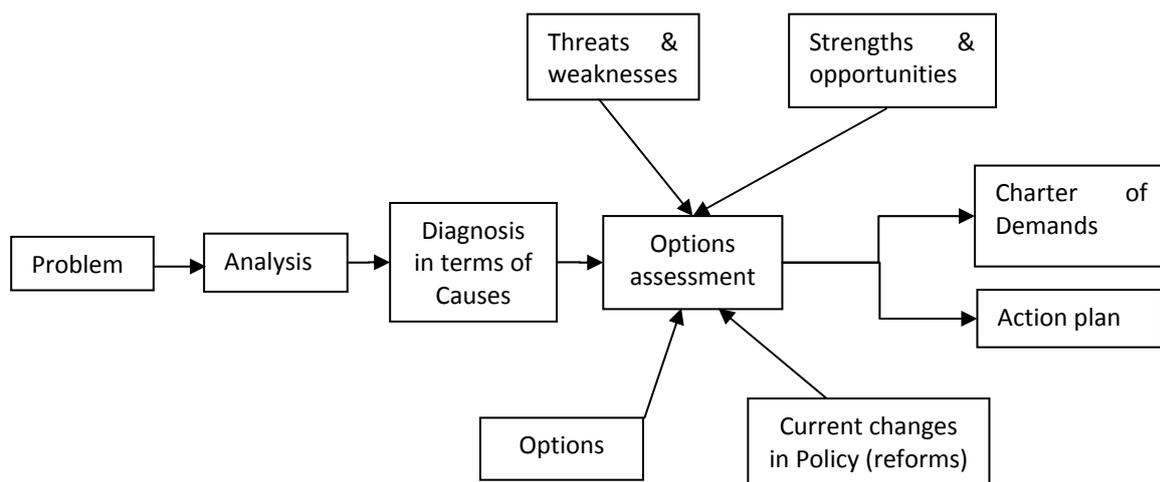
## 2. Framework For Template

### 2.1. Framework of the RSLP / TLBN

Framework of the template is based largely on the template of the RSLP as well as of the TLBN. Based on the aforementioned discussion of the core objectives of RSLP that of generating an informed analysis of the problems of a particular municipal service and demands based on that, following elements constitute the RSLP:

- Identification and Detailing of the Local Problem/s
- Causal Diagnosis of the Local Problem/s
- Identification of Different Options of Solutions Available
- Comparative Assessment of Options
- Selection of the Most Preferred Option/s and Its/Their Detailing
- Preparing the Charter of Demands to be Made to Concerned Authorities for Adoption of the Chosen Solution and / OR Preparing Plan of Action for Efforts to Ensure Adoption and Implementation of the Preferred Solution

The different elements of the RSLP could be linked in a logical manner to arrive at the basic substantive framework, which is presented below:



**Figure 2 Framework of analysis for preparation of RSLP**

Though the TLBN does not follow the aforementioned tight conceptual framework and its elements are different, it is largely based on the secondary data and interactions with some key informants or experts in the town. The methodological part (including the core methodology) is taken care of in the overall framework of the TRK.

### 2.2. Framework of the template (TRK): Applying RSLP FW to methodological steps

The TRK framework, as the heading suggests, is the application of the analytical framework to the research design for preparing the RSLP and TLBN. The elements such as problem identification and detailing, diagnosis of the problems (cause detailing) and options of solutions could be gathered from all sources of the data. Hence, questions based on the analytical framework need to be posed to all the major sets of respondents i.e. citizen, system (ULB) representatives, as well as the key informants or the sector experts.

Therefore, the data collection part of the TRK has been classified according to the sources of data. This has been designed in such a manner, to possibly make the data collection exercise more efficient. That is, all data or information related to the various aspects of the sector study and analysis would be collected from each of the sources of data and information, though in varying degrees of detailing and articulation. For an instance, a TRK-user would collect information or data related to the problems and related details of the study sector, the causes and their details giving rise to the problems, and the solutions as perceived by a particular group of respondents, e.g. citizens.

After having this set of data from multiple groups of respondents, the user would then collate the parts of all those data sets according to the framework as indicated in Figure 2. Thus, problems and their details as reported by the citizens, the system staff, and the key informants, would form the initial part of the report. This would be carried out for the rest of the parts of the RSLP.

The data collected is thus proposed to be analyzed in line with the structure of the final product, i.e. the Report on Solutions to Local Problems (RSLP). Thus, there would be a cross-cutting through the data obtained from various data sources. The following figure attempts at summarizing this principle.

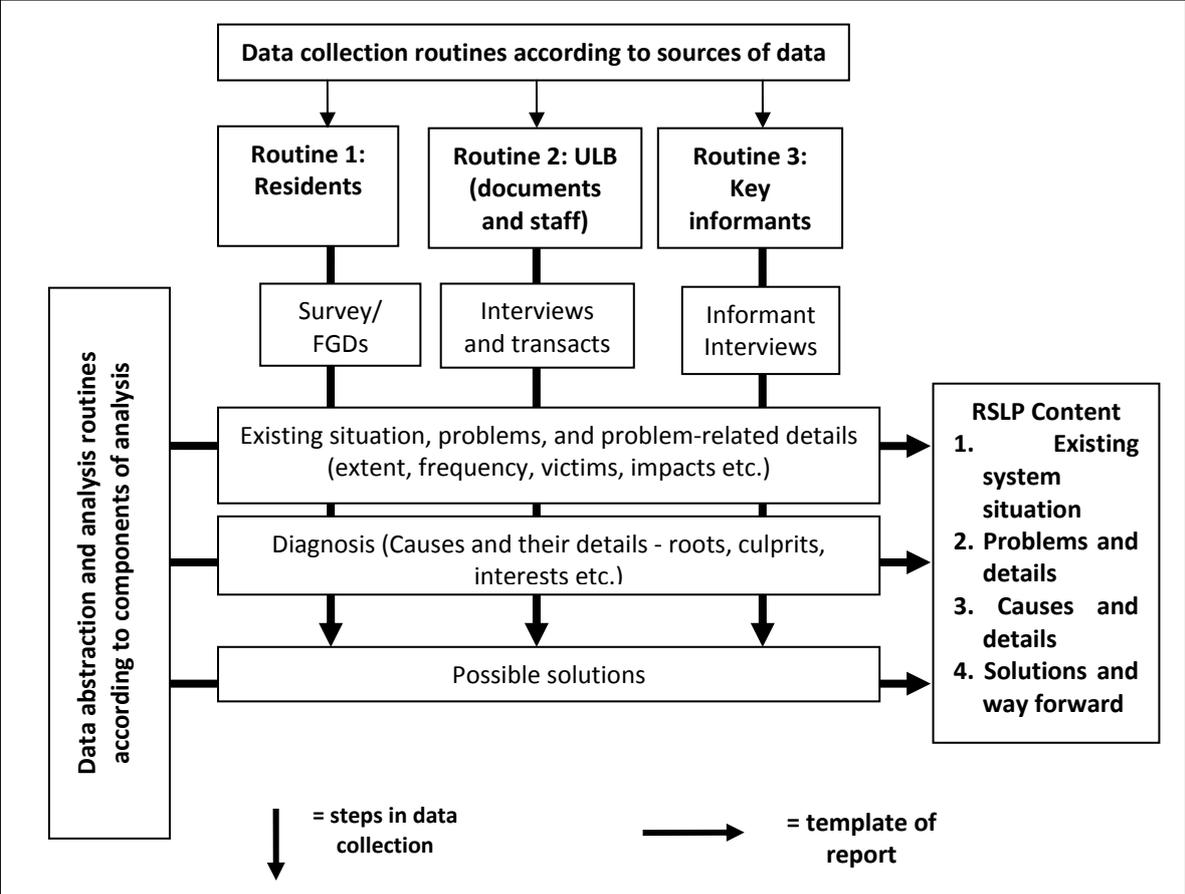


Figure 3 TRK framework

Essentially, the constituents of the RSLP indicated in Figure 3 thus arise from the framework of analysis presented in Figure 2. That being the ultimate result of the data collection exercises, the data collection has been divided into the analysis components, for each group of respondents<sup>2</sup>.

<sup>2</sup> It may be noted that despite the connotations associated with the terms 'citizens' and 'residents', they are treated the same for the analysis in reference for this TRK, and are hence used interchangeably in the TRK.

A collateral advantage of collecting the same data or information components from various groups of respondents is that it would facilitate taking a comprehensive, comparative and a deeper perspective into the components of the analysis being carried out.

For example, what the citizens report as a cause for a problem may itself be a problem for the system staff. Establishing such interlinkages is perceived as a major step towards enabling the TRK-users to identify the direction in which the efforts to alleviate the problems need to be made.

### 2.3. Sequence of steps involved in preparing RSLP

The following table summarizes the steps involved in the following the TRK, mainly for RSLP. It starts with sector selection that might be a key decision for the study group, after selection of the town (in case a team plans to carry out the study external to their base location).

The second step (in the first round) aims at selecting wards or areas within the city to be surveyed, based on particular criteria. If only one ward or particular locality is to be covered, then no issues are faced with respect to area sampling.

Then follow the data collection rounds from citizen/residents, system and the informants, in round 2, 3 and 4. These are the most time consuming rounds of data collection.

At the end of each round, researcher or the study group is expected to integrate the key findings in the questionnaires in next set of respondents. For example, issues the researcher finds with citizen needs to be validated from the system and so on so forth. By doing this, the researcher or the study group would get maximum variety in the responses and would be able to capture diverse aspects of the issues.

After the 4th round, the data collection business ends, the group starts with the analysis. The analysis formats (given in the chapter 5 of the section B, C, D and E) have been arranged to organize data according to the framework with guidelines, is considered in the round five. At the end of the round five a discussion document is expected to be ready, which can be further kept before the larger audience for discussion. Before presenting it to a larger audience, the document can also be given for review, comments, or evaluation to some key persons, or a committee of consisting a key persons or informants or experts from the city.

The following table summarizes this process.

Round	Steps in the round	Method of carrying out the steps	Tools to be used	Formats for recording the data/ information
Round 1	Sector Identification	Internal discussion (Group Discussion)	Guidelines for discussion related to the strength and weakness analysis of its own	No specific formats
		Media review	Criteria for media review	
	Sampling for the area of the city, and citizens of the sampled area	Specific area sampling based on various attributes	Checklist of criteria for areas/wards selection, and other Requirements	Format to select Table for recording the sampled areas
		Broad methods of sampling of citizen/respondent	<ul style="list-style-type: none"> <li>▪ Sampling guidelines</li> <li>▪ Systematic random sampling tool</li> </ul>	No specific formats
Round 2	Collection of data related to problems, causes, Solutions desired, from citizens' perspective	Survey, FGD	Guideline/Questionnaire for the survey, Guidelines for the discussion	1) List for recording the problems observed 2) data processing format for classifying/arranging data

Round	Steps in the round	Method of carrying out the steps	Tools to be used	Formats for recording the data/ information
Round 3	As above, but from the perspective of system staff and secondary data	Document collection and analysis, KIIs, FGDs with the system staff	a) Checklist of documents to be collected	Common formats are provided that are tuned with the analytical framework, which Organize and present data from all the three sources. The analytical part is dealt by providing the formats for condensation of the data as well as option - ranking exercises etc.
Round 4	As above, however from the perspective of experts and key informants	KII, internal discussion	Interview schedules	
Round 5	This analytical round does not involve any data collection activity but largely involves desk analysis. These steps include <ul style="list-style-type: none"> <li>▪ SWOT analysis of the city/ town (ULB and other physical/ economic factors, including other stakeholders),</li> <li>▪ Possible impacts of reforms on the sector</li> <li>▪ Summarizing options, ranking of options and finalizing the most prefers solutions</li> </ul>			

**Table 1 Sequence of steps taken for preparation of the RSLP**

## 2.4. Components of the Tools and Resources Kit

This Tools and Resources is divided into five sections, of which four sections are devoted to

- (a) Data collection tools,
- (b) Data Collation, organization and analysis formats, and
- (c) Knowledge resources on the three sectoral-RSLPs viz. Water, Solid Waste and Sewerage

Excluding the knowledge resources, similar components are provided for the Town Level Background Note as well.

Unlike the data collection tools and collation formats, the role of the data knowledge and/or information resources in the RSLP is to prepare the study group knowledge-wise and to develop an insight that is required to study the situation. Considering this requirement, the knowledge resources in the component (c), that contain some explanatory and informative notes on the sectoral issues and models etc. might appear insufficient to the reader, in view of the insights that are needed to conduct the analysis. In fact, the knowledge resources, sectoral as well as generic (pertaining to various development aspects of the town or reforms etc) that are required; also comprise the other knowledge products, prepared at the state level and at the national level. There are four such documents (the knowledge products), viz.

- (a) National Level Background Document,
- (b) State Level Background Paper,
- (c) Status Report on State Level Urban Reforms
- (d) Town Level Background Notes.

These are expected to provide the information- and knowledge- content to the study group undertaking this activity.

The National Level Background Document on the urban reforms, serves as a backgrounder to the processes and the contents of the reforms, and provides a historical overview of the reforms in various sectors.

The State Level Background Paper contains both the details and nitty-gritty of the State-ULB relationships in a particular state, and tracks the changes in the sectoral policies and reforms over a period. The third one, the report on status of state level urban reforms offers the present progress of reforms and comments on its implication of municipal governance as well as municipal services.

On a town level, the Town Level Background Note makes available the development trajectory of the town in different sectors and comments on its future growth, and demands posed by it with respect to municipal services and its governance.

All these documents are organically linked with the preparations of the RSLPs, as without studying those, one cannot develop the insight or build up the broader understanding that is necessary to grasp the local issues. The term knowledge resources is used to indicate this set of documents considered together.

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### 3. Methodological Guidelines

The choice of research methodology made for the RSLP is based on the particular background of TRK users and on the objectives of the activity. TRK users are expected to be largely uninitiated into research activities ; the methodology thus has to be one which is easy to comprehend, fairly concrete and does not demand very high levels of skills or resources.

Further, the objective of the study largely resembles the exercise of developing people's charter of demands or a citizen/resident manifesto or a similar document on the pressing issues in the town with respect to the selected municipal service/s. The emphasis is on research that would enable collection of data and analysis that would lead to meaningful action.

The understanding of issues at town level through a citizen perspective involves complex data sets. To illustrate, it involves data deriving from *subjective experiences* as well as *objective data, non-official, field level* data as well as the *official data* (records as well as official positions of individuals and groups). Besides this consideration of temporal (how things have changed through reforms etc) and spatial (distinct geographies with uneven situations) dimensions is essential. Thus the choice of qualitative research methodology that respects these aspects and lends itself to complexity is an imperative. However, this does not negate the need or the user's choice, to go for quantitative methods. A need for quantitative analysis may arise from the nature of data related to particular sector that the study group would select for the RSLP; for example, tariff analysis of the city's water supply. This exercise includes analysis of the secondary data collected from government agencies, ULB etc, which contain quantitative data and for many purposes may demand quantitative analysis. This part is dealt with in a more detailed manner in data analysis guidelines that are included in the respective sections on data analysis.

In recent years, an international trend has been observed towards adopting cost-effective, rapid but participatory methods of data collection, even in academic research for their ability to combine complex ground level, insider insights with meaningful analysis of problems that is amenable to action. Therefore, an effort has been made to offer the user a mix of rapid and participatory methods.

Secondly, the study group may opt for quantitative methods of data collection even from sources other than secondary data, as per the local situations in the town under consideration. For example, a group can tie-up with the local college and NSS, or other students may engage in data collection activity in a large number. This may provide the study group an opportunity to expand its respondent base by defining the exact size of population and to resort to tight sampling frames. The TRK does not negate such possibilities, and rather encourages them, considering their potential to encourage local agencies to participate in civic issues. Thus, the options to subscribe to quantitative methods are open, if sufficient resources are available with the user group.

In sum, an effort has been made to design a modifiable Tools and Resources Kit, that makes iterations possible (without compromising the framework), based on the experiences of the requirements of a variety of users: Such as Civil Society Groups, Government and Non-government agencies, movements and activists, journalists and their organizations, citizens/residents groups and so on.

#### 3.1. Selection of the sector

Selection of the sector for RSLP might be an issue to be decided for the study group. In such case, this selection can be made based on a number of criteria, as well as based on some groundwork. There are two ways to do it:

- 1) *Internal team consultation on the burning issues in the town*: Internal team consultations are an integral part of the any study group in order to make decisions regarding important steps in the study. Sector selection in such one-step can be accomplished by an internal group discussion, based on the information available with the group-members about the gravity of the issues in various municipal service sectors of the town.

- 2) *Conduct external exercises to collect data on burning issues in the town/ULB:* Another option the study group can have is to collect data either through media review or through some initial contacts regarding the burning issues in the town across sectors. If the study group could find a partner in the town having substantial level of information it would be a favorable situation. Classifying the issues according to their sectors is the next step, which generates a comparative picture of the severity of the issues in the sectors. Now the decision to select the sector can be taken on the basis of two aspects:
- Assessment of its own inclination/the interest area/ expertise/ knowledge base available with the group, and
  - Comparing it with the severity of the issues in the town.

For doing this, again the study group has to go for an internal discussion based on the data collected. Table 2 can help in organizing the data that could be used for internal discussions.

Sectors	Internal expertise area/inclination/ availability of the knowledge base etc. with the Group	Data gathered from the town w. r .t burning issues	Other Factors (Logistical convenience, reliability of obtaining data, etc)	Best Match/s
Water Supply				1) 2)
Solid Waste Management				
Sewerage				
Housing				

**Table 2 Comparison chart of "internal expertise" with "burning issues"**

Based on the above analysis, prioritization and finalization of the sector/ urban service to be can be done.

### 3.2. Sampling: Approaches and methods considered for TRK

There are four levels of data that are considered essential for the RSLP. These are at the level of citizens, at the level of service providers and institutions, town level office bearers and key informants. All these four levels require distinct sampling strategy.

At the level of citizens, the aim of sampling is to capture the details related to the locally observed problems, their causes, and their solutions to the extent possible maximally. In order to achieve this, a non-probability (biased) sample is proposed. This is because a random sample, as compared to a sample based on non-probability method focused exclusively on capturing the details, causes and solutions of problems, would involve a certain degree of dilution of information obtained. Also, a random sampling method would require substantially higher amount of efforts, time and other resources to be invested. Further, such a random sample, combined with the limitations on resources and time available with the study team, may not be able to capture the systemic or wide-spread issues portrayed by comparatively narrow symptomatic appearance, in a focused manner.

For example, in case of water supply, a random sample of a city may show that about 20% of the city's population suffers from a problem of low pressure. However, a biased sample, focusing on areas with higher relative altitude, may show that all the people residing in high-lying areas of the city suffer from low water pressure. This essentially highlights the systemic issue in a direct manner. On the other hand, to arrive at the same issue through random unbiased sampling, substantially more amount of investigation is imagined to be required. Similarly, low-lying areas are typically predicted to be suffering from storm and sewage drain issues, and areas with dense population and

construction are likely to suffer from problems related to waste collection and transport, owing to the inaccessibility to the vehicles constituting the system.

Since generally the quantitative methods require a larger size of sample, in case of surveys, methods of probability sampling (simple, systematic or stratified random sampling) could be used. However, again the issue of availability of resources, viz. time, financial, technical (software, SPSS etc), human, and expertise, becomes critical.

The beginning point for sampling at the town level is proposed to be a cluster. It is impossible to study a town in its entirety. The *cluster sampling approach* proposes the selection of clusters/wards as an intermediate step for further selection of groups or colonies or areas. This approach is considered in view of its utility in situations the study group is likely to face, especially that of difficulty in selecting convenient sampling frames. Urban locations, both cities and towns, consist of populations having great variety, and the key variables are class, religion, caste, ethnicity, gender, and demographic features. Other variables such as physical characteristics (high/low altitude locations), geographical characteristics (habitations on the fringe of the city, revenue boundaries) are also important in the context of the municipal services. From the point of view of preparation of the RSLP, this diversity is important and at least a genuine attempt towards capturing it needs to be made, even with possibly limited resources. This issue is best addressed with the *cluster sampling approach*, as of people can be identified in a city in clusters having above mentioned variables as common features or attributes of the clusters.

Another advantage of the cluster sampling method is its utility in terms of unit for action. The electoral ward is a clear unit for action for most municipal services. It is also the unit for political constituency building. The convergence of clusters with wards is thus advantageous on several counts.

### 3.2.1. Sampling of wards / areas

The sampling of the residents for surveys is done with the help of *cluster sampling method* as the residents of selected wards or areas are interviewed during surveys. Selection of wards is based on certain criteria fixed to serve the purpose of a representative sample. Of course, more attributes could be added to the following list, considering the local contexts and diversity. Generally, to identify the various scales at which data is to be collected following categorization might be helpful

- ✿ Resident (may not be having a *citizenship*)
- ✿ Citizen
- ✿ Ward (electoral constituency) - *as a cluster*
- ✿ Administrative Block (of the municipality in which a *Prabhags* contains many wards)

#### Checklist for selecting the areas or wards

- ✿ Physical - Attributes
  - High/ low altitude areas
  - Newly developing areas of the town
  - Areas located on the fringe of the city but not growing rapidly
  - Old parts of the city
- ✿ Class-Attributes
  - LIG settlements, Slums
  - MIG colonies
  - High income group colonies
- ✿ Religion / Caste - Attributes
  - Minority habitations
  - Areas having populations of particular casts such as *Chambar ali, bhoi ali, kumbharwada* etc.
- ✿ Demography
  - Crowded parts of the city, market areas (having narrow lanes or dispersed constructions)
  - Areas having varied density of population
- ✿ Habitation having particular features

- Industrial belts or settlements
- Government employees colonies
- ☀ Colonies located by the side of water bodies
- ☀ Areas having unauthorized lay outs

- 1) Ward lists with the details comprising the areas, lanes and squares within the ward: This list is generally available in the *Records Department* of the ULB and is published by the State Government Gazette notifying the electoral wards of the town for ULB elections.
- 2) Once this list is obtained, various characterize or the attributes needs to be understood from generally a person who knows the city well. The person could be anybody like *journalist*, and/or *an officer from the municipality, a political worker who has been active in the city politics and worked in elections, or even a member of the study group.*

Ward list may or may not serve as the best data source for identifying clusters, but that is important, as it helps to identify clusters with the boundaries of the electoral wards which further enable to associate issues from the clusters with the ULB through council members.

### 3.2.2. Sampling methods for Citizen/Residents

After the selection of the wards, selection of respondents could be done using both probability and non-probability sampling. If a survey is to be conducted with a sizable number of samples, a systematic random sampling method could be used.

#### ***Systematic random sampling***

Systematic random samples, since even in the wards the study group would deal with unnumbered sampling frame that is large in size, would help. One of the easiest methods for systematic random sampling is given below.

The voter's list is the source to identify respondents, which can be obtained from the ULB. Importantly, it is numbered. If you are dealing with average 6000 voters per ward you may decide to survey 60 voters (@ 1% sample). For selection of the sample with random systematic method you need a *sample interval*. For defining the interval-number between the two samples, the simplest method used is: divide the total sample population by the number of respondents, in this case it would be  $6000/60 = 100$ . So 100 is your sample-interval and then you can take every 100th number as sample number and select 60 respondents for the proposed survey.

Thus with a mix of *cluster* and *systematic random sampling*, one can select respondents for a citizen based survey.

Considering that in the proposed framework of action research such situations might be rare, some non-probability sampling methods would be more useful. In the next paragraphs, some non-probability sample methods are given.

#### ***Purposive sampling***

As the name suggests, purposive sampling is done with a purpose in mind, and the sample is thus selected to include in the sample, respondents of interest and exclude those who do not suit the purpose.

Even in the wards, citizen sample can be selected with the purposive sampling method, especially when one wants to access a particular subset of people. Even after employing cluster sampling method, the researchers may confront more heterogeneity than visualized or considered earlier, as randomly selected respondents seldom reflect common background, even in clusters. Therefore, even in clusters, in order to capture a more diverse sample, purposive sampling method could be beneficial.

This method is popular with newspapers and magazines which want to make a particular point. This is also true for marketing researchers who are seeking support for their product. They typically start with people in the street, first approaching only 'likely suspects' and then starting with questions that reject people who do not suit the purpose<sup>3</sup>.

### ***Street Intercepts***

Especially, when researchers cannot identify precise clusters and clear sampling frames that could be mapped on a computer or be published by government agencies, *street intercepts* can be of help to the researchers. Instead of selecting households, investigators / interviewers can go to the geographic chunks/areas selected in the cities and select randomly, and survey/interview 10-15 persons whom they can interact with. Importantly, it has been discovered that street intercepts can produce highly reliable, unbiased samples.

### **3.3. Sampling Methods for Service providers/System representatives**

The urban local body in a town is an organization with several levels, departments which are linked in turn to state level departments and institutions. They often have distinct norms, procedures, and ways of practice which produce particular kinds of outcomes at the citizen level. Their insight into problems and possible solutions is an important element of RSLP. The sampling method proposed for them is a stratified sample that brings in front line workers, middle level workers and the leaders of particular departments.

A municipal department typically consists of a large number of class four employees (generally in the range of 100 to 700 according to the size of the town), fewer class three employees, class two in the upwards direction. Therefore the study group may have to select a sample from class four and three employees, who are large in numbers.

General guideline is to select such respondents who bear or perform responsibilities pertaining to areas (clusters) surveyed. It also depends what method the researcher is using to obtain data. In case of interviews, the researchers might like to select fewer respondents, as against in case of Focused Group Discussions, where the researchers might have at least 10-12 select participants.

### **3.4. Sampling methods for Key Informants**

A key informant can be anybody who has some level of knowledge or experience about any one or more aspect of the city water supply (or the research sector considered). It could be a lay-person, a social activist, a past or present council/ corporation member or an M.L.A., consultant / contractor serving the council, etc.

#### ***Snowball sampling***

Especially in an unidentified or lesser known situation, when one is new to the study town, sampling of the key informants is best done with the *snowball method* — a method used for sampling (non-probability sampling) in the social science research methodology.

*Snowball sampling* is a special non-probability method used when the desired sample characteristic is rare. It may be extremely difficult or cost prohibitive to locate respondents in these situations. Snowball sampling relies on referrals from initial respondents to seek additional respondents. While this technique can dramatically lower search costs, it comes at the expense of introducing bias

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<sup>3</sup> ([http://changingminds.org/explanations/research/sampling/purposive\\_sampling.htm](http://changingminds.org/explanations/research/sampling/purposive_sampling.htm))

because the technique itself reduces the likelihood that the sample will represent a good cross section from the population<sup>4</sup>.

### **Convenient sampling**

*Convenient sampling* and *judgment sampling* are other commonly used non-probability methods, especially when low cost research is to be conducted and also when time resources are scarce. As the name suggests, in *convenient sampling*, the selection of the respondents is based on the convenience of the researcher. *Judgment sampling* is an extended version of the convenient sampling method.

## **3.5. Data collection**

The objective of providing this TRK is to provide researchers a ready reference for designing their own research by picking relevant questions/issues from the basket of data collection tools that are relevant to the situations they are looking for. Accordingly, the study group can design its own data collection plan with the help of this TRK.

In context of collecting data, it is said that there is no perfect method for data collection. *Response rates, ability to recall, how intense are the data needs, and respondent profiles*, are the major determining factors in selecting the proper tools for data collection. Resource available, of course, is one of the major determining factors too. Taking into consideration the diversity in the respondent base, an emphasis has been placed on *semi-structured interviewing*, although *structured interviewing* could be used for some types of respondents, especially citizens or residents.

Interviewing is a method; nevertheless it is a skill easier said than done too. Especially in unstructured or semi-structured interviewing, (with tricky Key informants for example: councilor having criminal background) interviewing skill becomes crucial. From an array of methods used in the semi-structured interviewing, Focus Groups and Key Informant Interviews are suggested in the TRK, especially for the system staff interviews (class three and class four employees) and interviewing office bearers, council members, etc. respectively.

Most likely, the study group would interact with diverse types of respondents, educational background-wise, class-wise, caste-wise, gender-wise, area-wise, profession-wise and so on. In such situations, among the three broad types of structured interviews, *self-administered questionnaires* (For example, e-mail based) and *telephonic interviews* are not at all considered as useful, but *face to face interviews/surveys* are suggested in the TRK. However, it also needs to be mentioned that, there is no rule against using more than one type of interview. The study group can always decide upon changing the types after reviewing the data gathered, especially after studying the issues of data sufficiency and consistency.

### **3.5.1. Structured Questionnaires (Surveys)**

If the study group decides to go for quantitative survey, appropriate questions from the questionnaire given in the relevant section(s) with study sector-questionnaires could be selected. Conventional wisdom with respect to designing questionnaires indicates that shorter questionnaires, (but reflecting a clear analytical framework and objectives) receive a better response from the respondents. Long questionnaires (with a few exceptions) fail to generate effective response and hence could impact on the results of the study negatively. Despite this fact, long questionnaires with exhaustive options have been offered to the intended users in the TRK. The thinking behind this is to enable the user to choose

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<sup>4</sup> <http://www.statpac.com/statistics-book/index.htm>

relevant questions from a possibly exhaustive list of questions and tune those up according to respondent profiles<sup>5</sup> in their area.

Choosing relevant questions is a tricky task. In addition to having a clear analytical framework, a good feasibility analysis is a precursor to developing questionnaires. This includes issues like: background information regarding the types of respondents, maximum time they can spare for responding to the questions, and their primary concerns regarding the municipal service. While selecting/adding/altering questions, the single aspect is to ask: *How is this information relevant to the study? OR how am I going to use this information?* Most importantly, the choice of questions must be consistent with the *Framework* (template) designed and explained in the introductory sections of this document.

### 3.5.2. Focused Group Discussions

Focus groups are useful with the Class 4 and class three employees of the municipal departments, as also with the citizens/ residents. Of course the interviewer that works as a moderator must be skilled to moderate discussions.

It is commonly known that focused group do not replace surveys, and interviewing is a must, hence many researchers use focus groups for the purpose of groundwork in order to design surveys. This particular feature of focus groups is used in RSLP data collection, primarily because focus groups can become a link between *individual* and *cultural* data. In groups, participants also talk about own as well as representative issues of the group. The precondition is that the discussing group should be as homogeneous as possible.

However, it does not mean that the focus groups are not reliable and can not be used to obtain primary data. However, it must be kept in mind that, data gaps if any, left after using the focus group method, must be covered by employing a more in depth technique, may be a semi-structured or unstructured interview.

The guidelines for the moderator on *how to moderate* are very common and could be found anywhere (in research methodology books, web, etc.) Those are avoided here.

### 3.5.3. Transect Walks

A transect walk is a walk taken by the research group through the areas of interest, observing, asking, listening, looking, identifying different zones, seeking problems and possible solutions. The findings are documented and they can be mapped on to a transect diagram or map.

Transacts are an ideal point of departure for a research/planning process, because participants (anybody for example, sweeper and drainage-cleaner class four employees or valve-men showing how they operate valves and release water to a particular area) and facilitators/researchers walking through the townscape or a particular unit, (such as filtration plant or a waste dump area or a water-logging area) can observe both problems, and causes of the problems and get a physical feel of the environment.

During the transect walk, participants locate and pinpoint the various physical aspects of the visited unit of a particular municipal service. Conditions and physical features such as the quality (of pipes, in case of water supply, or siren-cars or waste bins in case of solid waste) are discussed. The transect walk also provides an understanding and an opportunity for discussion of such issues. Through the direct field observation and exchange of information, the researchers learn to identify field dynamics and problems the system employees or citizen face, which will gradually lead to the identification of their causes and the possible solutions. If sufficient quorum is present, the transect walk can be

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<sup>5</sup> Even though the TRK attempts to offer a standard research design including targeted questionnaires for selecting respondents, the user might prefer to execute the questionnaire to such respondents that the TRK does not include.

ended with a short discussion and findings from the walk and such discussion could be validated and summarized.

#### **3.5.4. Semi-structured Interviews**

Semi-structured interviewing is suggested keeping in mind the fact that the study group may not get a second chance to interview a respondent, especially a Key informant. Key informant interviewing, in fact is a term originated from the ethnographic studies. In fact, sociologists use the term "Respondents" for someone whom Anthropologist call 'Informants'. The difference as given in a book Social Research Methods by H. Russell Bernard is: "When people describe their culture, they are informants. When they talk about their own characteristics, their own belief (values, preferences, value and ideas) and their own experiences and behavior, they are respondents.

Our experience with the Informants/respondents especially when we interviewed experts or persons having knowledge about a particular topic or subject is, that they talk both, about self as well as about the culture. Hence we have called them Key Informants.

### **3.6. Analysis**

The methods of research proposed in the TRK are methods that are iterative. Thus data is being produced from interactions with multiple stakeholders and is being taken to different layers with simultaneous analysis. For example, there is analysis of which wards/ clusters of the city are better serviced at the initial stage which is fed into the sample of clusters. An analysis of problems faced by citizens is fed into interactions with system representatives and office bearers. Analysis of facts, trends, issues and the causes can be done on the basis of patterns in the data . However this kind of data also lends itself to analysis and arriving at action points through a town wide participatory process. Such decisions however depend on the resource and the networking capacity of TRK users.

## Section B: TOOLS, FORMATS AND K-RESOURCES (WATER)

### 1. Tools for understanding citizens' issues

#### 1.1. Survey Questionnaire: Understanding Citizens Issues

1. Respondent Profile: Household Representative, generally Responsible Female or Male member of the House, or a commercial user
  2. Respondent Selection Method: Spot Sampling (See :.....)
  3. Approximate Time Required : 20 min/respondent
- 1) Sources accessed for availing water
- |   |                          |                                 |
|---|--------------------------|---------------------------------|
| a) Owned municipal Connection                                 | <input type="checkbox"/> | □, if don't have, pl. refer Q 5 |
| b) Public Stand-post erected by Municipal Council/Corporation | <input type="checkbox"/> |                                 |
| c) Hand-pump installed by Municipal Council/Corporation       | <input type="checkbox"/> |                                 |
| d) Owned (private) bore-well                                  | <input type="checkbox"/> |                                 |
| e) Private bore-well (others)                                 | <input type="checkbox"/> |                                 |
| f) Public open well   | <input type="checkbox"/> |                                 |
| g) Private open well (Others)                                 | <input type="checkbox"/> |                                 |
| h) Private open well (owned)                                  | <input type="checkbox"/> |                                 |
| i) <i>Nallah</i> or River                                     | <input type="checkbox"/> |                                 |
| j) Water is purchased?  | <input type="checkbox"/> | □, If yes, then answer Q 7.b    |
- 2) If municipal water connection is used
- a) Size of the connection
    - i) 1/2" inches
    - ii) 3/4" inches
    - iii) 1" inches
  - b) Connection Type 1
    - i) Domestic
    - ii) Commercial Industrial
    - iii) Industrial
  - c) Connection Type 2
    - i) Group Connection
    - ii) Individual connection
  - d) Do you pay water-tax  , if Yes
    - i) Yearly
    - ii) Monthly
    - iii) Amount of Tax paid \_\_\_\_\_
- 3) If water is availed from more than one source: Issues with Municipal Connection
- a) Is the system a 24x7 water supply system?  if not
  - b) Are water supply timings fixed and declared / communicated?
  - c) What is the daily schedule declared by the ULB? No such schedule declared? 
    - i) Morning: \_\_\_\_\_
    - ii) Evening: \_\_\_\_\_
  - d) What are the actual timings
    - i) Morning: \_\_\_\_\_
    - ii) Evening: \_\_\_\_\_

e) What is the pressure of the water at tap?

A		or	B	
i) <b>Grossly inadequate</b>	<input type="checkbox"/>		i) <b>One has to dig pits deep in the ground</b>	<input type="checkbox"/>
ii) <b>Inadequate</b>	<input type="checkbox"/>		ii) <b>Water comes to the tap but with low pressure</b>	<input type="checkbox"/>
iii) <b>Adequate</b>	<input type="checkbox"/>		iii) <b>Water easily comes to the first floor</b>	<input type="checkbox"/>
iv) <b>More than adequate</b>	<input type="checkbox"/>		iv) <b>Water easily comes to 11nd floor</b>	<input type="checkbox"/>

f) Total duration (daily) of supply of water \_\_\_\_\_

g) The Quality of the water Supply

- i) Monsoon
- (i-a) High turbidity  (i-b) Low turbidity  (i-c) Clean water   
 (i-d) Bad smell  (i-e) No smell   
 (i-f) High prevalence of WBD  (i-g) Low prevalence of WBD
- ii) Winter
- (i-a) High turbidity  (i-b) Low turbidity  (i-c) Clean water   
 (i-d) Bad smell  (i-e) No smell   
 (i-f) High prevalence of WBD  (i-g) Low prevalence of WBD
- iii) Summer
- (i-a) High turbidity  (i-b) Low turbidity  (i-c) Clean water   
 (i-d) Bad smell  (i-e) No smell   
 (i-f) High prevalence of WBD  (i-g) Low prevalence of WBD

h) Coping Strategies with low pressure supply

- i) Use of Dug-pits and fixing taps to the main pipeline underground
- ii) Using booster pumps, ii-a) Yes  ii-b) No,  If yes  
 (1) Do ULB officials take action against that? 1-a) Yes  1-b) No,  If yes  
 (2) How do you respond to him? 1-a) Hide pumps, when come to inspect/confiscate   
 2-b) Offer bribes or responds positively if asked for   
 3-c) Pressurize using political contacts   
 3-d) Quarrel a lot and then s/he just does not turn up   
 3-e) Use more than one of the above
- iii) Maintaining good relations with the Valve-man, so he maintains pressure
- iv) Keeping constant pressure on WS department though complaints
- v) Grievance redressal though council (ward) member

4) If water is availed from more than one source: Issues with other sources

a) If water supply is done through *public* Hand-pump or Open (Dug) well

- i) Water supply (availability) is (i-a) Adequate  (i-b) Inadequate
- ii) When Scarcity is faced?  
 (ii-a) After October   
 (ii-b) After January   
 (ii-c) After April
- iii) Maintenance  
 (iii-a) Not Done   
 (iii-b) By ULB   
 (iii-c) By people

b) If water supply is done through *Private* Hand-pump or Open (Dug) well

- i) Water supply (availability) is (i-a) Adequate  (i-b) Inadequate
- ii) When Scarcity is faced?  
 (ii-a) After October   
 (ii-b) After January   
 (ii-c) After April
- iii) Maintenance

- (iii-a) Not Done
- (iii-b) By ULB
- (iii-c) By people
- iv) During shortage period?
  - (iv-a) Skip some uses & adjust
  - (iv-b) Go for alternate source.....
- c) If water is availed from neighborhood
  - i) Water supply (availability) is (i-a) Adequate (i-b) Inadequate
  - ii) When Scarcity is faced? (ii-a) After October (ii-b) After January (ii-c) After April
  - iii) Is compensation paid? (iii-a) Yes (iii-b) No
  - iv) if Compensation Paid (iii-a) In kind (iii-b) Monetary (iii-c) labor
  - v) Compensation details.....
- d) What do you do in scarcity period? How do you cope with?
  - i) Skip some uses & adjust with the scarcity (Air-Cooler not used, watering to garden not done?), if yes
    - (1) List the skipped uses
    - \_\_\_\_\_
    - \_\_\_\_\_
  - ii) Reduce frequency of water use for certain uses, [(e.g. bathe once in a day / in two days etc] if yes
    - (1) List such uses
    - \_\_\_\_\_
    - \_\_\_\_\_
  - iii) Go at alternate source (e.g. river, tank, far-away well) and perform some domestic uses), if Yes
    - (1) List such uses
    - \_\_\_\_\_
    - \_\_\_\_\_
  - iv) Store water to the maximum capacity in the house and economize
  - v) Tanker is arranged by ULB
  - vi) Tanker is purchased by a group of HHs
  - vii) If purchased
    - (1) Who is the seller \_\_\_\_\_
    - (2) At what rate \_\_\_\_\_
    - (3) For what use \_\_\_\_\_
    - (4) At What frequency \_\_\_\_\_
    - (5) Quantity of water purchased \_\_\_\_\_

5) Causes behind the problems faced

- a) Why do you not have municipal water supply connection?
  - i) Not availed  If not availed pl. refer 5.b
  - ii) Not offered because house is located beyond municipal limit
  - iii) Not offered because house is in unauthorized lay-out
  - iv) Not offered because the slum is not declared
  - v) Distribution is not declared
- b) Reasons for not availing water connection, even if offered
  - i) Not affordable
  - ii) Not Needed, other sources are sufficient
  - iii) Lot of corruption and contest in availing connection
  - iv) Have a connection, but its an illegal connection

c) Immediate reasons Water shortage

i) Water is supplied for very less duration because

- (1) Bulk water shortage for the city
- (2) High Leakages, results in overall low availability of water
- (3) High level pressure on valve-men by powerful council-members
- (4) High prevalence of booster-pumps results unequal pressure and supply
- (5) Household located at the tale-end of the system
- (6) Other areas /wards are supplied with more water (political influence)
- (7) Unsolicited tanker network availing water from ESRs or Filtration plant
- (8) Many of the above

ii) Schedule is not followed by the municipal authorities/employees

- (1) Political pressure
- (2) Co-opted employees and authorities
- (3) Household located at the tale-end of the system

iii) Reasons behind low pressured water supply

- (1) Colony/habitation located on high elevations
- (2) Usage of booster -pumps by residents
- (3) Residents having illegal connections directly from main distributory line (Dug-pits)
- (4) Leakages in the system

iv) Reasons Behind Contamination

- (1) No filtration, or water filtration plant having inadequate capacity
- (2) Improper maintenance of the filtration plant
- (3) water supply pipelines are laid along the drainage, and dirty water enters through broken pipes in the supply pipeline and contaminate water
- (4) During Monsoon, the contamination level increase

6) Impacts of the problems on citizens

a) Drudgery (Physical and Mental Impacts)

- i) Search for Alternative sources, time and energy loss
- ii) Migration (short term in want of water)
- iii) Drudgery mainly for
  - (1) women
  - (2) women and children
  - (3) All

b) Prevalence of Water borne diseases (Health/Physical and mental impact)

- (1) High
- (2) medium
- (3) Low
- ii) Diseases found in high proportion among
  - (1) Women
  - (2) Children
  - (3) Women and Children
  - (4) Men and women
  - (5) All
- iii) Seasonality in diseases
  - (1) Monsoon
  - (2) Winter
  - (3) Summer
  - (4) All-season

- c) Prevalence of Other diseases
- i) Allergy (Skin)
  - ii) Allergy (Throat)
  - iii) Other side-effects (Please mention)

\_\_\_\_\_

\_\_\_\_\_

d) Economic impact

- i) Approximate costs incurred for availing water from alternative sources
  - (1) Electricity costs for operating pumps \_\_\_\_\_
  - (2) Transport costs - if water is transported from some place \_\_\_\_\_
  - (3) Investments made (if gone for a new dug-well or bore-well) \_\_\_\_\_

ii) Approximate costs incurred for purchasing water Rs. \_\_\_\_\_ for \_\_\_\_\_ units (Ltrs etc.)

7) Impact on other sectors/sub sectors

a) Ground-water table

- i) If has open dug-well
  - (1) Well water levels (approx.) in last three summer 1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_
  - (2) Well deepened recently?  , if yes, when \_\_\_\_\_, How deep? \_\_\_\_\_ Ft.
- ii) If has bore-well
  - (1) Water output during last three summer seasons 1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ **OR**
  - (2) Seasonality in time taken for filling overhead tank
    - (a) Monsoon \_\_\_\_\_ (b) Winter \_\_\_\_\_ (c) Summer \_\_\_\_\_
  - (3) Has recently gone for new bore-well or dug-well?  , if yes how deep \_\_\_\_\_, Costs? \_\_\_\_\_

8) Whom do you hold responsible primarily for the problems in the water supply?

- a) Municipal Council - Officers Water Supply
- b) Municipal Council - employees - Water Supply
- c) Town-planning department
- d) Other implementing agencies
- e) Citizens
- f) Politicians
- g) Other \_\_\_\_\_

9) Why? (How do you think, above ticked department / agency is responsible?)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

10) What are your specific and / or broad demands or expectations from the system?

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\_\_\_\_\_

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## 1.2. FGDs with citizen: Guidelines and prompts for the moderator

1. Respondent Profile : Citizens or Residents (both men and women mixed or independent groups)
2. Duration : Approximately two hours
3. Objective : To understand the issues in Domestic water availability and municipal supply

### Questions and prompts for guiding the discussion

#### Section A: Issues in Municipal Water Supply Connections

<b>Status: Municipal supply</b>
<ol style="list-style-type: none"> <li>1. Connection Details               <ol style="list-style-type: none"> <li>1.1. 1/2 inch, 3/4 inch or 1" <i>connections</i>, metered / Un-metered,</li> <li>1.2. Tax-payers and Non-taxpayers, Water availing from municipal free supply stand posts</li> </ol> </li> <li>2. Details of the water supply for the selected ward/area/colony               <ol style="list-style-type: none"> <li>2.1. Water supply timings schedule, daily hours of supply, water storage methods, daily water use and requirements (as declared by the ULB)</li> <li>2.2. Zone details (if known), whether a tale-ender zone?, Which area get water first and how is the sequence</li> </ol> </li> <li>3. Main water uses               <ol style="list-style-type: none"> <li>3.1. Domestic (within domestic- e. g. cooking, washing, car-wash, maintaining gardens...)</li> <li>3.2. Commercial - For exactly what, daily water demands (approximate)</li> </ol> </li> <li>4. Quantities citizens (participants) could secure, its sufficiency</li> <li>5. Storage capacities in the HH</li> </ol>
<b>Gaps/Problems: Municipal Supply</b>
<ol style="list-style-type: none"> <li>1. Problems:               <ol style="list-style-type: none"> <li>1.1. Irregular supply, No fixed timings, non compliance to supply-schedule</li> <li>1.2. Contaminated Supply, high level of seasonality <i>or</i> no seasonality in contamination (E.g. high during monsoon)</li> <li>1.3. No fixed duration of supply, low pressured supply</li> </ol> </li> </ol>
<b>Coping strategies</b>
<ol style="list-style-type: none"> <li>1. Alternate ways to procure water               <ol style="list-style-type: none"> <li>1.1. Alternate sources (surface/ground water based sources, own sources/ public sources, <i>or</i> purchase of water <i>or</i> exchange - labor or other kind?)</li> <li>1.2. Ways of procurement, travel distance, travel mode etc details</li> <li>1.3. Persons involved in procurement? (age and gender disaggregated)</li> <li>1.4. Extra expenses incurred for water procurement (including or excluding the money spent directly in purchase of water)</li> </ol> </li> <li>2. Reducing or Skipping the usage of water               <ol style="list-style-type: none"> <li>2.1. Various ways adapted in scarcity situation using water economically</li> </ol> </li> <li>3. Migrating to some other places (within or outside the city)</li> </ol>
<b>Impacts/Victims</b>
<ol style="list-style-type: none"> <li>1. Socio-economic background of the participants               <ol style="list-style-type: none"> <li>1.1. socio-economic status, standard of living</li> <li>1.2. Vulnerability</li> </ol> </li> <li>2. Physical and Mental drudgery</li> <li>3. Time-loss, money loss, other types of losses (E.g. Lost opportunities)</li> </ol>

<b>Causes/Major lacunae/Culprits</b>
<ol style="list-style-type: none"> <li>4. Overall low availability of water               <ol style="list-style-type: none"> <li>4.1. Bulk shortage - in the reservoir</li> <li>4.2. Supply network Decayed - Leakages resulting in low availability</li> <li>4.3. Less supply capacity or increased population pressure/pressure of newly given connections (Non-compliance to technical guidelines while giving new connections, increased burden)</li> <li>4.4. Thefts (From main bulk -supply lines or from the distribution network through illegal domestic or bulk connections or politically supported legal/illegal tanker network)</li> </ol> </li> <li>5. Non-compliance to water supply schedules</li> <li>6. Clash of priorities of supply (Industrial area and then to citizen)</li> <li>7. Political interventions (Select wards/areas/colonies are prioritized)</li> <li>8. Other reasons?</li> </ol>
<b>Options/Demands</b>
<ol style="list-style-type: none"> <li>1. Go for additional bulk sources, resolve the conflict in bulk sharing (if any), complete administrative formalities (to reserve rightful share of bulk water), ...</li> <li>2. Search, arrest, declare the illegal connection and/or remove/legalize them...</li> <li>3. Plug the leakages, involve citizen and seek their support...</li> <li>4. Increase capacity of the distribution system... (ESRs, pumping station, filtration etc)</li> <li>5. Refurbishment of the whole system...</li> <li>6. Establish an effective grievance redressal System</li> </ol>

#### **Section B: Issues in water access to unconnected habitats / Families**

<b>Current Status of access to water</b>
<ol style="list-style-type: none"> <li>1. Bore-wells, Dug-wells (common or private); <i>Nallah / river/ rivulet</i> or other sources</li> <li>2. Public hand-pump or Public tankers (free supply)</li> <li>3. private tankers or other mode of access (purchase water) (Other modes, E.g.: monthly Rs. 50-100 charges paid by a slum-dweller to the owner of the public tap connection or owner of private bore-well/hand pump as observed in some places)</li> </ol>
<b>Gaps /Problems with Other water sources</b>
<ol style="list-style-type: none"> <li>1. Bore-wells or dug-wells went dry due to lowered GW table</li> <li>2. Availability reduced from October or from Jan or....</li> <li>3. High scarcity and limited access</li> <li>4. Has to purchase water</li> </ol>
<b>Why unconnected? Causes/Reasons/Culprits</b>
<ol style="list-style-type: none"> <li>1. Administrative or Policy issues           <ol style="list-style-type: none"> <li>1.1. An undeclared Slum</li> <li>1.2. Declared Slum however... not paid attention sufficiently</li> <li>1.3. Unauthorized lay-out [Non N. A. plots (agricultural plot), Encroachment on private/government land etc.]</li> <li>1.4. Newly developed colony to which distribution network did not reach</li> </ol> </li> <li>2. Municipality does not pay attention (No effective grievance redressal)</li> <li>3. High contest in going for deeper and deeper in the ground for accessing water (Ground water issues)           <ol style="list-style-type: none"> <li>3.1. E.g. Due to neighbor's deepening of well / bore well our well went dry</li> </ol> </li> </ol>
<b>Coping strategies</b>
<ol style="list-style-type: none"> <li>1. Reducing or Skipping the usage of water           <ol style="list-style-type: none"> <li>1.1. Various ways adapted in scarcity situation using water economically</li> </ol> </li> </ol>

<ol style="list-style-type: none"> <li>2. Migrating to some other places (within or outside the city)</li> <li>3. Fetching water from far-away places</li> <li>4. Purchasing water (Especially in scarcity period -summer)</li> </ol>
<i>Impact</i>
<ol style="list-style-type: none"> <li>1. Drudgery (gender, and age aspects)</li> <li>2. Economic impact (actual costs incurred, other opportunity costs)</li> </ol>
<i>Options/Demands</i>
<ol style="list-style-type: none"> <li>1. Connect to the distribution system</li> <li>2. Need an independent water supply system?</li> <li>3. ....</li> </ol>

### Section C: Issues in Grievance Redressal /Governance

<b>Status and Gaps/problems</b>
<ol style="list-style-type: none"> <li>1. Details of the existing grievance redressal system <ol style="list-style-type: none"> <li>1.1. Procedural Details (citizens expected to follow)</li> <li>1.2. Powers and responsibilities</li> </ol> </li> <li>2. Non-approachable, opaque, non-transparent,</li> <li>3. Unresponsive, Corrupt, Late in responding, inefficient, unorganized (Seek examples or participants experiences regarding pursuit of grievance redressal)</li> </ol>
<b>Reasons/Victims /culprits</b>
<ol style="list-style-type: none"> <li>1. Citizen's inactiveness</li> <li>2. High level political support to the officials (Even for not operating properly and spending time only for catering politician's demands)</li> <li>3. Understaffed, staffed with unskilled personnel.</li> <li>4. System constraints (e.g. more that 50% demands such as new connections, contamination need new investments which is a larger issue and beyond the gamut of GRS)</li> </ol>
<b>Options/Demands</b>
<ol style="list-style-type: none"> <li>1. Remove systemic constraints by implementing proper policies</li> <li>2. Citizen participation in decision making, monitoring, etc.</li> </ol>

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## 2. Tools for technical, financial and managerial aspects of the system

1. Participants : With or without Citizens, with System Engineers or staff
2. Duration : Largely depends on the distances of the Pump-house, filtration plant and Kms of distribution system in the concerned system.
3. Objective : To understand the physical status of the infrastructure and assess its adequacy, issues in functionality and management from the service point of view.

### 2.1. Questionnaire: water sources & interviewing In charge (Engineer)

#### 1. Source of the Water

- 1.1. Owns a dam or dams, K.T. Weirs, barrage, lake/s or other type of reservoirs
- 1.2. Owns a barrage but barrage is dependent on the upstream dam, and when water is released from it, barrage gets filled in and used (only in non-rainy season)
- 1.3. Does not own a dam, however certain amount of water is reserved from the dam/s owned by other agencies such as *irrigation department or water resource department*
- 1.4. Water taken directly from a river, through jack-well
- 1.5. Multiple Sources: small dams + lakes + bore-wells
- 1.6. ULB is supplied with treated water by other Para-statal body (Either State-PHED or State-WSSB or State Industrial Development Corporation such as MIDC or Metro development Authority, such as MMRDA)
- 1.7. Another ULB is supplying with treated water
- 1.8. Water is supplied by the private corporation (company or commercial enterprises)

#### 2. If the Source is (1.1 or 1.2 or 1.3)

##### 2.1. In case of 1.1 (Owned Dam/barrage/reservoir/K. T. Weir)

- 2.1.1. **Design Capacity:** Capacity of the Reservoir (MM3), Annual Planning Chart (MLD) that is supplied to the city/town
- 2.1.2. **Reduced Capacity:** Age of the dam, level of silting occurred over the years (approximately), has it affected the total storage of the bulk water? Are there any estimates?
- 2.1.3. **Sharing of water:**
  - (a) Existing agreements for the Bulk water sharing with industry/GPs/others? Details thereof?
  - (b) If water is shared (even as per the agreement) is there any contest over water sharing with others? (*Increased demands, lobbying efforts at state level decision-makers*)
- 2.1.4. **Management:** If not dependent on upstream dam. (Free catchments can alone satisfy throughout the year), then:
  - (a) How do you exercise control over water?
  - (b) To what extent you can decide the use of the water, if to be allocated to different uses? Is there any clear-cut guideline for that? (*State policy-State/central Law-Rules-Government Resolutions/circular by the water supply department etc.*)
  - (c) Human resources, norms and actually employed? What functions do they carry out?
  - (d) Are there any downstream issues? Demands by downstream villages?

- 2.1.5. **Compensation paid and Non Revenue Water**
- (a) Do you pay the compensation for the dam-water which you own? To which agency/department in the state government? How it is calculated? (*On the basis of the total water lifted? etc.*)
  - (b) Are there any issues of theft of water directly from the reservoir? Can it be estimated?
- 2.1.6. **Bulk water shortage**
- (a) Availability of water (in the supply reservoir), seasonality aspects
  - (b) Shortage due to increased demand than the designed capacity
- 2.1.7. **Is water is being Polluted by any source?**
- (a) *Release of polluted water, chemicals, other industrial wastes, bio-medical waste etc in the main flow of the river, affecting reservoir?*

2.2. **In case of 1.2 (barrage is dependent on the upstream dam)**

- 2.2.1. Repeat Questions 2.1.1, 2.1.2, 2.1.3
- 2.2.2. Management: If water comes to the reservoir when released from the upstream dam (Subsequent periodic releases from the dam (during winter and summer), then:
- (a) What is the management structure?,
  - (b) What is the dam release schedule?
  - (c) Who owns the dam? What sort of sharing agreement is entered in to? Is water reserved for drinking purposes?
  - (d) Is water reserved for the city?
- 2.2.3. Compensation paid for Raw water and Non revenue water
- (a) How the raw water charges are calculated? (*Dam release or water pumped?*)
  - (b) Are there any transit losses? If yes, of what types? (*Evaporation, non-permitted or illegal lifts by the farmers, commercial agro-based or other enterprises or companies lifting water etc?*)
- 2.2.4. Bulk water shortage
- (a) Is shortage in the supply reservoir (especially during summer) affects the dam-releases?,  
OR
  - (b) Is increased water demand due to urbanization has become an issue to the dam-authorities? OR there is already limited water available in the dam?
- 2.2.5. Is water is being Polluted by any source?  
*Release of polluted water, chemicals, other industrial wastes, bio-medical waste etc in the main flow of the river, affecting reservoir...*

2.3. **In case of 1.3 (Dam owned by external agency but water is reserved)**

- 2.3.1. Who owns the dam?
- 2.3.2. Repeat Questions 2.1.1, 2.1.2, 2.1.3
- 2.3.3. What was the original purpose of the construction of the dam? (*Irrigation? industry? urban-domestic?*) What %age of total annual water is reserved for the ULB? Who are the other users?
- 2.3.4. Management: Do you have any role in the reservoir management (Other than the raw water charges)
- 2.3.5. Compensation paid for water, Non -revenue water, emergency allocations
- (a) Do you pay any compensation as against the quantity of water used? How the charges are calculated? How quantities of water are calculated? (*Metering? / pumping hours and pump capacities? / Total water earmarked/reserved?*)
  - (b) Are there any issues of thefts, non-permitted use? Who keeps control over it? Is this a joint responsibility? Or only agency that owns the dam is responsible?

- (c) Are there any emergency releases by the agency/department that owns and maintains the dam, that affect overall bulk water reserved for the ULB? How these decisions are taken? Does ULB representative are part of it?

**3. If the source is 1.4 (Jack-well in the riverbed)**

- 3.1. General Background data:
- 3.1.1. How deep is the jack-well?
  - 3.1.2. When it was constructed and for what capacity?
- 3.2. How do you calculate the water consumption? (Pumping hours, tank capacities...)
- 3.3. Are there any issues with the water-extraction? Is there any upstream dam? Are you dependent on it for water flows
- 3.4. Issues:
- 3.4.1. What if, the river dries up? Do you extract ground water from the river bed? Is it a bore-well dug in the river-bed?
  - 3.4.2. If not, then are you dependent on the upstream dam to release water, so as the jack well could capture the flow? How do you negotiate? Are there any issues?
  - 3.4.3. GW pollution: Are there any experiences of ground water pollution?
- 3.5. Bulk **water shortage**
- 3.5.1. Availability of water (in the bore-wells), seasonality aspects
  - 3.5.2. Shortage due to increased demand than the designed capacity? Alternatives planned?
- 3.6. Other issues?

**4. If water is taken out from the multiple sources (1.5)**

- 4.1. **Lakes:** What is the physical situation of the lakes? (Clean, Water-hyacinth, silting has taken place etc.) Is there any maintenance mechanism?
- 4.2. **Owned bore-wells:**
- 4.2.1. How many bore-wells do the ULB own? Are all motored for pumping?
  - 4.2.2. Are all connected to the distribution system?
  - 4.2.3. Is there any separate staff for the maintenance?
  - 4.2.4. What is the quantity of the water drawn daily? How do you calculate it? (Capacities of the motors and pumping hours/capacities of the tanks and tankers filled daily/other)
  - 4.2.5. Seasonality aspect in bore-well operations (through out the year/only in winter & summer/only in summer)
  - 4.2.6. Recharge-mechanism (if adapted and practiced)
- 4.3. **Small dam/K.T. weirs** (please ask relevant questions from point no. 1 and 3)
- 4.4. **If supply from other external agency** - please ask questions from **next section** (Because supply is assumed to a pure water supply, and in such cases no ULB operates filtration plant for that particular source)
- 4.5. **Total Bulk Supply:** MLDs

**5. If the source is either 1.6 or 1.7 or 1.8 (Treated water from any external agency)**

**Please see section**

**6. Common Questions on Control of Non Revenue water?**

- 6.1. What is the control mechanism in order to check the thefts and other irregularities such as pollution (If any) by different users? How far it has been effective in controlling the disallowed (illegal) use? Why?
- 6.2. If effective, what are the key actions that facilitated a tight control? If ineffective, what is the root cause (such as political protection/patronage)?

*(if effective)*

4. *Squad is allowed to act strictly, Good inspection and surveillance*
5. *Weak State Pollution control boards leaving the ULB helpless and clueless*

**(If ineffective-possible solutions)**

- *Agreements with the users if bulk usage is involved for bulk usage.*

- *Participatory monitoring, transparency in monitoring*

- 6.3. - *Conflict management, involving higher authority/regulatory agency/State Government in conflict resolution*

**7. Hard Data Obtained from the ULB**

- 7.1. Details of the method adapted to calculate the raw water charges
- 7.2. Statement of the bill issued (concerned agency) and amount paid by the ULB

**2.2. Questionnaire: Pump house & Pump operator**

1. Background Data to be obtained
  - 1.1. Total number of pumps, Life of the Pumps, its present age,
  - 1.2. Capacities of Pumps viz. a viz. the present requirements (from the point of view of the city's water needs)
2. Observation Points and Questionnaire for the Pump-Operator (Problems)
  - 2.1. Its present condition (Functionality)
  - 2.2. Physical condition of the head-works construction, and other infrastructure
  - 2.3. Working Hours, shifts of working, Working Conditions, facilities provided to staff, their Complaints and demands
  - 2.4. What is the staff's assessment about the functioning of the pump-house, employed at the Pump-house?
  - 2.5. Maintenance schedule as per the CPHEEO norms? What is the expected Vs. Actual?
  - 2.6. Causes - If not maintained (availability of finance, human resources, if contracted-issues in monitoring of contractor's work)
  - 2.7. What are the norms for employing human resources? (Skilled, unskilled, eligibility for technical staff) and actual conditions
3. Causes and Solutions
  - 3.1. Maintenance and Repairs are needed and it needs....
  - 3.2. Money / finance
  - 3.3. Need Technically competent staff and further
  - 3.4. Political will to overcome it, which is absent at present

**2.3. Questionnaire: Raw water pipe line (Rising Main)**

1. Background Data
  - 1.1. Length (Kms), its age, carrying capacity matched with the pumps?
  - 1.2. Type (Ductile Iron, Cast Iron, PVC, PUC, M/HDP)
  - 1.3. No of villages it passed through (if any), has it passed through the farmlands?
  - 1.4. How many leaks in last five years (records)
  - 1.5. Thefts detection mechanism
    - 1.5.1. Detection Squad, details of the squad (members-all stakeholders?)
    - 1.5.2. Powers and functions
    - 1.5.3. Threats to the squads if the squad takes a determined action against thieves?
    - 1.5.4. What are the experiences
2. Issues/Problems with the pipelines (Observations / Qs for the Engineer-In-Charge)

- 2.1. Leakages (due to its physical condition)
- 2.2. Leak detection mechanism
- 2.3. Thefts (by villages for drinking water or by farmers for irrigation, or by commercial / industrial enterprises for their purposes, or by others types of users)
- 2.4. Limitations of the theft-detection and control mechanism (E.g. Costs, Political protection, human resources)
- 2.5. Possible solutions:
  - 2.5.1. Technology: Bulk meters, pressure-sensors
  - 2.5.2. Political Will

## 2.4. Questionnaire: Filtration Plant and staff

1. Background Data
  - 1.1. Capacities of
    - 1.1.1. Pumps, that send water to ESRs
    - 1.1.2. Total purification capacity of the plant,
    - 1.1.3. wastage of water during purification (%age or quantity; by design Vs. actual and reasons for that)
  - 1.2. Human resource (organization chart) etc.
2. Observation Points
  - 2.1. Functionality of all the units of the filtration plant (All units may not be found functional, if so, then...)
  - 2.2. Cleanliness maintained (all infra-units such as aerator, clari-flocculator, filter-beds, chlorinator and/or bleach-mixer etc.)
  - 2.3. Quality of the Alum (*% of soil the alum-bars*) and bleaching powder used
3. Qs for the Staff at filtration plant (Filter-Attendant, Chemist)
  - 3.1. Maintenance (CPHEEO schedules and time-tables followed for the maintenance)
    - 3.1.1. Availability of materials and instruments required for maintenance
    - 3.1.2. Finance issues
  - 3.2. Water testing lab / instruments etc
  - 3.3. Managerial and Human Resources issues (What are the norms and current situation)
4. Qs pertaining to Causes and solutions
  - 4.1. What are the standards for cleanliness (as per the maintenance schedules), if not maintained properly, Why? (Inadequate finance, corrupt practices, maintenance contracted-out but weak monitoring over contractor, politically motivated contracting etc)
  - 4.2. If understaffed, overstaffed or staffed but not complying with the eligibilities / norms, why? (Implications of the *pattern not visualized in sufficient manner, political patronage for the semi-skilled workers*)

## 2.5. Questionnaire: Distribution System and Engineer In Charge

1. **Rising Main (Pure water) pipeline**
  - 1.1. Background Data
    - 1.1.1. Length and Physical condition
    - 1.1.2. Age
    - 1.1.3. Leaked/Repaired for how many times in last five years?
  - 1.2. Issues/Problems (Observations / Qs for the Engineer-In-Charge)
    - 1.2.1. Physical Condition

- 1.2.2. Leakages, thefts
- 1.3. Causes: Political protection, dire needs, unconnected households, unwillingness to pay, incapability to pay

**2. Master Balancing Reservoirs/Ground Service Reservoirs (Sumps)**

- 2.1. Background Data
  - 2.1.1. Capacities
  - 2.1.2. Height
- 2.2. Issues (Observations / Qs for the Engineer-In-Charge)
  - 2.2.1. Physical condition
  - 2.2.2. Leakages
  - 2.2.3. Design lacunae (height, pumping required)

**3. Distribution mains (The Pipeline that takes water to ESRs - Overhead Water Tanks)**

- 3.1. Background Data
  - 3.1.1. Length,
  - 3.1.2. Feeds how many ESRs/GSRs,
  - 3.1.3. Are there any direct (bulk) connections before water goes to ESRs?
  - 3.1.4. How to differentiate between a legal and an illegal connection?
- 3.2. Issues
  - 3.2.1. Physical condition
  - 3.2.2. Comparing the ESRs / GSRs that lie at the tale-end of the distribution mains with those which are located at the beginning - search for issues.
  - 3.2.3. Are there any direct connections to commercial enterprises, industrial areas, and public enterprises from the distribution-mains?

**4. Elevated Service Reservoirs (Overhead Water Tanks - commonly seen in the city)**

- 4.1. Background Data ( You could obtain details for every ESR from the office)
  - 4.1.1. Design Capacity of the ESRs (In MLDs / In Lakh Itrs )
  - 4.1.2. Designed to serve how many connections? At what rate of supply (lpcd)? For how many zones? Was the likeliness of increase in demand in future considered while designing the ESRs as well as the distribution system?  
*[Surveyed areas and Zones under each ESRs can be mapped (superimposed-mapped) roughly to understand the issues-within the distribution zones Readymade maps might also be available in the Water Supply department Office]*
  - 4.1.3. What is the rate of supply (LPCD)? How do you calculate it? Does this rate include the losses in the transport and distribution?
  - 4.1.4. Current schedules (Xerox copies of the water supply schedule and records can be obtained from the each ESR office) what are the current timings for supply of water?
- 4.2. Observations
  - 4.2.1. Physical status of the ESR, Is the tank leaking?
  - 4.2.2. Maintenance schedules (cleaning, replacing pipes etc)
  - 4.2.3. Cleanliness in the premises of the tank
- 4.3. Issues (Questionnaire for the Tank-In-charge engineer/staff)
  - 4.3.1. Are there any leakages?
  - 4.3.2. Are there any new ESRs built and not connected to the distribution system? Why? Since when?

- (a) Are tanker fed from the ESRs? How many/day? Total water allotted to tankers?
- (b) Total tankers (public - contracted by ULB to fed with unconnected or water scarce areas)
- (c) Total Tanker (private) - water sold to private contractors?
- (d) Causes behind the issues/problems

4.3.3. What changes have been occurred since design?

- (a) How many connections increased in the zones [(per zone) (on record)]?
- (b) How many connections increased (Per Zone-illegal)? How do you define an illegal connection, especially when legally allotted connections are not metered?
- (c) Are all the connections given in the same zones? Or across zones connections were allotted? What impact it had on the water supply and the distribution system?
- (d) In your opinion what is the current physical condition of the distribution network and zoning? How old it is and to what extent it is decayed? Do you think any refurbishment is needed?

4.3.4. Why private tankers are fed directly from the ESRs?

- (a) Has anybody lobby for that? Who?
- (b) Have you got any official notice for it? (Get a copy of it)
- (c) Have you ever faced any confrontations with the drivers/owners of private tanker vehicles for water? How do you handle it? Who support you in handling you decisions?

**5. Distribution Network** (Questions for valve-operator or line-man)

- 5.1. How long have you been in the system? As well as in this particular zone? In your opinion has anything went wrong after establishing the ESR and distribution network? If yes, what?
- 5.2. Are there any direct pipelines in your
- 5.3. What are the timings for valve operations? Do you follow schedule? If not why you could not follow?
- 5.4. What problems do you face?
- 5.5. Why some areas get sufficient or abundant water and some areas are scare? Has it anything to do with the valve operation?
- 5.6. How many 1" inch and 3/4" connections are in your area? What the background of the families who own bigger size connections?
- 5.7. How many commercial connections are in your zones? Are there any domestic connections that operate commercially?
- 5.8. Who pressurize you most? (*Citizen, ward members - past and present, commercial operators etc.*) How do you handle the pressure? Have you ever been offered bribe or been threatened or been given nuisance?
- 5.9. To remain in the system, what qualities an efficient valve-man have?

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### 3. Tools for Interviewing Office bearers

#### 3.1. Questionnaire: Clerks/Administrative officer in WS department

##### 1. Hard data to be obtained

- 1.1. Recovery of the water tax, if possible zone-wise for last five years (These zones are water supply zones or the areas covered by the each ESR, *and not the administrative zones of the ULB*)
- 1.2. List of Defaulters, % of recovery in last five years
- 1.3. Various schemes implemented after construction/commencement of the water supply system
  - 1.3.1. Repairs, extension of the distribution system from ULB's own funds (for all units of the water supply system)
  - 1.3.2. Repairs, extension of the distribution system through central/state schemes (for all units of the water supply system)
  - 1.3.3. Works and Expenses statement for provisions made and implemented under special scarcity period schemes
- 1.4. Current Annual Operation and maintenance costs (including the establishment costs)
- 1.5. If new project (of any nature, e.g. *network expansion, improvement in the system, filtration plant, etc*) is undertaken: - Detailed Project Report (DPR) document including all its schedules.
- 1.6. Appraisal report of the DPR (If appraisal is been done)

##### 2. Interview points

- 2.1. Questions related to post/ Experience/Responsibilities handled.
  - 2.1.1. How long have you been in this department serving as a clerk/Sr. Clerk?
  - 2.1.2. How do you joined?
  - 2.1.3. How many promotions did you secure? What was the criteria (just seniority or performance assessment? or CR?)
- 2.2. Questions regarding the impact / utility of the works done hitherto (post scheme)
  - 2.2.1. To what extent the expenses made and works done have contributed to the improvements or solving the problems of the system?
  - 2.2.2. What percent of the works sanctioned were genuinely required?
  - 2.2.3. What is your broad assessment of that?
- 2.3. Questions related to decision making in the ULB
  - 2.3.1. How the decision making with respect to the water supply systems are made, apart from the standard process of the general body meetings or standing committee meetings)?
  - 2.3.2. To What extent the decisions are influenced politically? How many times ad-hoc decisions are made?
- 2.4. In your opinion what are the problems in the current water supply system, if any? Is finance a major reason?
  - 2.4.1. Why water tax recovery is not 100%? What is the background of the defaulters? Are they politically protected?
  - 2.4.2. Other than the water tax, are there any ways to earn revenues?
- 2.5. Water Resources Planning for future
  - 2.5.1. What do you think should be the future planning for ensuring adequate water supply for the city?

- 2.5.2. What preference would you give to the following options? New reservoirs, sewerage treatment and reuse, rainwater-harvesting, leakage-proofing?
- 2.5.3. What is the basis for giving the preference? How feasible would it be as per your thinking? What broad plan you would advocate to implement it?
- 2.6. Questions related to reforms
  - 2.6.1. Do you have any idea of the reforms? What is the essence of the reforms for your department? What changes it would bring in functioning of the department?
  - 2.6.2. Do you think, the operation and maintenance of the water supply scheme can become financially self-sufficient? How? If not what are the hurdles?
  - 2.6.3. What changes are needed to be brought out in the department in order to implement the reforms?

### 3.2. Questionnaire: Executive engineer / WS department Head

1. Water Supply System problems
  - 1.1. In your opinion what are the problems in the existing water supply system? (Pl. include findings of the citizen survey)
    - 1.1.1. Bulk water shortage
    - 1.1.2. High inequity in water supply
    - 1.1.3. Low Quality of water supplied to few areas
    - 1.1.4. Low tax recovery
    - 1.1.5. Seasonal scarcity, tanker fed areas
    - 1.1.6. Leakages and thefts (high levels of NRW), highly degraded systems
  - 1.2. Why you do think these problems are created?
    - 1.2.1. High population pressure, increased urbanization and lack of planning for network expansion etc.
    - 1.2.2. Political interference ( in collection of water tax, in allotment of new connections)
    - 1.2.3. Non-compliance to the technical norms in network expansion
    - 1.2.4. Age-old eroded water distribution systems
    - 1.2.5. Lack of sufficient investments, finance, Weak ULB in terms of organizing finance from government/weak political leadership
    - 1.2.6. Technological backwardness (leak detection and proofing, metering, etc.)
  - 1.3. If not, why you could not avail benefits of the government schemes of *water audits and energy audits*?
    - 1.3.1. Contest among ULBs to avail finance from the states
    - 1.3.2. Alternative finance could not be organized
  - 1.4. If water and Energy audits are completed? What are the findings, and planning based on that?
    - 1.4.1. Contracts awarded but due to selection of incapable consultants, reports are not submitted
    - 1.4.2. Reports are submitted, but of poor quality, hence can not be used?
    - 1.4.3. Report-findings are indicative, however a more detailed survey needs to be undertaken
    - 1.4.4. According to reports, a complete refurbishment of the infrastructure is needed; however finance is the major issue.
2. Water Supply System: Management Issues
  - 2.1. New demands (for connections in unconnected areas)
    - 2.1.1. Newly development areas
    - 2.1.2. Slums

- 2.2. Human Resources Issues
    - 2.2.1. Sufficiency
    - 2.2.2. Skills
    - 2.2.3. Staff configuration guidelines issues by the Directorate of Municipal Administration
  - 2.3. Finance issues for repairs and maintenance
  - 2.4. Grievance redressal
  - 2.5. Actual needs vs. actual practice of provisioning of public tanker service to scarce areas
  - 2.6. Control and regulation on private tanker provisioning within the municipal areas.
- 3. Scope for Reforms in Urban water supply
    - 3.1. Need Vs. Availability of the finance
    - 3.2. Financial Reforms (A) : Bonds
    - 3.3. Financial Reforms (B) Public Private Partnership
    - 3.4. Your personal opinion regarding reforms and its implication on the tariff

### 3.3. Chief officer or the Commissioner (in Charge/Past served)

- 1. Problems of the city's water supply system? How would you analyze and rate your town's supply system with an ideal one?  
*(Bulk water shortage, distributional inefficiency, NRW, financial inefficiency)*
- 2. Contest over and politics in water supply and its impact on urban water supply (Inequities etc)
  - 2.1. Provisioning within the city, inequities, corruption and staff loyalties to politicians
  - 2.2. Bulk reserves - ownership and contest to gain control among different users (*Farmers, industries, ULBs, Gram-Panchayats*)
  - 2.3. Tanker provisioning and politics
  - 2.4. Regional and State level politics in allocating grants for half left reservoirs, granting permissions for new reservoirs
- 3. City water Supply Management and Future Planning and Reforms
  - 3.1. What is the root cause?
    - 3.1.1. Bulk water shortage or
    - 3.1.2. age-old, deteriorated distribution network,
    - 3.1.3. Thefts, UFW/NRW or
    - 3.1.4. All?
  - 3.2. If bulk water is an issue
    - 3.2.1. What alternative planning is feasible? If additional bulk reservoirs aren't feasible, then..(1.2.2)
    - 3.2.2. Recycling? What are the hurdles (*huge investment, maintenance costs and reliable power sources*) ---- strategies to handle hurdles?
    - 3.2.3. Rain-water harvesting? What are the hurdles (*non-cooperation of building contractors, political vested interests in contracting*)
    - 3.2.4. Leak-proofing, Demand side-management through *24x7 supply and block tariff structure* (Finance for infrastructure refurbishment)
  - 3.3. Is finance a major issue? If yes
  - 3.4. Would financial reforms help? What are the issues with it? (Especially bonds and PPPs)
    - 3.4.1. *Capacity to pay* of poor? (If user charges to cover O&M cost applied)
    - 3.4.2. ULB-Staff capacity to manage
    - 3.4.3. Lackluster companies
    - 3.4.4. Companies are interested but with a lot of expectations that can't be fulfilled?
    - 3.4.5. Danger of opposition to PPPs from the public?
    - 3.4.6. A lot of political interests and interventions in PPPs

- 3.5. What are your strategies to handle the issues?
  - 3.5.1. Which reforms are complementary and necessary if financial reforms are to be implemented?
    - (a) *Administrative Reforms*,
    - (b) *E-governance*,
    - (c) *Structural Reforms*
- 3.6. To what extent the alternative ways to earn more revenues for municipality would supplement the investment needed?
  - 3.6.1. Property tax reforms and recoveries
  - 3.6.2. Property rentals (shopping complexes, Public land/grounds rentals)
  - 3.6.3. Auctions, Advertisements
  - 3.6.4. Tourist services, commercial services, any other services that ULB can offer and earn
- 3.7. What are the hurdles in implementing alternative revenue sources listed in 1.5.1. to 1.5.4
  - 3.7.1. Political interests in the revenues (for example, as those were in octrai collection)
  - 3.7.2. Lack of entrepreneurial culture in the ULB staff
  - 3.7.3. Lack of orientation, motivation
  - 3.7.4. Lack of scope (For example, ULB is stagnated in terms of public lands)
  - 3.7.5. Above listed are grossly insufficient measures and state/central aid is the only answer
- 3.8. Do you think *An Administrator* would be able to do away with the bigger maladies of corruption, political vested-interests etc. (as many citizen demand it in Maharashtra)

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## 4. Tool for Key Informants Interview

### 4.1. Interview guide: Key informant (Telephonic/Face to Face)

1. Problems of the city's water supply system? (share with them the initial findings from the citizen survey and / or the interviews with the system and get a cross-check / validation from them)
  - 1.1. Important geographical areas / wards / locations in the town
  - 1.2. The nature of the problems and its root causes ( political, geographical etc)  
(*Bulk water shortage, distributional inefficiency, NRW, financial inefficiency*)
2. Contest over and politics in water supply and its impact on urban water supply (Inequities etc)
  - 2.1. Contest and politics involved in local distribution, actors involved in it, and their interests (Tanker provisioning and politics, criss-cross connections, illegal connections (commercial as well as domestic)
  - 2.2. Bulk reserves - ownership and contest to gain control among different users (*Farmers, industries, ULBs, Gram-Panchayats*)
  - 2.3. Regional and State level politics in allocating grants for half left reservoirs, granting permissions for new reservoirs
3. If the core issue is distribution system, what are your suggestions?
  - 3.1. Avail grants and refurbish the system
  - 3.2. No, management could solve the problems, (if yes how?)
  - 3.3. Need a combination of both
  - 3.4. What role citizen/local journalist/other stakeholders could play in this?
4. If bulk water is the core issue
  - 4.1. What alternative planning is feasible? If additional bulk reservoirs aren't feasible, then..(1.2.2)
  - 4.2. Recycling? What are the hurdles (*huge investment, maintenance costs and reliable power sources*) ---- strategies to handle hurdles?
  - 4.3. Rain-water harvesting? What are the hurdles (*non-cooperation of building contractors, political vested interests in contracting*)
  - 4.4. Leak-proofing, Demand side-management through *24x7 supply and block tariff structure* (Finance for infrastructure refurbishment)
5. What is your opinion regarding the 24x7 water supply system? Does it required? Why? What impact it would create if water supplied with progressive pricing? (Telescopic rate structures?)
6. What is your opinion regarding reforms (if the KI is not aware of it, explain him in brief and ask)
  - 6.1. Financial reforms (private investments, bonds, full cost recovery and user charges)
  - 6.2. Managerial Reforms (PPPs, Structural and Administrative reforms)
  - 6.3. Pro-poor reforms (earmarking of funds, earmarking of land etc)
  - 6.4. Reforms with respect to transparency and accountability (CPL, PDL, E-governance)

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## 5. Data Analysis Formats and guidelines

The objective of offering Data Organization formats in the TRK is, to provide indicative guidance to the user to ensure consistency of the analysis with the framework. Hence, users need not search for exact steps of *quantitative* or *qualitative* data analysis while using the formats for organizing the data from questionnaire or field notes. For example, users would not find all the steps to analyze *the structured questionnaire* (guidelines for coding and decoding, codebook, frequency tables and so on) from the TRK. This is applicable for all *data collection tools*, no matter whether they generate quantitative data or qualitative data.

Secondly, the formats enable the user to organize data from different respondents, i.e. from the three major sets: citizen, system (the ULB) and the Key informants, in line with the main pillars of the framework. However, to be able to fill up the data in the formats, first level of processing, *quantitative* or *qualitative*, is to be done as per the nature of the data collected. In fact, it was possible to offer the formats for every possible step of analysis involved processing of the data. However, it would have reduced the flexibility to alter the TRK in the context specific situation as faced by the users of the TRK. In short, the formats need to be taken as only indicative and not as a textbook.

Thirdly, the while designing the formats issues in data sufficiency or data consistency are not considered. Often ensuring collection of entire data that is expected in the design of the study can't be collected due to many unforeseen reasons. In such cases one may have to alter/delete the formats or design your own formats on the basis of data one would select for analysis after discarding the inconsistent or insufficient data sets.

### 5.1. Residents Grievances with respect to city water supply

Documenting public grievances is the starting point. If one has used a structured questionnaire with more than 50 to 100 respondents per (sample) ward or area, a quantitative representation of the respondents may be helpful. However, in the end, qualitative description of the problems faced or the grievances registered of the quantitative data would what the ULB be interested in. The primary level quantitative analysis such as frequency table would only help in validating the grievance and reveal its severity.

#### 5.1.1. Inequity in Supply: access, quantity and quality dimensions

Number of areas	Connected areas with the water supply	Unconnected households/areas
	Percentage of areas (frequency * 100 / total sample size)	Percentage of areas (frequency * 100 / total sample size)
<i>E.g. 12</i>	<i>10</i>	<i>2</i>

**Table 3 Number of connected and unconnected areas in the town**

As it is a general experience, the problems with respect to water supply are concerned about equity issue, especially in *access* and *Quantity* supplied when there is a piped water supply system. The quality also could catch this dimension of equity or inequity in certain cases. Format 1 and 2 are intended to organize data related to equity in supply across different areas of the city.

Areas / wards surveyed	water supplied for duration	Quantities of supply provided to that area (rough estimation)	Geo-physical dimensions of the area (altitude etc)	Socio-political dimensions (Caste, class and economic background of the area)
Area P	2 hrs (total)	20 buckets on avg.	high altitude	<i>Masjid and minority locality</i>
Area Q	4 hrs (total)	35-40 buckets	A low lying area	Mixed, trading community
Area R	...	...	...	...

**Table 4 Inequity in water supply (area/ward -wise)**

### 5.1.2. Key problems, its scale and intensity

Documenting problems may not be enough. Intensity of the problems and the scale of population those are affecting important. Nonetheless, its impact of on other sectors also might be equally important in order to prioritize the problems to be solved. The format 3 is aimed at organizing data gathered through both, quantitative and qualitative methods in a descriptive (may be bulleted) form.

Area wise problems		In bulleted descriptive statements (of data is collected in notes-text formats) In frequency of responses (if data is collected in structured questionnaire)			
		Remarks on extent/ severity of the problem	Major patterns of coping (by citizen) with the problem	Impact and its dimension (social)	Impact on other sectors (if any)
Area P	Prob. X		1. 2.		
	Prob. Y		1. 2.		
Area Q	Prob. A				
	Prob. B				
Area R	Prob. M				
	Prob. N				

**Table 5 Problem detailing and impact analysis**

Hitherto, all the three tables given are intended to organize the data gathered from the first set of respondents, i.e. residents and that is also only about the grievances or the problems faced. The table 4 below aims to do a cross-check. It compares the residents' responses with the other sources of the data, mainly Key informants and system representatives regarding problem wards or areas.

Area surveyed	Short Descriptions Key problems reported Inequity in supply (by citizens)			Key problems reported /validated by the valve-men / Junior Engineers / Other system representatives			Key problems reported /validated by Key Informants (If Any)		
	Access	Quantity	Quality	Access	Quantity	Quality	Access	Quantity	Quality
Area P									
Area Q									
Area R									
Area S									
Area T									
Area U									

**Table 6 Crosschecking grievances with other sources of data**

Crosschecking grievances helps in many ways. First, it gives a true picture of the awareness of the system about the scale and gravity of the problem. Second, if one finds that the responses from the different sources are dissimilar; it might help identify misleading answers and also gives further clues or inputs for investigation (fact finding). This can further reveal complexity of the problem, for example, a chain of stakes or vested interests; or saving skin approach of the system or even genuine issues and problems in the system. If one finds commonalities in the responses of all types of respondents and the same fact could also be confirmed through the spot verification (transect walks) and documents, then it confirms the results of the survey/interviews, increases the reliability of the method and indicate a larger problem that can't be solved easily even after all major stakeholders

know about it. The table 5 is just a summary table of commonalities identified in the problems reported and exclusive issues, area-wise.

1.	<b>Commonalities (All areas surveyed)</b>
2.	
3.	<b>Commonalities (surveyed specific to a group of two or three or four areas)</b>
4.	
<b>Exclusive Problems</b>	
1.	Area P
2.	
3.	Area Q

**Table 7 Classification of problems as per their mutual exclusivity**

## 5.2. Analysis of the Problems (grievances) in the water

### 5.2.1. Area specific causes with respect to different components of the system

Area specific causes of the problems may be different, hence even the causes of the problems needs to be mapped area-wise. In the first place, causes of the problem may lie in the various component of the problem, for example the water contamination may occur somewhere in distribution network as broken pipes come in contact with sewer drainage (open/underground) or in the pure water main pipeline or contamination can occur due to faults in the filtration. To find exact place of the primary cause of the problem, area wise listing of the causes needs to be done.

component/s? Causes of the problems lie in	Data Source	Area P		Area Q		Area R	
		Prob. X	Prob. Y	Prob. A	Prob. B	Prob. M	Prob. N
<b>Distribution Zone - P of ESR - 1</b>	Citizen						
	System-representative						
	KIs						
<b>Elevated Service Reservoir (E.g. Actual tank is leak)</b>	Citizen						
	System-representative						
	KIs						
<b>Pure water sumps / Master Balancing Reservoir</b>	Citizen						
	System-representative						
	KIs						
<b>Filtration plant</b>	Citizen						
	System-representative						
	KIs						
<b>Head Works</b>	Citizen						
	System-representative						
	KIs						
<b>Reservoir (Bulk Water)</b>	Citizen						
	System-representative						
	KIs						

**Table 8 Causal Analysis for Municipal Supply (connected Households) Step I**

### 5.2.2. Building problems (causal) trees

Root causes may be of different types, and may be further originated from the larger maladies in the socio-political, politico-economic, socio-cultural systems in the society or polity or economy. Building problem trees is just an exercise of associating primary causes to the second level of problems (as causes) and them to the third level, and so on. The format below tries to portray this method in a tabular form and provide an example of it.

IF the cause lies in	Data Source	Cause of the problem X related to component	Further cause 1 related component	Different types of causes may be clubbed here (Admin, mgmt, finance, grievance redress, socio-cultural, socio-political, politics, governance etc.)			
				Further cause 2	...	Further cause N	Root Cause or Malady
<b>Distribution Zone - P of ESR - 1</b>	Citizen						
	System-representative						
	Key Informants						
<b>Elevated Service Reservoir (E.g. Actual tank is leak)</b>	Citizen						
	System-representative						
	Key Informants						
<b>Pure water sumps / Master Balancing Reservoir</b>	Citizen						
	System-representative						
	Key Informants						
<b>Filtration plant</b>	Citizen						
	System-representative						
	Key Informants						
<b>Head Works</b>	Citizen						
	System-representative						
	Key Informants						
<b>Reservoir (Bulk Water)</b>	Citizen						
	System-representative						
	Key Informants						

Table 9 Causal Analysis for Municipal Supply (connected Households) Step II

### 5.2.3. Description of the causes, its extent and severity

Next step of the analysis of the problems is to identify the agency or institutions or stakeholder that is acting (or inactive) to originate the root cause. In the framework, these are called *culprits* and the factor that prompts or encourages these agencies is called *stakes* or *interests*. Mapping *culprits* and their *stakes* are equally important exercise as the final output of the *action plan* has to come up with *Solutions* for addressing the *problems*, and one of the important action takers for implementing solutions would be *culprits* who would have to give up their interests completely or accommodate larger public interests in their activities that give rise to the root cause.

IF the cause lies in one / many of the component listed in this column	Data Source	Root <sup>6</sup> Cause/s or the Malady	Category of cause (administrative/ financial/ technical/ political/ geographical/ social/ other to be specified)	Culprit behind the causes, Background of culprit	Interests of the culprit in perpetrating the cause
Distribution Zone - P or Q or S of ESR - 1/2/3/N	Citizen				
	System-representative				
	KIs				
Elevated Service Reservoir (E.g. Actual tank is leak)	Citizen				
	System-representative				
	Key Informants				
Pure water sumps / Master Balancing Reservoir	Citizen				
	System-representative				
	Key Informants				
Filtration plant	Citizen				
	System-representative				
	Key Informants				
Head Works	Citizen				
	System-representative				
	Key Informants				
Reservoir (Bulk Water)	Citizen				
	System-representative				
	Key Informants				

Table 10 Cause analysis and detailing

### 5.3. Summarizing Solutions

Generally respondents are asked for solutions of the problems from their own point of view, and they do suggest solutions many a times. Most common responses to the solutions related probes are *ULB should do away with or fix the problem*. However, some people might give detailed answers on *how*

<sup>6</sup> One problem may have multiple roots (root causes) and those may also belong to multiple categories. While mapping them, this complexity needs to be kept in mind and data organized accordingly

to solve the problems. Despite, it has been the experience that people suggest solutions in bits and pieces and often consider a part of the problem as 'complete problem' and similarly suggest a part of the solution as a 'complete solutions'. In such responses there is certainly an element of truth but not always a complete truth. Therefore on the lines of problem summaries and problem trees, solutions summaries are needed to be done. Table 9 aims to assemble all the solutions suggested by all types of respondent and try to associate them with the roots causes and culprits.

Problem(s) associated with the cause	Component of the Water Supply System	Root Cause(s) reported	Category of the cause	Response for solution (to remove the root cause) suggested					Culprit / systemic constraint it targets
				Resident	KIs	System	Documents	Options suggested by study group	

**Table 11 Summarizing solutions reported by various respondents in the form of options**

#### 5.4. Ranking of options based on the SWOT analysis

It is assumed that the solutions suggested by various respondents are not exactly the solutions to the problems but are the options. These options are to be assessed and ranked so as to arrive at the most preferred options as solutions. Ranking of solutions need a lot of background data from another output called *Town Level Background Note (TLBN)*. The TLBN is expected to provide two important inputs: (a) the strengths and weaknesses of the ULB in general (with reference to various aspects such as reforms, human, financial and other resources, etc), and (b) The Strengths and Weaknesses of the town as a unit (that includes Ss and Ws of the all major players in the towns such as LAIs, APMC, industry, traders, organizes and unorganized labor unions etc). This input is essential as it helps to analyze the options which come to an agency (here ULB) with certain opportunity (to solve the problem) as well as certain threats too. For example, organizing finance through municipal bonds to upgrade distribution network is the option preferred to solve the NRW problem. This option has come with an opportunity to raise adequate money whereas the tariff hikes would be the threat. Thus, OT analysis of each option is the background analysis for ranking of options.

##### 5.4.1. Analyzing Strengths and Weaknesses of the Stakeholders

Similar to the table 10, table 11 proposes background analysis of the stakeholders (current and potential) who can play an important role in solving the problems of the water supply. Again this input would be taken from the TLBN -K resources note or if insufficient a further process of Multi-stakeholder Dialogue can be undertaken in this city.

Local CSOs/LAI <sup>7</sup> /APMC /industry/ federations of traders/Unions/OPS		
Aspect	Strengths	Weaknesses
Geographical		
Social		
Political		
Financial		
Administrative		
Technical		

**Table 12 Background Work for assessing options: Stakeholder/Agency Analysis**

<sup>7</sup> Local academic institutions

#### 5.4.2. Opportunities and Threats analysis of reforms

The table 10 proposes to do an OT analysis of the reforms in context with the city water supply in order to assess its utility and feasibility for searching options for solving the problems that came up from the surveys and interviews. The prerequisites for reforms as well as steps needed to mitigate the threats may pose burden of resources on the ULB, in addition to the burden that would be posed by extra demand of resources created by the decision to implement most preferred option to solve the problem. The table 10 provides such background analysis of the reforms (Refer K-resource section of TLBN for further reading of IT analysis of reforms).

Reform (all the 23 reforms in JNNURM checklist)	Opportunities posed	Prerequisites for implementing the reforms	Threats posed	Steps needed to mitigate the T
1				
2				
...				
23				

**Table 13 Feasibility Analysis of Reforms for the ULB**

The table nos. 11, 12, 13 and 14 are intended to present such analysis wherein reforms and projects undertaken are analyzed in order to trace its impact on water supply services. These tables focus on: (a) The 23 reforms (including the land related, governance and finance related reforms etc)

Position / Post	No. of permanent Posts	No. of temporary Posts	Component of the water supply system that will be affected due to such staffing (distribution, ESRs, filtration, Headwork's )
Engineers			
Pump Operators			
Filter Attendants			
Chemist			
Valve-men			
OPS			

**Table 14 Issues with the changing/Changed staffing pattern**

(b) Human resources issues (staff configuration directed by Directorate of Municipal Administration, a state level department), (c) Project undertaken by the ULB (under UIDSSMT).

Diagnosis by the study group	Diagnosis presented in the DPR	Assessment of the causal analysis made by project		
		Common Elements	Differences	Completely neglected issues

**Table 15 Comparing the Diagnosis (Project Analysis - Step I)**

In order to complete this analysis, TLBK - K resource as well as TLBN document would provide essential inputs, especially in areas like, human resources available (permanency issues) ; financial health of the ULB and external factors affecting the growth of the city. On the basis of these inputs above analysis can be made possible.

Here, the objective of the analysis is to compare the diagnosis of the city water supply scheme made from entirely two different entities and from different perspective. This comparison would be

complementary to both processes would come out with again commonalities, differences as well as completely neglected issues in assessing the issues.

Solutions offered by the DPR (doing away with the root causes)		Prerequisites	Threats		Steps to mitigate
			Possible Hindrances	Implications / problems for other municipal services	
Sol. A	Financial Issues				
	Social-cultural Issues				
	politico-economic issues				
	Other issues				
Sol. B	Financial Issues				
	Social-cultural Issues				
	politico-economic issues				
	Other issue				

**Table 16 Assessing the options offered / being implemented as per the DPR**

The experiences with the DPR suggest that generally the DPR presents techno-economic and to some extent techno-managerial solutions to the present problems in the water supply issues. Considering the trend of privatization in municipal services, *24x7 supply* as a technical solution and *private partnership* as a management solution is suggested. DPR seldom considers socio-political and other politico-economic issues in the diagnosis. Therefore comparing the two assessments (diagnosis) is important.

### 5.4.3. Ranking of Options

Grading of options has four steps: (a) finding commonalities in the options (in order to find the options that would gain acceptance from most of the respondents), (b) ensuring mutually exclusive options and (d) Final Ranking of the options, including the steps for mitigating the threats of projects being implemented under UIDSSMT.

Option source	Adding common elements in the options suggested	Mutual exclusion column	ME options
Reforms analysis - steps to enhance Os and mitigate Ts			1) 2) 3)
Other analysis (from previous analysis)			4) 5)

**Table 17 Organizing Options in Mutually Exclusive manner**

The table 15, again is a classification exercise for finding commonalities and exclusiveness in the all the options explored and analyzed hitherto. This table would come up with a final list of options by adding/deleting/altering /twisting/articulating various components of a solution and that may be presented as a solution tree, if desired. By being so, it would establish an organic linkage with the primary problem and root cause. Sometimes, the study group (TRK user) may not find more than one or two options considering the local constraints and may arrive with very limited options.

ME Options from the earlier table	Opportunities To ULB	Strengths of different agencies /stakeholder utilized	Threats	
			To the agency/ stakeholder*	To ULB

**Table 18 Ranking of the options**

Finally, the ranking table just summarizes the opportunities and the threats of different (mutually exclusive options)

### 5.5. Preparing a Charter of Demands/ Action Plan

No.	Selected option(s)	Steps needed to effectively implement the option(s)	Responsibility of various entities in taking those steps				
			ULB	LAI	CSOs	Residents	Other institutions
1.							
2.							
3.							

**Table 19 Format Final Solution Table**

## **6. K- Resources: Notes on Urban Water Supply Systems and Reforms**

The Knowledge and information resource related to urban water supply systems and reforms have been dealt with comprehensively in the NLBD (National Level Background Document) and the SLBP (State Level Background Paper) for water supply.

## Section C: TOOLS, FORMATS AND K-RESOURCES (SOLID WASTE)

### Abbreviations used

BMW	Bio-medical Waste
FGD	Focused Group Discussion
GR	Grievance redress
HH	Household
KI	Key Informant/s
KII	Key Informant Interview/s
MC	Municipal Council/ Corporation
MSW	Municipal Solid Waste
OPS:	Other, Please Specify:
SW	Solid Waste
SWM	Solid Waste Management
ULB	Urban

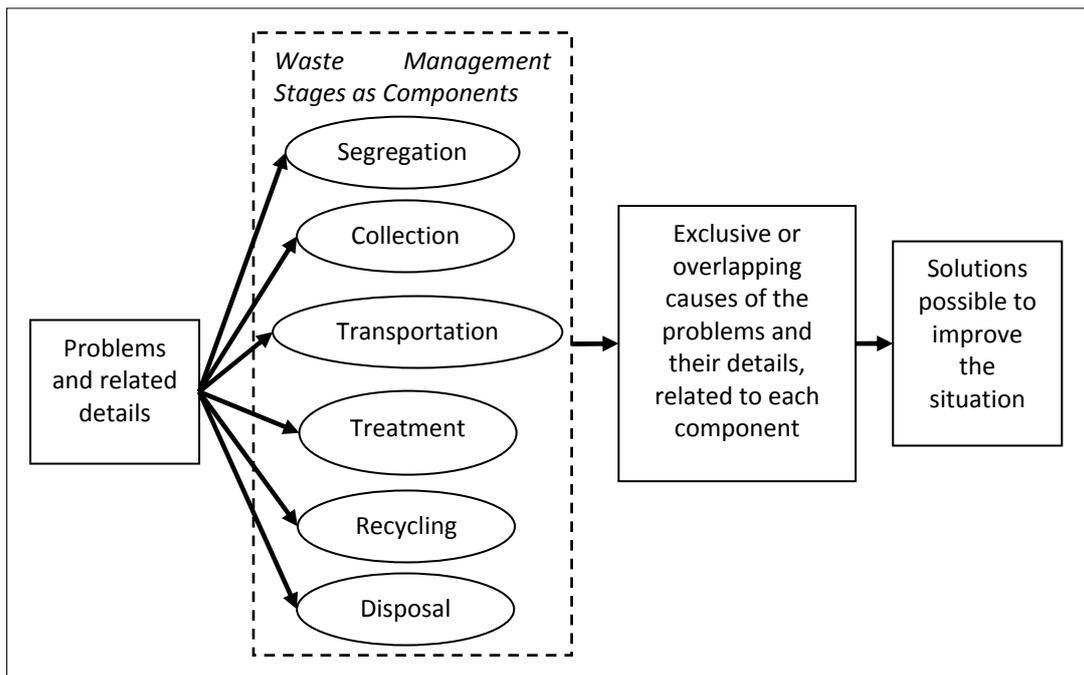
Local

Body

# 1. Introduction

## 1.1. Framework of the SWM TRK

The data collection arrangement of the TRK for SWM sector has been made according to the stages in the waste treatment process. This means, that the tools to collect data concentrate on collection of information and data related to each stage of the SWM system. Further, the causes of the problems in various SWM system stages could either be exclusively mapped to problem/s in one component stage, or be giving rise to multiple problems in multiple component stages. The following diagram briefly presents that arrangement adopted in the data and information collection and analysis framework.



**Figure 4 Data collection framework for SWM**

Similarly, the data and information of the abovementioned scheme should be recorded and processed for each type of waste separately, viz. HH, bulk MSW, BMW, e-waste and industrial/ hazardous.

## 2. Tools for Citizen/Residents survey

### 2.1. Questionnaire - Citizens and Resident Survey

1. Name of the survey area:
2. Characteristics of the survey area:
3. Respondent Profile (tick appropriate):
  - 3.1. household representative,
  - 3.2. generally responsible female or male member of the House,
  - 3.3. a commercial user
4. Respondent Selection Method (tick):
  - 4.1. Spot Sampling
  - 4.2. Random sampling
5. Approximate Time Required :  
20 min/respondent

#### Part I: Aspects of solid waste generation and status of SW handling system in the area

- 1) What type(s) of waste is/ are generated in your locality?
  - a) Domestic (kitchen/ household) waste
  - b) Bulk waste – vegetable markets
  - c) Bulk waste – hotels and restaurants
  - d) Bulk waste – supermarkets, grocery stores
  - e) E-waste – computers and other electronic materials
  - f) Biological waste – slaughterhouses
  - g) Bio-medical waste – hospitals and dispensaries
  - h) Industrial waste – scrap and steel, synthetic materials
  - i) Industrial waste – toxic and noxious waste, chemicals and paints
  - j) Waste from public places– road sweeping, fallen leaves, solid waste from the drains
  - k) Scrap from various establishments
  - l) Others, please specify:
- 2) What is the mechanism to handle the domestic waste produced in your area?
  - a) Is the domestic waste segregated before giving it to the collection mechanism?
  - b) Community bins
    - i) Residents deposit waste in nearest community bin
    - ii) Carts operated by the MC collects and deposits HH waste in community bins
    - iii) Carts operated by different private party for each ward collect and deposits waste in comm. bin.
    - iv) Carts operated by single private party for entire town collect and deposits waste in comm. bin.
    - v) Carts operated by women SHGs for each ward collect and deposits waste in comm. bin.
  - c) Ghantagadi to carry waste away from the area
    - i) Operated by MC
    - ii) Operated by single private party for entire town
    - iii) Operated by a different private party for each ward
    - iv) Operated by women SHGs
  - d) Scrap collectors
    - i) Individual scrap collectors coming to HH doorsteps to buy scrap
    - ii) Residents taking their scrap to the nearest scrap shop
  - e) Chargeable mechanism or free of cost?
  - f) Others, please specify:
- 3) If bulk waste is generated, what is the mechanism to handle it?
  - a) Same as that for the domestic waste
  - b) A separate vehicle dedicated to bulk waste collects the waste from the market directly
  - c) The bulk waste generators use community bins in the locality while the municipality clears those

- d) The bulk waste generators hire a separate transport mechanism to carry away their waste
- e) Others, please specify:
- 4) If biological (slaughterhouse) waste is generated, what is the mechanism to handle it?
- a) Same as that for the domestic waste
- b) A separate vehicle dedicated to biological waste collects the waste from the market directly
- c) The biological waste generators use community bins in the locality while the municipality clears those
- d) The biological waste generators hire a separate transport mechanism to carry away their waste
- e) Others, please specify:
- 5) If bio-medical waste is generated, what is the mechanism to handle it?
- a) Same as that for the domestic waste
- b) A separate vehicle dedicated to bio-medical waste collects the waste from the hospital or dispensary directly
- c) The bio-medical waste generators use community bins in the locality while the municipality clears those
- d) The bio-medical waste generators hire a separate transport mechanism to carry away their waste
- e) Others, please specify:
- 6) If industrial waste is generated, what is the mechanism to handle it?
- a) Same as that for the domestic waste
- b) A separate vehicle dedicated to industrial waste collects the waste from the hospital or dispensary directly
- c) The industrial waste generators use community bins in the locality while the municipality clears those
- d) The industrial waste generators hire a separate transport mechanism to carry away their waste
- e) Others, please specify:
- 7) If e-waste is generated, what is the mechanism to handle it?
- a) Same as that for the domestic waste
- b) E-waste is carried away by special mechanism by the MC
- c) Formal e-waste collection kiosks/mechanisms exist
- d) E-waste generators use a separate mechanism to get rid of their waste
- e) Others, please specify:
- 8) What is the mechanism to handle waste generated at public places?
- a) the public from public places have to use the same community bins as those provided for domestic waste
- b) the public from public places have to use community bins dedicated to public waste
- c) sweepers sweep roads and public places and deposit the waste by the road side
- d) sweepers use dedicated public waste handling mechanism to clear waste from public places
- e) Others, please specify:
- 9) Where is the waste from your area carried to?
- a) The same place where the survey is being carried out
- b) A place away from the town where no inhabitation exists (please name the place):
- c) A place away from the town but there is inhabitation (please name the place):
- d) No idea
- 10) What is the mechanism for treatment of the waste from the city?

- a) Open dumping
- b) Composting
- c) Land filling
- d) Waste to energy (incineration)
- e) No idea
- f) Other, please specify:

11) Is waste segregation carried out in your area?

- a) Yes
  - i) Dry and wet waste is segregated
  - ii) Recyclable and non recyclable waste is segregated
    - (1) Recyclable waste is sold to informal door-step scrap collectors
    - (2) Residents themselves carry recyclables to scrap shops
- iii) At source
- iv) After waste collection, by a separate segregation mechanism
- b) No
  - i) Waste segregated at homes but mixed by collection system
  - ii) No segregation at all

## Part II: Related to waste segregation and recycling

12) Why is waste segregation not carried out?

- a) No instructions issued by the competent authority
  - i) No seriousness of the issue
    - (1) Lack of knowledge
    - (2) Lack of willingness
    - (3) Lack of capability to handle such initiatives
  - ii) No manpower to look after such initiatives
    - (1) Improper staffing standards
    - (2) Incompetent staffing due to corruption
    - (3) Political interference/ pressure
- b) Instructions issued but not complied to
  - i) No monitoring
  - (1) Insufficient manpower
  - (2) Corruption
  - (3) People in charge of monitoring do something else during their duty hours
  - (4) No adequate powers/ responsibilities trusted with the monitoring mechanism
  - ii) No penal mechanism
    - (1) Corruption prevents actual penalization
    - (2) No MC capabilities
    - (3) No willingness to make a difference
- c) OPS:

13) What are the problems and their reasons, regarding the waste recycling?

- a) Recycling does not take place at all
  - i) No well functioning recycling mechanism exists
  - ii) Recycling mechanism is not used properly by the residents
  - iii) Too little rewards out of recycling, as compared to the efforts required
  - iv) Informal recyclers do not visit
    - (1) Local politics involved
    - (2) Ban by the MC on such informal mechanisms
  - v) Scrap shops too far off to take the recyclables and sell those
  - vi) OPS:
- b) Recyclables seen lying at improper places
  - i) MC not supportive of recycling mechanism
    - (1) Recyclers do not adhere to rules and regulations
    - (2) Political pressure
    - (3) Vested interests and corruption
  - ii) Residents not cooperating with the recycling mechanism
    - (1) Informal recycling mechanism frowned upon by the residents
    - (2) No awareness
    - (3) No penal mechanism
    - (4) No sufficient incentive for recycling
  - iii) OPS:
- c) OPS:

### Part III: Problems and other details related to waste collection components

- 14) What are the problems with the waste collection mechanism in your area?
- a) Ambience related:
    - i) Ever existent foul smell
    - ii) Waste lying at various places in the area
    - iii) Dirty roads
  - b) Drains choked due to solid waste in those
  - c) Waste lying on the road
  - d) All sorts (HH, biomedical and other bulk etc) of waste mixed together
  - e) No problems at all
  - f) Other, please specify:
- 15) Since when have these problems existed?
- 16) Who suffers from these problems?
- a) Geographical spread:
    - i) All residents of the area
    - ii) Residents from specific parts of the area – please name (e.g. those close to the markets, commercial establishments or hospitals etc):
    - iii) Children in schools close to waste accumulation and burning sites
  - b) Residents from a particular community (please specify):
  - c) Residents from a particular economic class (please specify):
    - i) Rich classes
    - ii) Middle classes
    - iii) Poor classes
    - iv) Those working at particular place (market/ hospital/ industry), please specify:
  - d) Other, please specify:
- 17) What are the ill effects of these problems?
- a) Aesthetics and ambience related
    - i) Rampant houseflies
    - ii) Bad odour
    - iii) Bad appearance
    - iv) Roadside drains being blocked due to waste lying in those
    - v) Mosquitoes dwelling rampantly
    - vi) Unattended waste from the roads flying into the houses with wind
    - vii) Residents of the area burning the unattended waste to produce odour and fumes
    - viii) Workers from the area burning waste
  - b) Health related
    - i) Frequent illnesses of children (please specify illnesses :)
    - ii) Frequent illnesses of women (please specify illnesses :)
    - iii) Frequent illnesses of all family members (please specify illnesses)
    - iv) Breathing problems caused due to unattended industrial or commercial waste
  - c) Effects on other municipal services
    - i) Accidents because of road blockage and slipping due to waste
    - ii) Overcrowded municipal clinics and hospitals
    - iii) Waste accumulation over cracked water pipelines causing contaminated water supply
    - iv) Time spent on clearing waste and fighting with other effects of waste hindering efforts to go to schools and work
- 18) How do you cope with the problems and their ill effects?
- a) Overall:
    - i) Complain with the municipality (MC) to take action against the ill effects
    - ii) Gather support from fellow residents to solve the problems
  - b) Mosquitoes and other insects:
    - i) Using mosquito repellents (all out, tortoise coil etc.)
    - ii) Using other means to produce smoke to avoid mosquitoes (e.g. half burning paper, waste, kerosene)
    - iii) Using other means to ward off other insects (e.g. sprays, please specify):
  - c) Unattended waste
    - i) Burning the unattended waste in the bins or on the roads
    - ii) Hiring contract labour to clear waste

- iii) Paying the MC separately to have the waste cleared
- iv) Selling the commercial or other bulk waste to scrap dealers
- v) Bury the biomedical waste
- d) Choked drains
  - i) Use alternate mechanism to drain household wastewater
  - ii) Clearing the drains on your own

19) What are the effects of these problems and your coping efforts, on other aspects of life and municipal services?

- a) Increased family expenditure because of
  - i) measures to fight mosquitoes
  - ii) payments to the MC to clear waste
  - iii) payments to contractors and workers to clear waste
  - iv) treatment of frequent illnesses caused by waste collection problems
- b) Waste of time in getting the cleaning work done
- c) Waste of time in visiting the doctor
- d) Physical and mental discomfort caused by frequent feeling of un-wellbeing
- e) Other, please specify:

20) Reasons for the overall waste collection related problems in your area

Problem/ reason	Applicable to (tick as appropriate)				
	HH waste	Bulk municipal waste	BMW	e-waste	industrial waste
a) Inadequate waste collection schedule					
i) Ignorant managers from the MC					
ii) Disobedient workers those do not stick to the schedule					
iii) Insufficient equipment with the MC					
iv) Political pressure					
v) Contracting manipulation for the private party to make more money					
b) Improper waste collection vehicle(s) for the area					
i) Ignorant managers					
ii) Political pressure					
iii) Insufficient equipment with the MC					
c) Lack of staff					
i) Improper staffing standards					
ii) Unhappy and striking workers					
iii) Mismanagement of staff					
iv) Political pressure					
v) Illicit transfer of workers from one dept. to another					

Problem/ reason	Applicable to (tick as appropriate)				
	HH waste	Bulk municipal waste	BMW	e-waste	industrial waste
d) Lack of dedicated waste collection mechanism					
i) Contractor mismanagement					
ii) Lack of capabilities with the MC to make proper contracting arrangements					
iii) Political pressure					
iv) Corruption					
e) Improper waste collection mechanism					
i) Contractor mismanagement					
ii) Lack of MC capabilities to decide what mechanism is needed					
iii) Political pressure					
iv) Corruption					
f) Lack of grievance redressal by the MC					
i) Residents do not complain					
ii) No GR mechanism in the MC					
g) Other (please specify):					

21) Reasons for HH waste collection related problems

- a) No mechanism to collect HH waste from doorsteps
  - i) Residents supposed to use community bins
  - ii) Mechanism didn't function properly
    - (1) No payments from residents
    - (2) Agreement problems between collectors and MC
    - (3) Agitation by the collection workers
    - (4) Other, please specify:
- b) Inadequate number of community bins in the area
  - i) MC managers ignorant
  - ii) No monitoring
  - iii) Political pressure
  - iv) Insufficient equipment with the MC
- c) Lack of cooperation from the waste collection staff to the residents of the area
  - i) Insufficient workers
    - (1) No mechanism to recruit speedily
    - (2) Workers on the roll not working
    - (3) Other, please specify:
  - ii) No penal mechanism for workers
  - iii) Lack of worker devotion
  - iv) Too much work pressure on the workers
- d) Lack of residents' cooperation with the waste collection mechanism
  - i) Ignorance of the residents
  - ii) Bad attitude and lack of wish for a clean area
  - iii) No penal mechanism for the residents
    - (1) Against dumping in drains
    - (2) Against dumping outside the community bins

- (3) Against not paying the collection mechanism
- iv) No awareness towards requiring clean surroundings
- e) Other, please specify:
- 22) Reasons for bulk municipal waste collection related problems
- a) No awareness towards inconvenience caused by such generators
- i) No MC efforts to spread awareness
- (1) Lethargy
- (2) OPS:
- ii) No penal mechanism for bulk generators
- (1) Political linkages
- (2) Favoritism
- (3) Corruption
- b) OPS:
- 23) Reasons for BMW collection related problems
- a) Failure of MC mechanism
- i) No expertise with MC
- b) Failure of contractor mechanism
- i) No commercial sustenance
- (1) No payments by users
- (2) No penal mechanism for users not using/ paying the facility
- ii) No MC capability to handle contracting/ agreements
- c) OPS:
- 24) Reasons for industrial/ e-waste collection related problems
- a) Failure of MC mechanism
- i) No expertise with MC
- ii) No seriousness of the issue
- iii) MC not recognizing efforts and initiatives from related agencies
- b) Failure of contractor mechanism
- i) No commercial sustenance
- (1) No payments by users
- (2) No penal mechanism for users not using/ paying the facility
- ii) No MC capability to handle contracting/ agreements
- c) OPS:
- 25) Reasons for problems with waste collection from public places
- a) Sweepers not sweeping properly
- i) Lack of sweeper motivation
- ii) Political pressure
- iii) Bad treatment by residents to sweepers
- iv) No monitoring of sweeper work
- b) Waste collected by sweepers not carried away properly
- i) No coordination between sweeping and transportation
- ii) No MC willingness to work properly
- iii) Staff not adhering to coordination rules
- c) Waste collection mechanism ignores waste from the road and other public places
- i) No penal mechanism
- ii) No monitoring mechanism
- iii) No GR mechanism
- d) OPS:
- 26) What, in your opinion, should be done to solve the problems related to waste collection from your area?
- a) Revision of the waste collection schedule
- i) By the MC
- ii) By the private party
- iii) By the SHGs
- b) Enforcing proper waste segregation at sources
- i) Penalty mechanism
- ii) Effective monitoring
- iii) Building awareness and sensitivity
- c) Increasing the no. of community bins in the area
- d) Changing the vehicles used for waste collection
- i) For HH waste
- ii) For bulk and other wastes
- iii) For road sweeping waste
- e) Awareness and capacity building:
- i) Staff education and awareness
- ii) Residents training and awareness campaign
- iii) Capacity building of managers in the MC
- iv) Penalty mechanism for the residents

- v) Hiring more workers
- f) Regular and effective grievance redressal by the MC
- g) Privatization:
  - i) Charging waste collection
  - ii) Privatization of household waste collection
  - iii) Privatization of biomedical waste collection
- h) Monitoring and management of the system
  - i) Stiffer norms and standards for the private party operation
  - ii) Dedicated and strict monitoring mechanism for waste collection
- i) Other (please specify):

#### Part IV: Problems and other details related to waste transportation components

- 27) What are the problems you face, related to waste transportation?
- a) No waste transported away at all
  - b) No problems – waste transportation is not a problem
  - c) Waste overflows from the transport vehicle
  - d) Other, please specify:
- 28) Since when have these problems existed?
- 29) What are the effects of these problems?
- a) Same as those arising out of uncollected waste
  - b) Other, please specify:
- 30) Who suffers from these problems?
- a) All people in your area
  - b) Residents along a particular road
  - c) Residents of a particular economic/ social class
  - d) Residents of a particular part of the area (please specify):
  - e) Residents supporting a particular political/ social group in elections/ otherwise, please specify:
- 31) How do the people cope with the problems?
- a) Same answers as related to waste collection
  - b) Other, please specify:
- 32) What are the reasons behind the problems?
- a) Contractor related corruption
    - i) Vested interests
  - b) No work monitoring mechanism
    - i) Lethargic system
    - ii) Vested interests
    - iii) Political pressure
    - iv) Incapable staff and administration
  - c) Inadequate contracting norms
  - i) Incapable administration
  - ii) Lethargic system
  - iii) Ignorant managers at the MC
  - d) Improper equipment
    - i) Insufficient funds with the MC
    - ii) Improper management of resources
  - e) Other, please specify:
- 33) What should be done to solve the problems?
- a) Capacity building - Awareness and training of the MC staff and administration
  - b) Change the equipment to transport waste
  - c) Privatization of the waste transport
  - d) Monitoring and assessment mechanism of waste transport
  - e) Other, please specify:

#### Part V: Problems and other details related to treatment and disposal of waste

- 34) What are the problems related to waste treatment?
- a) No waste treatment at all
    - i) All waste is dumped in the open
    - ii) All waste is land filled

- b) Untreated HH waste causing nuisance in the surrounding areas
  - i) Treatment plant is not functioning properly
  - ii) Waste rejected by the plant lies around unattended
  - iii) Waste rejected by the treatment plant is dumped in the open
- c) Faulty treatment of biomedical waste (BMW)
  - i) Partially/ untreated BMW lies around unattended
  - ii) Faulty treatment plant emits odours and fumes
  - iii) Rejects from the BMWTP lie around unattended
- d) Faulty treatment of e-waste
  - i) E-waste handling mechanism stuck in approvals
  - ii) Corruption and vested interests
  - iii) Lack of commercial viability in e-waste treatment
- e) OPS:

35) Since when have these problems existed?

36) What are the impacts of the problems?

- a) Foul smell at the MSW treatment plant
- b) Foul smell at the BMW treatment plant
- c) Land filling causes water contamination
- d) Open dumping causes mosquitoes, odors and flies to proliferate
- e) Waste from the open dumping yard flies into fields and houses
- f) Waste burning in the open dumps causes reduced visibility on the road adjacent and causes accidents
- g) Other, please specify:
- h) No problems in this area related to treatment of the waste

37) What is the extent of the problems?

- a) Only around particular sites
  - i) BMW plant
  - ii) MSW treatment plant
  - iii) Waste disposal site
- b) Everywhere in an area
- i) The entire GP where the waste is dumped
- ii) The fields and inhabitation around the dump yard

38) What are the reasons behind the problems?

- a) Improper municipal waste treatment plant
  - i) Ignorant managers from the MC
  - ii) Insufficient funds with the MC
  - iii) Political pressure
  - iv) Contracting manipulation for the private party to make more money
- b) Improper BMW treatment plant
  - i) Ignorant managers from the MC
  - ii) Insufficient funds with the MC
  - iii) Political pressure
  - iv) Contracting manipulation for the private party to make more money
- c) Wrong place chosen for waste treatment or disposal
- i) Improper planning
- ii) Vested interests
- iii) Political pressure
- iv) Ignorant administration
- v) Lack of control from regulating authorities such as the PCB
- d) Lack of place
  - i) Improper planning
  - ii) Political pressure
  - iii) Vested interests
- e) Lack of grievance redressal by the MC
  - i) Residents do not complain
  - ii) No GR mechanism in the MC
- f) Other (please specify):

39) What should be done to solve the problems?

- a) Capacity building
  - i) Administration should know what is the best type of treatment for the waste
  - ii) The MC should be able to make quick decisions
- b) Proper site management

- i) Stringent agreements and project monitoring
- ii) Crackdown on corruption
- iii) Peoples' involvement in the site selection process

40) Whom do you hold responsible primarily for the problems in the solid waste management system?

- a) Municipal Council – officers
- b) Municipal Council – elected members
- c) Private party appointed for waste collection

41) Will the works being carried out as part of the JNNURM (reforms) or the UIDSSMT (schemes and projects) solve the problems of SWM?

- a) Not at all
  - i) Ill-aimed schemes
  - ii) Reforms do not consider real on-ground situation
  - iii) Inadequate support from the state
    - (1) Finance
    - (2) Administrative assistance
    - (3) Funds disbursement norms inadequate
- b) Not entirely, additional caution is needed
  - i) Proper implementation monitoring
  - ii) Ensuring proper planning
- iii) Flexibility in planning as time advances
- iv) Capacity building of MC staff
- v) Resident education and awareness
- vi) On ground issues need to be monitored
  - (1) Technical delays
  - (2) Cost overruns
  - (3) Corruption
- vii) Checking corruption
- c) Yes, of course!

42) What are your specific and / or broad demands or expectations from the system?

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**2.2. Focused Group Discussion with Residents (Ward level)**

- 1. Respondent Profile : Resident (both men and women mixed or independent groups)
- 2. Duration : Approximately two hours

**Questions and prompts for guiding the discussion (for the moderator)**

1) What is the broad status of the solid waste management system in your ward?

Prompts:

- 2.1. Types of waste generated in the area (HH, BMW, commercial or industrial)
- 2.2. Mechanism for collection and transport of waste
- 2.3. Timings, charges, equipment and the schedule for collection of waste

2) What are the lacunae, gaps or problems with the system? Why do they exist?

Prompts:

✘ Problems with waste collection and segregation	✘ Problems with treatment - No treatment
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<ul style="list-style-type: none"> <li>- Improper schedule</li> <li>- Resident non cooperation</li> <li>- Staff non cooperation</li> <li>- Inadequate equipment</li> <li>- Improper mechanism (especially for the bulk and BMW)</li> <li>- Is penalty OK for not segregating?</li> </ul>	<ul style="list-style-type: none"> <li>- Improper treatment mechanism chosen</li> <li>- Lack of knowledge of proper treatment mechanisms</li> <li>- Lack of implementation and enforcement mechanism</li> <li>- Lack of complaints from the residents</li> </ul>
<ul style="list-style-type: none"> <li>✘ Problems with grievance redressal</li> <li>- Political pressure</li> <li>- Insufficient funds</li> <li>- Ignorant management</li> <li>- Lethargy</li> <li>- Lack of penal mechanism</li> <li>- Lack of public pressure</li> </ul>	<ul style="list-style-type: none"> <li>✘ Problems with disposal or recycling</li> <li>- Vested interests</li> <li>- Political pressure</li> <li>- Contractual flaws</li> <li>- No recycling mechanism awareness</li> <li>- Recycling mechanism facing adversities from the MC/ other authorities</li> </ul>

3) What are the coping strategies adopted to deal with the problems?

Prompts:

- Against mosquitoes
- Against drain clogging
- Against foul odour
- Against flies
- Against the problems caused due to different types of waste (BMW, industrial/ commercial) lying close to the residences
- Against contaminated water due to improper SWM

4) What are the options for improving SWM system in order to fill up the gaps or solve the problem?

- Building public pressure
- Demonstrations
- Technical assistance
- Building administrative and municipal capabilities

5) What are your broad/specific demands to the municipality / Municipal Corporation with respect to improving the SWM system?

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### 3. Questionnaire for Interviewing Specific Waste Generators (Bulk MSW/ BMW/ E- Waste/ Industrial)

#### Part I Related to existing situation of the system

- 1) What waste is generated in your trade?
  - a) Bulk municipal
  - b) Biomedical
  - c) E-waste
  - d) Industrial
  
- 2) What is the mechanism to handle that waste?
  - a) Same mechanism as the other waste from the city
    - i) No user charges
    - ii) User charges decided by the MC
    - iii) User charges decided by the third party
  - b) Dedicated mechanism
    - i) By the MC
    - ii) By a third party
  - c) User charges related situation
  - d) OPS:
  
- 3) Is waste segregation carried out in your area?
  - a) Yes
    - i) Dry and wet waste is segregated
    - ii) Recyclable and non recyclable waste is segregated
      - (1) Recyclable waste is sold to informal door-step scrap collectors
      - (2) Residents themselves carry recyclables to scrap shops
    - iii) At source
    - iv) After waste collection, by a separate segregation mechanism
  - b) No
    - i) Waste segregated at the source but mixed by collection system
    - ii) No segregation at all
  
- 4) What is the condition of the grievance redress mechanism for SWM?
  - a) No mechanism
  - b) Defunct mechanism
  - c) Mechanism exists but not used
  - d) OPS:

#### Part II: Related to waste segregation and recycling

- 5) (If answer to question no. (3) is No) Why is waste segregation not carried out?
  - a) No instructions issued by the competent authority
    - (1) Insufficient manpower
    - (2) Corruption
    - (3) People in charge of monitoring do something else during their duty hours
    - (4) No adequate powers/responsibilities trusted with the monitoring mechanism
  - i) No seriousness of the issue
    - (1) Lack of knowledge
    - (2) Lack of willingness
    - (3) Lack of capability to handle such initiatives
  - ii) No manpower to look after such initiatives
    - (1) Improper staffing standards
    - (2) Incompetent staffing due to corruption
    - (3) Political interference/ pressure
  - b) Instructions issued but not complied to
    - i) No monitoring
    - ii) No penal mechanism
      - (1) Corruption prevents actual penalization
      - (2) No MC capabilities
      - (3) No willingness to make a difference
  - c) OPS:
  
- 6) What are the problems and their reasons, regarding waste recycling?

- a) Recycling does not take place at all
  - i) No well functioning recycling mechanism exists
  - ii) Recycling mechanism is not used properly by the residents
  - iii) Too little rewards out of recycling, as compared to the efforts required
  - iv) Informal recyclers do not visit
    - (1) Local politics involved
    - (2) Ban by the MC on such informal mechanisms
  - v) Scrap shops too far off to take the recyclables and sell those
  - vi) OPS:
- b) Recyclables seen lying at improper places
  - i) MC not supportive of recycling mechanism
    - (1) Recyclers do not adhere to rules and regulations
    - (2) Political pressure
    - (3) Vested interests and corruption
  - ii) Waste generators not cooperating with the recycling mechanism
    - (1) Informal recycling mechanism frowned upon
    - (2) No awareness
    - (3) No penal mechanism
    - (4) No sufficient incentive for recycling
  - iii) OPS:
  - c) OPS:

7) Since when have these problems existed?

### Part III Related to problems in waste collection

- 8) What problems do you face about the waste collection mechanism? What are their reasons?
- a) No waste collection at all
    - i) Opted out of the collection system
      - (1) Too high user charges
      - (2) It is a useless scam
      - (3) OPS:
    - ii) No treatment system
    - iii) No MC capacity
      - (1) Lack of knowledge with MC for waste collection
      - (2) No willingness to work
    - iv) No contractor action
      - (1) Mismanagement by the MC
      - (2) Corruption in contractor working
      - (3) No user charge payment
      - (4) Corruption in contractor selection
    - v) No grievance redress
    - vi) No monitoring
    - vii) No penal action to the waste handling agency
    - viii) OPS:
  - b) Improper user charges
    - i) Corruption
    - ii) Improper contractor selection
      - (1) Lack of MC capabilities
      - (2) Corruption
    - iii) No user participation in charge design
  - c) No worker cooperation in waste collection
    - i) Improper worker attitude
    - ii) Bad worker treatment by the system
    - iii) Inadequate payment to the workers
      - (1) Improper user charges
      - (2) Corruption
      - (3) OPS:
  - d) Other:

### Part IV Related to problems in waste transportation

- 9) What problems do you face about the waste transportation mechanism? What are their reasons?
- a) No transportation mechanism at all
    - i) No MC capability to judge its need
    - ii) Too little waste generated to have a mechanism
    - iii) Defunct mechanism
      - (1) Payment trouble for the contractor
      - (2) Users not paying charges
    - (3) Contracting mismanagement
    - (4) Corruption
    - (5) OPS:
  - iv) OPS:
  - b) No dedicated transportation mechanism
    - i) Don't think it is needed
    - ii) No MC capability to judge its need
    - iii) Defunct dedicated mechanism

- (1) Payment trouble for the contractor
- (2) Users not paying charges
- (3) Contracting mismanagement
- (4) Corruption
- (5) OPS:
- c) Irregular/ erratic transportation mechanism

- i) No monitoring
- ii) No MC capabilities to keep a track
- iii) No penal mechanism
- iv) Political pressure
- v) OPS:
- d) OPS:

10) Since when have these problems existed?

11) What is the solution to improve the situation?

- a) User participation in the system design
  - i) Use of IT and ITeS by the MC
  - ii) Massive campaign is needed
- b) Crack down on corruption
  - i) Full disclosure of decisions and appurtenants
- c) Well organization of the waste generators

- i) Formal steps needed to be taken by the MC
- ii) Users need to unite
- d) MC capability building
  - i) Administrative members' capability building
  - ii) Elected members' capability building
- e) OPS:

#### Part V Related to problems regarding waste treatment/ disposal

12) What problems do you face about the waste treatment/ disposal mechanism? What are their reasons?

- a) No treatment/ disposal mechanism at all
  - i) No MC capability to judge its need
  - ii) Too little waste generated to have a mechanism
  - iii) Defunct mechanism
    - (1) Payment trouble for the contractor
    - (2) Lack of commercial viability
    - (3) Contracting mismanagement
    - (4) Corruption
    - (5) OPS:
- iv) OPS:

- b) No dedicated treatment mechanism
  - i) Don't think it is needed
  - ii) No MC capability to judge its need
  - iii) Defunct dedicated mechanism
    - (1) Payment trouble for the contractor
    - (2) Users not paying charges
    - (3) Contracting mismanagement
    - (4) Corruption
    - (5) OPS:
- c) OPS:

13) Since when have these problems existed?

14) What is the solution to improve the situation?

- a) User participation in the system design
  - i) Use of IT and ITeS by the MC
  - ii) Massive campaign is needed
- b) Crack down on corruption
  - i) Full disclosure of decisions and appurtenants
- c) Well organization of the waste generators

- i) Formal steps needed to be taken by the MC
- ii) Users need to unite
- d) MC capability building
  - i) Administrative members' capability building
  - ii) Elected members' capability building
- e) OPS:

15) Why is there no grievance redress mechanism for SWM in the city?

- a) Inadequate staff
  - i) Improper staffing standards
  - ii) No staff motivation for new initiatives

- iii) Corruption
- b) Lack of funds
  - i) Corruption
  - ii) Improper funds planning

- c) Lack of space to have a GR cell
  - i) Improper space planning in the MC
  - ii) Political pressure
- d) Useless mechanism
  - i) No publicity/ awareness
  - ii) No back end support to the GR mechanism
- iii) Resident apathy
- iv) Corruption
- e) OPS:

## **4. Transect walk guidelines for inspecting existing SWM system**

Data and information regarding the existing situation of the city's solid waste management system is a crucial input in understanding the causality of the problems reported by the residents and other factors. The tools for this include those for transect walks for inspecting the generation, segregation, collection, transportation, recycling, treatment and disposal components of the SWM system.

### **4.1. Tool for inspecting the HH areas**

In case a mechanism for door to door waste collection exists, the HH area transect walk should be planned to coincide with the schedule of the collection mechanism round.

The walk should be carried out, to record, inter alia, the following observations:

- a) What is the general economic class of the area's inhabitants (high/ higher middle/ lower middle/ poor)
- b) How densely the area is populated
- c) Whether the households are constructed maintaining setbacks
- d) Whether the drains are seen as dumping places by the residents
- e) Whether the open spaces in the area are used as dumping yards
- f) Whether the residents use the doorstep waste collection mechanism
- g) Whether the collection mechanism has separate compartments for carrying dry and wet waste
- h) The status of community bins in the area (full/ overflowing/ ill-placed/ absent)

### **4.2. Tool for inspecting the other waste sources (BMW, industrial/ hazardous, ewaste)**

In case a waste collection mechanism is reported to exist for such waste generators, the inspection walk should be planned to coincide the scheduled collection from those. The things observed, inter alia, should include:

- a) Whether there is specific mechanism at the generator's premises to store the waste until it is collected/ transported
- b) Whether the collection mechanism is different from the other waste collection mechanism
- c) Whether the collection mechanism is convenient to be used
- d) Whether the waste generators use the mechanism at all
- e) Whether these waste generators resort to an alternative waste disposal mechanism (e.g. dispensaries using deep pits to bury their waste)
- f) Whether the waste from these waste generators is lying in the surrounding areas (in open spaces/ drains/ community bins)

### **4.3. Tool for inspecting the waste transportation mechanism**

While inspecting the waste transportation mechanism, the following things, inter alia, should be observed:

- a) Whether various types of waste (wet MSW/ dry MSW/ BMW/ other waste) are transported without mixing
- b) Whether the transport vehicle used is closed or not
- c) Whether the transport mechanism is utilized to its full capacity

### **4.4. Tool for inspecting the waste treatment/ disposal schemes**

The following things, inter alia, should be observed at a treatment/ disposal scheme/ site:

- a) Is there a mechanism to weigh the solid waste delivered?
- b) Whether there is a system to record the no. of trips made by the transport vehicles to the site
- c) Whether there are informal waste pickers/ other informal manpower at the site

- d) Whether there is inhabitation around the site, and what kind of inhabitation it is (slums/ construction/ other)
- e) How far the site is from the main city area

## 5. Tools to interview staff in the town's SWM system

### 5.1. Questionnaire for workers

#### Part I Related to existing situation of the system

- 1) What is your role in the SWM system for the town?
  - a) working on the door-to-door waste collector van ('ghantagadi') (relevant questions in Part II)
    - i) Employed by the MC
    - ii) Employed by a contractor
    - iii) Employed by an SHG or similar party
  - b) road sweeper (relevant questions in Part II)
  - c) working on large community bin waste collector van (relevant questions in Part II)
  - d) working for cleaning the drains (Part II of questionnaire)
  - e) Working on large waste transport van (Part III of questionnaire)
  - f) working informally as waste pickers on waste dumping yard (Part IV of questionnaire)
  - g) other, please specify:
- 2) How many of you are actually working on the field for SWM department? How many have been transferred to other departments and duties (such as peons, other staff etc)?
- 3) What are your duty hours?
  - a) Single duty:
  - b) Double duty:
- 4) What equipment is your employer supposed to provide you?
  - a) Work related
    - i) Spade, broom, waste collector flap
    - ii) Spade and digger
    - iii) Other, please specify:
  - b) Safety related
    - i) Dresses
    - ii) Gum-boots
    - iii) Gloves
    - iv) Masks
- 5) How many leaves or holidays are you granted every year?
- 6) Is waste segregation carried out in the town/ city?
  - a) Yes
    - i) Only in a few areas
    - ii) Dry and wet waste is segregated
      - (1) At source
      - (2) At a place away from the source (where?)
    - iii) Recyclable and non recyclable waste is segregated
      - (1) Recyclable waste is sold to informal door-step scrap collectors
      - (2) Residents themselves carry recyclables to scrap shops
  - b) No
    - i) Waste segregated at homes but mixed by collection system
    - ii) No segregation at all
    - iv) At source
    - v) After waste collection, by a separate segregation mechanism
- 7) What work is done on a regular basis? What is its frequency?
- 8) What work is done as per requirement/ complaints?
- 9) What is the condition of the grievance redress mechanism for SWM?
  - a) No mechanism
  - b) Defunct mechanism

- c) Mechanism exists but not used
- d) OPS:

### Part II: Related to waste segregation and recycling

10) Why is waste segregation not carried out?

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>a) No instructions issued by the competent authority           <ul style="list-style-type: none"> <li>i) No seriousness of the issue               <ul style="list-style-type: none"> <li>(1) Lack of knowledge</li> <li>(2) Lack of willingness</li> <li>(3) Lack of capability to handle such initiatives</li> </ul> </li> <li>ii) No manpower to look after such initiatives               <ul style="list-style-type: none"> <li>(1) Improper staffing standards</li> <li>(2) Incompetent staffing due to corruption</li> <li>(3) Political interference/ pressure</li> </ul> </li> </ul> </li> <li>b) Instructions issued but not complied to           <ul style="list-style-type: none"> <li>i) No monitoring</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>(1) Insufficient manpower</li> <li>(2) Corruption</li> <li>(3) People in charge of monitoring do something else during their duty hours</li> <li>(4) No adequate powers/responsibilities trusted with the monitoring mechanism</li> <li>ii) No penal mechanism           <ul style="list-style-type: none"> <li>(1) Corruption prevents actual penalization</li> <li>(2) No MC capabilities</li> <li>(3) No willingness to make a difference</li> </ul> </li> </ul> |
|--|--|
- c) OPS:

11) What are the problems and their reasons, regarding the waste recycling?

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>a) Recycling does not take place at all           <ul style="list-style-type: none"> <li>i) No well functioning recycling mechanism exists</li> <li>ii) Recycling mechanism is not used properly by the residents</li> <li>iii) Too little rewards out of recycling, as compared to the efforts required</li> <li>iv) Informal recyclers do not visit               <ul style="list-style-type: none"> <li>(1) Local politics involved</li> <li>(2) Ban by the MC on such informal mechanisms</li> </ul> </li> <li>v) Scrap shops too far off to take the recyclables and sell those</li> <li>vi) OPS:</li> </ul> </li> <li>b) Recyclables seen lying at improper places</li> </ul> | <ul style="list-style-type: none"> <li>i) MC not supportive of recycling mechanism           <ul style="list-style-type: none"> <li>(1) Recyclers do not adhere to rules and regulations</li> <li>(2) Political pressure</li> <li>(3) Vested interests and corruption</li> </ul> </li> <li>ii) Waste generators not cooperating with the recycling mechanism           <ul style="list-style-type: none"> <li>(1) Informal recycling mechanism frowned upon</li> <li>(2) No awareness</li> <li>(3) No penal mechanism</li> <li>(4) No sufficient incentive for recycling</li> </ul> </li> <li>iii) OPS:</li> <li>c) OPS:</li> </ul> |
|--|---|

### Part III Related to problems in waste collection

12) Why does the waste collection mechanism not operate properly in \_\_\_ areas of the town?

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>a) incorrect type of equipment           <ul style="list-style-type: none"> <li>i) Too big a ghantagadi to reach the alleys</li> <li>ii) Too far off located collection points for the residents to deposit their waste in the ghantagadi</li> <li>iii) Too little waiting time for the ghantagadi</li> <li>iv) Incorrect type and size of community bins</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>b) Improper management of the ghantagadi mechanism           <ul style="list-style-type: none"> <li>i) Due to contractor pressure</li> <li>ii) Due to lethargy</li> <li>iii) Due to lack of willingness</li> <li>iv) Due to pressure to work at other places as well</li> </ul> </li> <li>c) lack of willingness of the workers           <ul style="list-style-type: none"> <li>i) Due to no payments</li> <li>ii) Low payments</li> </ul> </li> </ul> |
|---|--|

- iii) Loan burden
- d) hindrance of other additional work in carrying out daily duties
  - i) To repay loans
- ii) Because of political pressure
- e) other, please specify:

13) What are the problems and reasons for those, you face while carrying out your collection duties?

- a) Insufficient/ improper equipment
  - i) Corruption
  - ii) Lack of funds
  - iii) Lack of will
  - iv) OPS:
- b) poor treatment by superiors
  - i) Bad attitude
  - ii) No grievance redressal
  - iii) No penal mechanism for superiors
  - iv) OPS:
- c) no co-operation from the residents
  - i) No awareness
  - ii) No penal mechanism
  - iii) OPS:
- d) Financial problems of workers
  - i) Corruption
- ii) Additions and other problems with workers
- e) irregular payments
  - i) Lack of funds with MC
  - ii) Corruption
  - iii) OPS:
- f) corruption by co-workers
- g) corruption by superiors
- h) insufficient staff
  - i) Poor staffing standards
  - ii) No new recruitments
  - iii) Improper contracting
    - (1) Lack of MC capabilities
    - (2) Corruption
    - (3) No grievance redress mechanism
    - (4) OPS:
- i) OPS:

14) What according to you are the solutions or steps needed to solve the problems?

- a) increasing manpower
- b) regularizing payments
- c) reducing manpower
- d) providing proper equipment
- e) handling corruption
- f) OPS:

#### Part IV Related to problems in waste transportation

15) Problems and their reasons, in waste transportation

- a) Waste overflow from the transport vehicles
  - i) Improper vehicles
    - (1) Lack of funds
    - (2) Corruption
    - (3) Lack of MC capabilities to make decisions
  - ii) Improper handling of waste
    - (1) Lack of worker skills
    - (2) Lack of staff
- (3) OPS:
- b) Improper collection mechanism
  - i) Lack of MC capabilities
  - ii) Corruption
  - iii) Contractor mismanagement
  - iv) No monitoring mechanism
  - v) No GR mechanism
- c) OPS:

16) Problems and their reasons, in carrying out duties

- a) Insufficient/ improper equipment
  - i) Corruption
  - ii) Lack of funds
  - iii) Lack of will
  - iv) OPS:
- b) poor treatment by superiors
  - i) Bad attitude
  - ii) No grievance redressal
- iii) No penal mechanism for superiors
- iv) OPS:
- c) no co-operation from the residents
  - i) No awareness
  - ii) No penal mechanism
  - iii) OPS:
- d) Financial problems of workers
  - i) Corruption

- ii) Addictions and other problems with workers
- e) irregular payments
  - i) Lack of funds with MC
  - ii) Corruption
  - iii) OPS:
- f) corruption by co-workers
- g) corruption by superiors
- h) insufficient staff
- i) Poor staffing standards
- ii) No new recruitments
- iii) Improper contracting
  - (1) Lack of MC capabilities
  - (2) Corruption
  - (3) No grievance redress mechanism
  - (4) OPS:
- i) OPS:

#### Part V Related to problems regarding waste treatment/ disposal

#### 17) Problems and their reasons, in carrying out duties

- a) No waste treatment at all
  - i) Corruption
  - ii) Lack of funds
  - iii) Lack of will
  - iv) OPS:
- b) Financial problems of workers
  - i) Corruption
  - ii) Addictions and other problems with workers
- c) irregular payments
  - i) Lack of funds with MC
  - ii) Corruption
  - iii) OPS:
- d) corruption by co-workers
- e) corruption by superiors
- f) insufficient staff
  - i) Poor staffing standards
  - ii) No new recruitments
  - iii) Improper contracting
    - (1) Lack of MC capabilities
    - (2) Corruption
    - (3) No grievance redress mechanism
    - (4) OPS:
- g) OPS:

#### 18) Why is there no grievance redress mechanism for SWM in the city?

- a) Inadequate staff
  - i) Improper staffing standards
  - ii) No staff motivation for new initiatives
  - iii) Corruption
- b) Lack of funds
  - i) Corruption
  - ii) Improper funds planning
- c) Lack of space to have a GR cell
- iii) Improper space planning in the MC
- iv) Political pressure
- d) Useless mechanism
  - i) No publicity/ awareness
  - ii) No back end support to the GR mechanism
  - iii) Resident apathy
  - iv) Corruption
- e) OPS:

#### 19) Will the works being carried out as part of the JNNURM (reforms) or the UIDSSMT (schemes and projects) solve the problems of SWM?

- a) Not at all
  - i) Ill aimed schemes
  - ii) Reforms do not consider real on-ground situation
  - iii) Inadequate support from the state
    - (1) Finance
    - (2) Administrative assistance
    - (3) Funds disbursement norms inadequate
- b) Not entirely, additional caution is needed
  - i) Proper implementation monitoring
  - ii) Ensuring proper planning
  - iii) Flexibility in planning as time advances
  - iv) Capacity building of MC staff
  - v) Resident education and awareness
  - vi) On ground issues need to be monitored
    - (1) Technical delays
    - (2) Cost overruns
    - (3) Corruption
  - vii) Checking corruption
- c) Yes, of course!

**5.2. Questionnaire for the agency handling collection/ transport of (HH/ bulk/ BMW/ e-waste/ industrial) waste**

**Part I Related to existing situation of the system**

- 1) Type of mechanism with the MC
  - a) Management contract (with MC equipment)
  - b) Full outsource (with own equipment)
  - c) OPS:
  
- 2) User charges situation
  - a) No user charges
  - b) User charges decided and collected by MC
  - c) User charges decided mutually, collected by the MC
  - d) User charges decided mutually, collected by agency
  - e) User charges decided and collected by agency
  
- 3) Technical details (as applicable)
  - a) No. of divisions of the town for service provision:
  - b) Type and no. of vehicles used:
  - c) No. of staff per area:
  - d) No. of staff per vehicle
  - e) No. of trips to the transfer/ treatment station, per area:

**Part II Related to problems and their solutions**

- 4) Problems in service and their reasons
  - a) Lack of user charge payments
    - i) No enabling by the MC to collect charges
    - ii) No willingness of users to pay
    - iii) No penal mechanism for users to pay
    - iv) OPS:
  - b) Hindrances in service provision
    - i) Lack of proper equipment
    - ii) Improper city planning
    - iii) Political pressure
    - iv) Vested interests
    - v) OPS:
  - c) No well defined risk and responsibility allocation
    - i) No contracting capabilities with the MC
    - ii) Lack of will to cooperate with the handling agency
    - iii) Lack of grievance redress mechanism
    - iv) Lack of voice to the agency
    - v) Corruption (with details)
    - vi) OPS:
  - d) OPS:
  
- 5) Solutions to these problems in your opinion?
  - a) MC capability building
  - b) Better contracting terms
  - c) User charge imposition
  - d) Prevent political interference
  - e) Prevent corruption
  - f) Better planning
  - g) Community participation in decision making
  - h) Better technology
  - i) Better funds management
  - j) OPS:
  
- 6) Will the works being carried out as part of the JNNURM (reforms) or the UIDSSMT (schemes and projects) solve the problems of SWM?
  - a) Not at all
    - i) Ill aimed schemes
    - ii) Reforms do not consider real on-ground situation
    - iii) Inadequate support from the state

- (1) Finance
  - (2) Administrative assistance
  - (3) Funds disbursement norms inadequate
  - b) Not entirely, additional caution is needed
    - i) Proper implementation monitoring
    - ii) Ensuring proper planning
    - iii) Flexibility in planning as time advances
    - iv) Capacity building of MC staff
  - v) Resident education and awareness
  - vi) On ground issues need to be monitored
    - (1) Technical delays
    - (2) Cost overruns
    - (3) Corruption
  - vii) Checking corruption
  - c) Yes, of course!
- 7) Other broad level expectations to improve the performance of the SWM system in the town and also in general?
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### 5.3. Questionnaire: Supervisors, Health Officers, Sanitary Inspectors or HOD - health

#### Part I Related to existing situation of the system

- 1) What is your role in the SWM system of the town?
  - a) supervision over the workers working
  - b) planning the work execution
  - c) making payments to the workers
  - d) record the workers' attendance
  - e) distribute equipment and material to the workers
  - f) inspection of the completed work
  - g) approve the bills raised by the contractor
  - h) make payments to the contractor
- 2) How many of your colleagues form your team?
- 3) What is your and your colleagues' qualification?
- 4) What work is done on a regular basis? What is its frequency?
- 5) What work is done as per requirement/ complaints?
- 6) What is the condition of the grievance redress mechanism for SWM?
  - a) No mechanism
  - b) Defunct mechanism
  - c) Mechanism exists but not used
  - d) OPS:

#### Part II: Related to waste segregation and recycling

- 7) Why is waste segregation not carried out?
  - a) No instructions issued by the competent authority
    - i) No seriousness of the issue
      - (1) Lack of knowledge
      - (2) Lack of willingness
      - (3) Lack of capability to handle such initiatives
    - ii) No manpower to look after such initiatives
      - (1) Improper staffing standards
      - (2) Incompetent staffing due to corruption
      - (3) Political interference/ pressure
  - b) Instructions issued but not complied to

- i) No monitoring
  - (1) Insufficient manpower
  - (2) Corruption
  - (3) People in charge of monitoring do something else during their duty hours
  - (4) No adequate powers/responsibilities trusted with the monitoring mechanism
- ii) No penal mechanism
  - (1) Corruption prevents actual penalization
  - (2) No MC capabilities
  - (3) No willingness to make a difference
- c) OPS:

8) What are the problems and their reasons, regarding waste recycling?

- a) Recycling does not take place at all
  - i) No well functioning recycling mechanism exists
  - ii) Recycling mechanism is not used properly by the residents
  - iii) Too little rewards out of recycling, as compared to the efforts required
  - iv) Informal recyclers do not visit
    - (1) Local politics involved
    - (2) Ban by the MC on such informal mechanisms
  - v) Scrap shops too far off to take the recyclables and sell those
  - vi) OPS:
- b) Recyclables seen lying at improper places
  - i) MC not supportive of recycling mechanism
    - (1) Recyclers do not adhere to rules and regulations
    - (2) Political pressure
    - (3) Vested interests and corruption
  - ii) Waste generators not cooperating with the recycling mechanism
    - (1) Informal recycling mechanism frowned upon
    - (2) No awareness
    - (3) No penal mechanism
    - (4) No sufficient incentive for recycling
  - iii) OPS:
  - c) OPS:

9) What are the solutions possible to improve the situation?

### Part III Related to problems in waste collection

10) What are the reasons for the reported problems related to waste collection in various areas the town, as reported by the residents?

- a) Insufficient number of workers
  - i) Incorrect norms of the new staffing pattern
    - (1) No thinking gone into design of the pattern
    - (2) Lack of capabilities to foresee the implications of the pattern
    - (3) Other, please specify:
  - ii) Political pressure and manipulations in staffing
  - iii) Lack of contract workers
    - (1) Contractors not ready to take the job
    - (2) No capabilities with the MC to devise and implement such contract mechanism
    - (3) No funds with the MC to afford contract mechanism
    - (4) Other, please specify:
  - iv) Failed contract mechanisms for waste collection in the town
    - (1) Delayed payments due to various reasons
    - (2) Improper labour treatment norms for the contractors
  - v) Other, please specify:
- b) lack of willingness of the workers
  - i) due to payment problems
  - ii) due to lethargy
  - iii) due to other work being done by the workers
  - iv) due to addictions and absenteeism
- c) lack of proper equipment
  - i) No planning while equipment procurement
    - (1) No capabilities to foresee the implications
    - (2) Other, please specify:

- ii) lack of funds with the MC
- iii) improper usage of the equipment by the workers
- iv) Corruption in equipment procurement
- d) Improperly designed ghantagadi schedule
  - i) Ignorant administration
  - ii) Lack of planning
  - iii) Lack of qualification
  - iv) Lack of knowledge
- e) Improperly designed community bin clearance mechanism
  - i) Ignorant administration
  - ii) Lack of planning
  - iii) Lack of qualification
  - iv) Lack of knowledge
- f) Lack of penalty mechanism for littering
  - i) Lethargic administrative approach
  - ii) Non cooperative residents
  - iii) Insufficient manpower to monitor the mechanism
- g) No grievance redressal mechanism
  - i) Insufficient manpower in the MC
  - ii) Incompetent manpower in the MC
  - iii) Lethargic approach
- iv) Lack of drive to perform
- v) Improper staffing standards
- h) No separate mechanism for bulk waste collection
  - i) No idea about such a thing needed
  - ii) Corruption in the contract award for bulk waste collection
  - iii) Lack of cooperation from the bulk waste generators
  - iv) Lethargic administration
- i) Lack of funds with the MC
  - i) Property tax not collected properly
  - ii) Corruption in property tax
  - iii) Waste of money due to lack of planning
  - iv) Other, please specify:
- j) No separate collection mechanism for biomedical waste:
  - i) No idea about such a thing needed
  - ii) No penalty for non compliant doctors
  - iii) Lack of cooperation from medical establishments
  - iv) No mechanism for treatment of biomedical waste

11) What are the problems you face while carrying out your duties?

- a) political interference
- b) lack of manpower
- c) lack of cooperation from co-workers and subordinates
- d) lack of administrative support
- e) lack of knowledge (of technologies, laws and rules etc.)

12) What do you think are the causes for those problems?

- a) lack of initiative (on political/administrative/ worker level)
- b) lack of funds
- c) improper staffing regulations
- d) lack of public pressure on the public representatives
- e) lack of concern with the local problems from the administrative sections
- f) lack of willingness to learn new things
- g) Lack of incentive to learning and betterment
- h) No penalty or action for non compliance with deadlines

13) What are the solutions possible to improve the situation?

#### Part IV Related to problems in waste transportation

14) Problems and their reasons, in waste transportation

- a) Waste overflow from the transport vehicles
  - i) Improper vehicles
    - (1) Lack of funds
    - (2) Corruption
    - (3) Lack of MC capabilities to make decisions
  - ii) Improper handling of waste
    - (1) Lack of worker skills

- (2) Lack of staff
- (3) OPS:
- b) Improper collection mechanism
  - i) Lack of MC capabilities
  - ii) Corruption
- iii) Contractor mismanagement
- iv) No monitoring mechanism
- v) No GR mechanism
- c) OPS:

15) Problems and their reasons, in carrying out duties

- a) Insufficient/ improper equipment
  - i) Corruption
  - ii) Lack of funds
  - iii) Lack of will
  - iv) OPS:
- b) poor treatment by superiors
  - i) Bad attitude
  - ii) No grievance redressal
  - iii) No penal mechanism for superiors
  - iv) OPS:
- c) no co-operation from the residents
  - i) No awareness
  - ii) No penal mechanism
  - iii) OPS:
- d) Financial problems of workers
  - i) Corruption
- ii) Addictions and other problems with workers
- e) irregular payments
  - i) Lack of funds with MC
  - ii) Corruption
  - iii) OPS:
- f) corruption by co-workers
- g) corruption by superiors
- h) insufficient staff
  - i) Poor staffing standards
  - ii) No new recruitments
  - iii) Improper contracting
    - (1) Lack of MC capabilities
    - (2) Corruption
    - (3) No grievance redress mechanism
    - (4) OPS:
- i) OPS:

16) What are the solutions possible to improve the situation?

**Part V Related to problems in waste treatment/ disposal**

17) It is reported that the waste from the town is only dumped in the open at the \_\_\_\_\_ yard without treatment. What are the reasons for the waste not being treated?

- a) No treatment project in place
  - i) Lack of land
  - ii) Stuck up approval process
  - iii) Lack of political will
  - iv) Political pressure
- b) Treatment project not functioning at all/ not functioning properly
  - i) Waste collection mechanism not functioning properly
  - ii) Project is financially in trouble
    - (1) Users not paying charges
- (2) No market for the plant's produce
- (3) Other, please specify:
- iii) Lack of clear compliance norms for the project operator
- iv) Improper agreement between the MC and the project operator
  - (1) Political pressure
  - (2) Vested interests
  - (3) Lack of capability on the MC part
  - (4) Other, please specify:
- c) Other, please specify:

18) There has been a delay in setting up the MSW treatment project, as compared to the deadline specified by the MSW Rules, 2000. What are the reasons for the delay in setting up of the SW treatment project(s)?

- a) Stuck in the approval process
  - i) DPR was not prepared properly
  - ii) Too many approving agencies involved
  - iii) Lack of speedy processing
  - iv) Corruption in moving the files and approving the project
- v) Changes in proposal
- b) Lack of funding for the project
  - i) Lack of approval
  - ii) Improper proposal
  - iii) Changes in proposal

- c) Change in the agency handling the plant erection and operation
    - i) Incompetent agency selected earlier
      - (1) Political pressure
      - (2) Vested interests
      - (3) Other, please specify:
    - ii) Lack of initiative from the selected agency
      - (1) Miscommunication or misunderstanding
      - (2) Lack of clear point of contact
      - (3) Other, please specify:
  - iii) Other, please specify:
  - d) Lack of land for the project
    - i) Political pressure
    - ii) Lack of proper planning
    - iii) Vested interests
    - iv) Corruption at higher levels (PCB etc.)
  - e) Other, please specify:
- 19) Why is there no grievance redress mechanism in the city?
- a) Inadequate staff
    - i) Improper staffing standards
    - ii) No staff motivation for new initiatives
    - iii) Corruption
  - b) Lack of funds
    - i) Corruption
    - ii) Improper funds planning
  - c) Lack of space to have a GR cell
    - i) Improper space planning in the MC
    - ii) Political pressure
  - d) Useless mechanism
    - i) No publicity/ awareness
    - ii) No back end support to the GR mechanism
    - iii) Resident apathy
    - iv) Corruption
  - e) OPS:
- 20) What are the solutions possible to improve the situation?
- a) Clear project proposal norms and standard formats
  - b) Mandatory deadlines
  - c) Clear allocation of responsibilities
  - d) Mechanism to prevent transfer of responsibilities between departments
  - e) Mechanisms to check delay in document processing
    - i) On-line document submissions and status follow up
    - ii) Dedicated cells to look after agreements and proposals
    - iii) Other, please specify:
  - f) Mechanism to check vested interests
    - i) Cadre system for all staff
    - ii) Voluntary public disclosure and consultations by the MC
    - iii) Other, please specify:
  - g) Other, please specify:
- 21) What are the opportunities/ challenges arising due to the reforms, in the context of the entire SWM system in the town?
- a) No idea. What are reforms?
  - b) Overall reforms regime
    - i) Waste generation may be controlled
    - ii) Land acquisition may be eased
    - iii) Better equity may be ensured in the service provision
    - iv) Regulation of the sector may be possible
    - v) OPS:
  - c) Finance reforms
    - i) Improvement in the ULB's financial status may help the sector
    - ii) User charges may hamper the cooperation expected from the residents
    - iii) OPS:
  - d) Structural and administrative reforms
    - i) Creation of cadres for admin staff may address the vested interests situation
    - ii) Reduction of staff number may pose serious challenges for the sector
    - iii) OPS:
  - e) PPP encouragement
    - i) This may put serious burden on the ULB staff
    - ii) Capacity building requirements will be extremely high in this case
    - iii) Private sector participation may encourage profiteering out of a basic service like SWM
    - iv) OPS:

f) OPS:

22) Will the works being carried out as part of the JNNURM (reforms) or the UIDSSMT (schemes and projects) solve the problems of SWM?

- a) Not at all
  - i) Ill aimed schemes
  - ii) Reforms do not consider real on-ground situation
  - iii) Inadequate support from the state
    - (1) Finance
    - (2) Administrative assistance
    - (3) Funds disbursement norms inadequate
- b) Not entirely, additional caution is needed
  - i) Proper implementation monitoring
  - ii) Ensuring proper planning
- iii) Flexibility in planning as time advances
- iv) Capacity building of MC staff
- v) Resident education and awareness
- vi) On ground issues need to be monitored
  - (1) Technical delays
  - (2) Cost overruns
  - (3) Corruption
- vii) Checking corruption
- c) Yes, of course!

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#### 5.4. Questionnaire for the operator of the SW treatment plant

##### Part I Existing situation of the system

- 1) What waste is treated/ planned to be treated at the plant, and what is its capacity in tons per day?
  - a) BMW
  - b) MSW
  - c) E-waste
  - d) Scrap waste
  - i) Glass
  - ii) Steel
  - iii) Other, please specify:
  - e) Other, please specify:
- 2) What is the status of the treatment plant
  - a) In the DPR preparation stage
  - b) DPR has gone to the MJP/ SLNA for approval
  - c) DPR has been approved and bids are invited for implementation
  - d) DPR preparing agency is also the implementing agency and the plant construction work is in progress
  - e) Capacity of the plant in Tonnes per Day (TPD)?
  - f) Nothing has been done or planned
  - g) Other, please specify:
- 3) The type of treatment planned or taking place
  - a) Composting
  - b) Gasification
  - c) Waste incineration for energy production
  - d) Recycling
  - i) Glass
  - ii) Steel
  - iii) Other, please specify:
  - e) Other, please specify:
- 4) The ownership of the treatment plant
  - a) Operated by the MC, the revenue being
    - i) Produced from sale of treatment products (manure, gas, energy)
    - ii) Other, please specify:
  - b) Operated by a private party, payment to the MC being
    - i) On a management contract
      - (1) Fixed one time fees
      - (2) Fixed regular fees payment
      - (3) Revenue share %age
    - ii) On a BOT basis
      - (1) Fixed one time fees
      - (2) Fixed regular fees payment
      - (3) Revenue share %age

- iii) Other, please specify:
- 5) The mechanism to transport waste from the city to the plant
  - a) Operated by
    - i) The MC
    - ii) The plant operator
    - iii) A third party
    - iv) Informal waste transporters
  - b) Waste quantity
    - i) Assured? How much per day?
  - ii) Not assured? Average per day quantity delivered?
  - c) Waste status
    - i) Mixed waste
    - ii) Segregated waste
  - d) Other, please specify:
- 6) User charges mechanism
  - a) The users (waste generators) are not charged
  - b) Users are charged
    - i) By the MC
    - ii) By the operator directly
    - iii) Other, please specify:
  - c) Charging terms
    - i) Fixed regular amount depending on waste quantity
    - ii) Regular amount independent of waste quantity
    - iii) Other, please specify:

## Part II Related to problems faced while treating the SW

- 7) Delays in
  - a) Plant construction
    - i) Delayed land transfer
      - (1) Lethargy
      - (2) Legal problems
      - (3) Corruption
    - ii) Delayed permission grant
      - (1) Lethargy
      - (2) Legal difficulties
      - (3) Corruption
    - iii) Delayed funds release
      - (1) No funds with the MC
      - (2) Lethargy of the MC in transferring funds
      - (3) Illicit favors required to have funds released
  - b) Starting plant operations
    - i) No infrastructure provided
  - (1) Lack of infrastructure altogether in the region
  - (2) Lethargy by the MC
  - (3) Corruption
  - (4) Lack of funds with the MC
  - (5) Inadequate agreement structure to force the MC to provide infrastructure
  - ii) No waste transport mechanism in place
    - (1) No planning by the MC or the operator
    - (2) The MC not able to fulfill their promises
    - (3) Third party does not keep their word
    - (4) Inadequate project structuring
  - c) Other, please specify:
- 8) Operational difficulties
  - a) Irregular utilities supply
    - i) Lack of monitoring from the MC
    - ii) Inadequate contractual mechanism
    - iii) General lack of utilities in the region
    - iv) Other, please specify:
  - b) Insufficient waste quantity for effective plant operation
    - i) No monitoring of waste delivery mechanism
    - ii) Incorrect estimate provided for plant planning
  - iii) Other, please specify:
  - c) Financial burden
    - i) Lack of market for produce of the plant
    - ii) Cost overruns
    - iii) Insufficient support from the state or the MC
  - d) No segregation of waste
    - i) No MC steps towards ensuring segregation
    - ii) No waste generator compliance

- iii) No segregator compliance
  - iv) OPS:
  - e) Other, please specify:
- 9) Causes of problems in commercially sustaining the plant operations
- a) Lack of market for produce of the plant
    - i) Absence of regional market for the plant produce
    - ii) Absence of mechanism to deliver the produce from the plant to the customer
    - iii) Incorrect pricing
    - iv) Other, please specify:
  - b) Cost overruns
    - i) Delays in implementing and operating the project
    - ii) Inadequate mechanism to ensure waste quantity or quality
  - iii) Too much expenditure in pre-processing the waste
  - iv) Captive ways of accessing utilities costing too much (e.g. diesel power generators)
  - v) Other, please specify:
  - c) Insufficient support from the state or the MC
    - i) Lack of grants as against promised
    - ii) No grants at all
    - iii) Other, please specify:
  - d) Other, please specify:
- 10) What are the solutions possible to improve the situation?
- a) Proper grievance redressal mechanism
  - b) User charges
  - c) Captive or dedicated utilities supply
  - d) Reduction in corruption
  - e) Improvement in MC capabilities
  - f) Stringent norms for time line for implementation and operation
  - g) Other, please specify:
- 11) What are the issues presented/ opportunities provided by the provisions such as the Finance Commission recommendations for solid waste management?
- a) Funding and grant release pattern inconvenient for effective project implementation
  - b) No monitoring of actual project implementation progress for funds release helps corruption
  - c) OPS:
- 12) What are the opportunities/ challenges arising due to the reforms, in the context of the entire SWM system in the town?
- a) No idea. What are reforms?
  - b) Overall reforms regime
    - i) Waste generation may be controlled
    - ii) Land acquisition may be eased
    - iii) Better equity may be ensured in the service provision
    - iv) Regulation of the sector may be possible
    - v) OPS:
  - c) Finance reforms
    - i) Improvement in the ULB's financial status may help the sector
    - ii) User charges may hamper the cooperation expected from the residents
    - iii) OPS:
  - d) Structural and administrative reforms
    - i) Creation of cadres for admin staff may address the vested interests situation
    - ii) Reduction of staff number may pose serious challenges for the sector
    - iii) OPS:
  - e) PPP encouragement
    - i) This may put serious burden on the ULB staff
    - ii) Capacity building requirements will be extremely high in this case
    - iii) Private sector participation may encourage profiteering out of a basic service like SWM
    - iv) OPS:
  - f) OPS:
- 13) Will the works being carried out as part of the JNNURM (reforms) or the UIDSSMT (schemes and projects) solve the problems of SWM?
- a) Not at all
    - i) Ill aimed schemes
  - ii) Reforms do not consider real on-ground situation

- iii) Inadequate support from the state
  - (1) Finance
  - (2) Administrative assistance
  - (3) Funds disbursement norms inadequate
- b) Not entirely, additional caution is needed
  - i) Proper implementation monitoring
  - ii) Ensuring proper planning
  - iii) Flexibility in planning as time advances
- iv) Capacity building of MC staff
- v) Resident education and awareness
- vi) On ground issues need to be monitored
  - (1) Technical delays
  - (2) Cost overruns
  - (3) Corruption
- vii) Checking corruption
- c) Yes, of course!

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## 5.5. Questionnaire: Chief Officer / Elected representative (in charge or former)

### Part I Related to existing situation of the system

- 1) What is your role in the SWM system of the town?
  - a) supervision over the workers working
  - b) planning the work execution
  - c) making payments to the workers
  - d) record the workers' attendance
  - e) distribute equipment and material to the workers
  - f) inspection of the completed work
  - g) approve the bills raised by the contractor
  - h) make payments to the contractor
  
- 2) Is waste segregation carried out in the town/ city?
  - a) Yes
    - i) Only in a few areas
    - ii) Dry and wet waste is segregated
      - (1) At source
      - (2) At a place away from the source (where?)
    - iii) Recyclable and non recyclable waste is segregated
      - (1) Recyclable waste is sold to informal door-step scrap collectors
      - (2) Residents themselves carry recyclables to scrap shops
  - iv) At source
  - v) After waste collection, by a separate segregation mechanism
  - b) No
    - i) Waste segregated at homes but mixed by collection system
    - ii) No segregation at all

### Part II: Related to waste segregation and recycling

- 3) Why is waste segregation not carried out?
  - a) No instructions issued by the competent authority
    - i) No seriousness of the issue
      - (1) Lack of knowledge
      - (2) Lack of willingness
      - (3) Lack of capability to handle such initiatives
    - ii) No manpower to look after such initiatives
      - (1) Improper staffing standards
      - (2) Incompetent staffing due to corruption
  - b) Instructions issued but not complied to
    - (3) Political interference/ pressure
    - i) No monitoring
      - (1) Insufficient manpower
      - (2) Corruption
      - (3) People in charge of monitoring do something else during their duty hours
      - (4) No adequate powers/responsibilities trusted with the monitoring mechanism
    - ii) No penal mechanism

- (1) Corruption prevents actual penalization
  - (2) No MC capabilities
  - (3) No willingness to make a difference
  - c) OPS:
- 4) What are the problems and their reasons, regarding the waste recycling?
- a) Recycling does not take place at all
    - i) No well functioning recycling mechanism exists
    - ii) Recycling mechanism is not used properly by the residents
    - iii) Too little rewards out of recycling, as compared to the efforts required
    - iv) Informal recyclers do not visit
      - (1) Local politics involved
      - (2) Ban by the MC on such informal mechanisms
    - v) Scrap shops too far off to take the recyclables and sell those
    - vi) OPS:
  - b) Recyclables seen lying at improper places
    - i) MC not supportive of recycling mechanism
      - (1) Recyclers do not adhere to rules and regulations
      - (2) Political pressure
      - (3) Vested interests and corruption
    - ii) Waste generators not cooperating with the recycling mechanism
      - (1) Informal recycling mechanism frowned upon
      - (2) No awareness
      - (3) No penal mechanism
      - (4) No sufficient incentive for recycling
    - iii) OPS:
    - c) OPS:

### Part III Related to problems for the waste collection system

- 5) What are the reasons for the reported problems related to waste collection in the town?
- a) lack of willingness of the workers
    - i) due to payment problems
    - ii) due to lethargy
    - iii) due to other work being done by the workers
    - iv) due to addictions and absenteeism
  - b) lack of proper equipment
    - i) lack of funds with the MC
    - ii) improper usage of the equipment by the workers
    - iii) Corruption in equipment procurement
  - c) insufficient manpower
    - i) Improper staffing standards
    - ii) Lack of proper manpower to recruit
    - iii) Political pressure and manipulations in the work force
  - d) Improperly designed gphantagadi schedule
    - i) Ignorant administration
    - ii) Lack of planning
    - iii) Lack of qualification
    - iv) Lack of knowledge
  - e) Improperly designed community bin clearance mechanism
    - i) Ignorant administration
    - ii) Lack of planning
    - iii) Lack of qualification
  - iv) Lack of knowledge
  - f) Lack of penalty mechanism for littering
    - i) Lethargic administrative approach
    - ii) Non cooperative residents
    - iii) Insufficient manpower to monitor the mechanism
  - g) No grievance redressal mechanism
    - i) Insufficient manpower in the MC
    - ii) Incompetent manpower in the MC
    - iii) Lethargic approach
    - iv) Lack of drive to perform
    - v) Improper staffing standards
  - h) No separate mechanism for bulk waste collection
    - i) No idea about such a thing needed
    - ii) Corruption in the contract award for bulk waste collection
    - iii) Lack of cooperation from the bulk waste generators
    - iv) Lethargic administration
  - i) Lack of funds with the MC
    - i) Property tax not collected properly
    - ii) Corruption in property tax
    - iii) Waste of money due to lack of planning
    - iv) Other, please specify:

- j) No separate collection mechanism for biomedical waste:
  - i) No idea about such a thing needed
  - ii) No penalty for non compliant doctors
- iii) Lack of cooperation from medical establishments
- iv) No mechanism for treatment of biomedical waste
- k) Other, please specify:

#### Part IV Related to problems for the waste transportation system

- 6) What are the reasons for the reported problems related to waste transportation?
- a) lack of proper equipment
    - i) lack of funds with the MC
    - ii) improper usage of the equipment by the workers
    - iii) Corruption in equipment procurement
  - b) insufficient manpower
    - i) Improper staffing standards
    - ii) Lack of proper manpower to recruit
    - iii) Political pressure and manipulations in the work force
  - c) Improperly designed vehicle schedule
    - i) Ignorant administration
    - ii) Lack of planning
    - iii) Lack of qualification
    - iv) Lack of knowledge
  - d) Improperly designed collection mechanism
    - i) Ignorant administration
    - ii) Lack of planning
    - iii) Lack of qualification
    - iv) Lack of knowledge
  - e) Lack of penalty mechanism for lacunae in transportation
    - i) Lethargic administrative approach
  - ii) Non cooperative residents
  - iii) Insufficient manpower to monitor the mechanism
  - f) No grievance redressal mechanism
    - i) Insufficient manpower in the MC
    - ii) Incompetent manpower in the MC
    - iii) Lethargic approach
    - iv) Lack of drive to perform
    - v) Improper staffing standards
  - g) No separate mechanism for separate waste categories
    - i) No idea about such a thing needed
    - ii) Corruption in the contract award for bulk waste collection
    - iii) Lack of cooperation from the bulk waste generators
    - iv) Lethargic administration
  - h) Lack of funds with the MC
    - i) Property tax not collected properly
    - ii) Corruption in property tax
    - iii) Waste of money due to lack of planning
    - iv) Other, please specify:
  - i) Other, please specify:

#### Part V Related to problems for the waste treatment/ disposal system

- 7) What are the reasons for the reported problems related to waste treatment/ disposal?
- a) No plant/ facility at all
    - i) Delay in approval
      - (1) Improperly prepared proposal
      - (2) Delays in proposal revision according to suggestions from the higher authorities
      - (3) Lethargic administrative approach
      - (4) OPS:
    - ii) Problems with land for the project
      - (1) Lack of funds
      - (2) Political interference
      - (3) Corruption
      - (4) OPS:
    - iii) OPS:
  - b) lack of proper plant/ mechanism
    - i) lack of funds with the MC
      - (1) Corruption
      - (2) Waste of money through improper planning
      - (3) Mismanagement of funds through single entry system
      - (4) No enforcement of property tax collection
        - (a) Corruption in property tax collection
        - (b) No penal mechanism for defaulters
      - (5) OPS:

- ii) improper usage of the equipment by the workers
    - (1) Lack of knowledge
    - (2) Lack of training
    - (3) Lack of proper management
  - iii) Corruption in equipment procurement
  - iv) Lack of basic facilities at the plant site
  - c) insufficient manpower
    - i) Improper staffing standards
    - ii) Lack of proper manpower to recruit
    - iii) Political pressure and manipulations in the work force
  - d) Inadequate transportation mechanism
    - i) No study of on ground factors
    - ii) No monitoring mechanism
    - iii) OPS:
  - e) Improperly designed transportation schedule
    - i) Ignorant administration
  - ii) Lack of planning
  - iii) Lack of qualification
  - iv) Lack of knowledge
  - f) No grievance redressal mechanism
    - i) Insufficient manpower in the MC
    - ii) Incompetent manpower in the MC
    - iii) Lethargic approach
    - iv) Lack of drive to perform
    - v) Improper staffing standards
  - g) No separate mechanism for separate waste categories
    - i) No idea about such a thing needed
    - ii) Corruption in the contract award for bulk waste collection
    - iii) Lack of cooperation from the bulk waste generators
    - iv) Lethargic administration
  - h) Other, please specify:
- 8) What are the problems you face while carrying out your duties?
- a) political interference
  - a) lack of cooperation from subordinates
  - b) lack of administrative support
  - c) lack of knowledge (of technologies, laws and rules etc.) with the colleagues
- 9) What do you think are the causes for those problems?
- a) lack of initiative (on political/ administrative/ worker level)
  - a) lack of funds
  - b) improper staffing regulations
  - c) lack of public pressure on the public representatives
  - d) lack of concern with the local problems from the administrative sections
  - e) lack of willingness to learn new things
  - f) Lack of incentive to learning and betterment
  - g) No penalty or action for non compliance with deadlines
- 10) It is reported that the waste from the town is only dumped in the open at the \_\_\_\_\_ yard without treatment. What are the reasons for the untreated waste being dumped in the open?
- 11) There has been a delay in setting up the MSW treatment project, as compared to the deadline specified by the MSW Rules, 2000. What are the reasons for the delay in setting up of the MSW treatment projects?
- 12) It was reported that the treatment project is stalled due to lack of land. What are the reasons for lack of land for the treatment project to be set up on?
- 13) What are the opportunities/ challenges arising due to the reforms, in the context of the entire SWM system in the town?
- a) No idea. What are reforms?
  - b) Overall reforms regime
    - i) Waste generation may be controlled
    - ii) Land acquisition may be eased
    - iii) Better equity may be ensured in the service provision
    - iv) Regulation of the sector may be possible
  - v) OPS:
  - c) Finance reforms
    - i) Improvement in the ULB's financial status may help the sector
    - ii) User charges may hamper the cooperation expected from the residents
    - iii) OPS:

- d) Structural and administrative reforms
  - i) Creation of cadres for admin staff may address the vested interests situation
  - ii) Reduction of staff number may pose serious challenges for the sector
  - iii) OPS:
- e) PPP encouragement
- f) OPS:
- i) This may put serious burden on the ULB staff
- ii) Capacity building requirements will be extremely high in this case
- iii) Private sector participation may encourage profiteering out of a basic service like SWM
- iv) OPS:

14) What are the issues presented/ opportunities provided by the provisions such as the Finance Commission recommendations for solid waste management?

- a) Funding and grant release pattern inconvenient for effective project implementation
- b) No monitoring of actual project implementation progress for funds release helps corruption
- c) OPS:

15) Will the works being carried out as part of the JNNURM (reforms) or the UIDSSMT (schemes and projects) solve the problems of SWM?

- a) Not at all
  - i) Ill aimed schemes
  - ii) Reforms do not consider real on-ground situation
  - iii) Inadequate support from the state
    - (1) Finance
    - (2) Administrative assistance
    - (3) Funds disbursement norms inadequate
- b) Not entirely, additional caution is needed
  - i) Proper implementation monitoring
  - ii) Ensuring proper planning
  - iii) Flexibility in planning as time advances
  - iv) Capacity building of MC staff
  - v) Resident education and awareness
  - vi) On ground issues need to be monitored
    - (1) Technical delays
    - (2) Cost overruns
    - (3) Corruption
  - vii) Checking corruption
- c) Yes, of course!

## 6. Tools for Interviewing Key Informants

### Questionnaire for Interviews

#### Part I Related to existing situation of the system

- 1) What types of waste are generated in and around the city?
- 2) What is the mechanism to handle each type of waste?
- 3) What is the general situation of the manpower and work scheduling/ handling in the MC for SWM?
- 4) What is the condition of the staffing structure/ qualifications for handling the SWM system?

#### Part II: Related to waste segregation and recycling

- 5) Why is waste segregation not carried out?
  - a) No instructions issued by the competent authority
    - i) No seriousness of the issue
      - (1) Lack of knowledge
      - (2) Lack of willingness
      - (3) Lack of capability to handle such initiatives
    - ii) No manpower to look after such initiatives
      - (1) Improper staffing standards
      - (2) Incompetent staffing due to corruption
      - (3) Political interference/ pressure
  - b) Instructions issued but not complied to
    - i) No monitoring
- 6) What are the problems and their reasons, regarding the waste recycling?
  - a) Recycling does not take place at all
    - i) No well functioning recycling mechanism exists
    - ii) Recycling mechanism is not used properly by the residents
    - iii) Too little rewards out of recycling, as compared to the efforts required
    - iv) Informal recyclers do not visit
      - (1) Local politics involved
      - (2) Ban by the MC on such informal mechanisms
    - v) Scrap shops too far off to take the recyclables and sell those
    - vi) OPS:
  - b) Recyclables seen lying at improper places
- 7) What is the extent of the problems related to waste collection?

#### Part III Related to problems in waste collection

- 7) What is the extent of the problems related to waste collection?

- 8) Who suffers the most from these problems?
- People from certain areas of the city?
  - People from certain (social/ economic/ gender) class?
  - People supporting/ opposing particular political outfit?
  - Other insights on the extent of the problem?
- 9) What are the coping strategies adopted by the residents to face the problems? What are their effects on the residents' lives, and on other municipal services?
- 10) What are the reasons for the flaws in waste collection mechanism, for
- |   |   |
|---|---|
| a) No separate mechanism for collecting different types of waste (HH, bulk MSW, BMW, industrial/ hazardous) | e) No service to people of specific political preferences                           |
| b) No reach to certain areas  | f) Suffering of ladies/ senior residents/ other demographic sections of the society |
| c) Worker non cooperation   | g) Improper contractor management   |
| d) No collection from community bins  | h) Any other problems?  |
- 11) What has been the underlying mechanism in
- |  |  |
|--|--|
| a) Delays for approval of new collection systems?    | d) Political interference in waste collection systems? |
| b) Insufficient manpower for waste collection?       | e) Corruption in contractor appointment?               |
| c) Worker non cooperation for good waste collection? | f) Corruption in equipment procurement?                |
|  | g) The other problems with the collection mechanism?   |
- 12) What should be done to improve the waste collection system?

#### Part IV Related to problems in waste transportation

- 13) What is the extent of the problems related to waste transport? How long have these problems persisted?
- 14) Who suffers the most from these problems?
- People from certain areas of the city?
  - People from certain (social/ economic/ gender) class?
  - People supporting/ opposing particular political outfit?
  - Other insights on the extent of the problem?
- 15) What are the coping strategies adopted by the residents to face the problems? What are their effects on the residents' lives, and on other municipal services?
- 16) What are the reasons for the flaws in the waste transportation mechanism, in terms of
- |   |  |
|---|--|
| a) Insufficient transport capacity  | d) The overall malfunction of the waste transport system |
| b) Improper transport schedule  |  |
| c) Improper transport mechanism for different types of waste (MSW, BMW, industrial, bulk MSW) |  |
- 17) What has been the underlying mechanism in
- |   |   |
|---|---|
| a) Delays for approval of new transportation systems?               | e) Worker non cooperation for good waste collection?      |
| b) Delays in contractor appointment for the transportation systems? | f) Political interference in waste collection systems?    |
| c) Non cooperation of users for user charge payments?               | g) Corruption in contractor appointment?                  |
| d) Insufficient manpower for waste collection?                      | h) Corruption in equipment procurement?                   |
|   | i) The other problems with the waste transport mechanism? |

18) What should be done to improve the waste transportation system?

**Part V Related to waste treatment/ disposal**

19) What is the extent of the problems related to waste treatment/ disposal? How long have these problems persisted?

20) Who suffers the most from these problems?

- a) People from a nearby gram panchayat or other settlement?
- b) People from certain areas of the city?
- c) People from certain (social/ economic/ gender) class?
- d) People supporting/ opposing particular political outfit?
- e) Other insights on the extent of the problem?

21) What are the coping strategies adopted by the residents to face the problems? What are their effects on the residents' lives, and on other municipal services?

22) What are the reasons for these problems in waste treatment?

- b) Delays in approving treatment schemes?
- c) Improper treatment mechanisms
- d) Approved but not installed treatment mechanisms?
- e) Treatment facility not being used at all or properly

23) What is the underlying mechanism in

- a) Delays for approval/ installment of new treatment facilities?
- b) Delays in contractor appointment for the transportation systems?
- c) Non cooperation of users for user charge payments?
- d) Insufficient manpower for waste collection?
- e) Worker non cooperation for good waste collection?
- f) Political interference in waste collection systems?
- g) Corruption in contractor appointment?
- h) Corruption in equipment procurement?
- i) The other problems with the waste transport mechanism?

24) What should be done to install/ activate/ maintain a proper waste treatment system?

25) What are the opportunities/ challenges arising due to the reforms, in the context of the entire SWM system in the town?

- a) No idea. What are reforms?
- b) Overall reforms regime
  - i) Waste generation may be controlled
  - ii) Land acquisition may be eased
  - iii) Better equity may be ensured in the service provision
  - iv) Regulation of the sector may be possible
  - v) OPS:
- c) Finance reforms
  - i) Improvement in the ULB's financial status may help the sector
  - ii) User charges may hamper the cooperation expected from the residents
  - iii) OPS:
- f) OPS:
- d) Structural and administrative reforms
  - i) Creation of cadres for admin staff may address the vested interests situation
  - ii) Reduction of staff number may pose serious challenges for the sector
  - iii) OPS:
- e) PPP encouragement
  - i) This may put serious burden on the ULB staff
  - ii) Capacity building requirements will be extremely high in this case
  - iii) Private sector participation may encourage profiteering out of a basic service like SWM
  - iv) OPS:

- 26) Will the works being carried out as part of the JNNURM (reforms) or the UIDSSMT (schemes and projects) solve the problems of SWM?
- a) Not at all
    - i) Ill aimed schemes
    - ii) Reforms do not consider real on-ground situation
    - iii) Inadequate support from the state
      - (1) Finance
      - (2) Administrative assistance
      - (3) Funds disbursement norms inadequate
  - b) Not entirely, additional caution is needed
    - i) Proper implementation monitoring
    - ii) Ensuring proper planning
    - iii) Flexibility in planning as time advances
    - iv) Capacity building of MC staff
    - v) Resident education and awareness
    - vi) On ground issues need to be monitored
      - (1) Technical delays
      - (2) Cost overruns
      - (3) Corruption
    - vii) Checking corruption
  - c) Yes, of course!
- 27) What are the issues presented/ opportunities provided by the provisions such as the Finance Commission recommendations for solid waste management?
- a) Funding and grant release pattern inconvenient for effective project implementation
  - b) No monitoring of actual project implementation progress for funds release helps corruption
  - c) OPS:

## 7. Formats for Data Analysis

It may be noted here that wherever possible and necessary, the formats have been provided with sample data input in those.

### 7.1. Format for Problems and Details

The data obtained regarding the problems and other details concerning various components of the SWM system could be summarized with the following format. It could be used for the data obtained from:

- a. the resident survey,
  - b. information from system inspection,
  - c. information from the system interviews, and
  - d. information obtained from the key informants,
- regarding the multiple aspects of the six components of the SWM sector.

The objective of this format is to identify the various aspects of the problems, based on the perspectives of various stakeholders who are the respondents or data sources.

Type of waste: HH or Bulk MSW/ BMW/ e-waste/ industrial <sup>9</sup>					
No.	Aspects of problem detailing	Answers (as per the response to the relevant questions from the questionnaire)			
		As per the residents	As per the system inspection observation	As per the system staff	As per the other respondents
1	Problems related to The Component <sup>8</sup>				
2	Names of areas where the problem(s) is/are observed				
3	Extent of the problems in terms of various parameters (social, economic and geographical) related to The Component				
4	Coping strategies adopted for problems in The Component				
5	Effects of the problems related to The Component				
6	Effects of each Component's coping strategies on the residents				
7	Effects of the problems and the residents' coping strategies on other municipal services				

**Table 20 Format for snapshot of problem detailing related to SWM Components**

### 7.2. Formats for Existing SWM System Situation

The existing situation of the SWM system in the city may provide valuable insights to why certain problems exist, in other words, the causes for the problems.

#### 7.2.1. Existing situation of the SWM system – extent and existence

The data obtained from area survey, system inspection and informant interviews could be arranged in the following format, to identify the overall extent of service existence in the city/ town.

<sup>8</sup> The Component would be one of the six mentioned in the previous table: segregation, collection, transport, treatment, recycling and disposal. Thus, there will be six tables for each type of waste stream being studied.

The number of areas where the extent and existence of SWM related service provision is to be studied, can be extracted from the header of the questionnaire for residents — from section 2.1 — and from the transect walk related information, collected in line with section 4.1.

The objective here is to bring out the inequity in service existence, based on the area distribution. This may be juxtaposed with the other extents of the problems, as seen in the relevant section, to further highlight the exclusion of residents from certain class/ caste/ region being excluded from the service provision mechanism.

Type of waste: HH or Bulk MSW/ BMW/ e-waste/ industrial <sup>9</sup>						
No.	Component	Service exists		No service exists		Total sample size (total no. of areas surveyed)
		Number of areas <sup>10</sup>	Percentage of areas (frequency * 100 / total sample size)	Number of areas	Percentage of areas (frequency * 100 / total sample size)	
1.	Segregation					
2.	Collection					
3.	Transportation					
4.	Treatment					
5.	Recycling					
6.	Disposal					

**Table 21 Format for snapshot of the existing SWM situation**

### 7.2.2. Grievance Redress Mechanism

The following format could be used to summarize the situation related to the grievance redress mechanism in the town. The objective of the format is to bring out how effective the grievance-redress mechanism in the SWM system of the city is, if at all it exists.

Type of waste: HH or Bulk MSW/ BMW/ e-waste/ industrial <sup>9</sup>								
No.	Waste management component	Grievance redress mechanism (as per residents, key informants, system staff and other sources of information)						
		No. of staff responsible for GR	Designation of GR staff	Frequency of accepting grievance applications	Time required for acknowledging grievance receipt	Approving authority for grievance redress	Mechanism to track the status of grievance	Time required for addressing grievance
1.	Segregation							
2.	Collection							
3.	Transportation							
4.	Treatment							
5.	Recycling							
6.	Disposal							

**Table 22 Format for snapshot of situation of grievance redress mechanism**

No.	Level of staff <sup>11</sup>	Source of data	Strength			Qualification of staff			Role and function of staff		
			MC	Contractor	OPS:	MC	Contractor	OPS:	MC	Contractor	OPS:

<sup>9</sup> A separate table should be prepared for each type of waste

<sup>10</sup> Some sources may yield direct % answers for these headings

<sup>11</sup> Only for illustration here. The actual staff levels should be added/ removed based on the situation

			Strength			Qualification of staff			Role and function of staff		
1.	Workers	1. As per the residents :									
		2. As per system staff									
		3. As per key informants									
		4. As per the documents									
2.	Supervisors	(source wise recording as above)									
3.	Sanitary inspectors										
4.	Health officers										
5.	Head of the department										
6.	Manager										
7.	Plant operator										
8.	Driver										
9.	Plant supervisor										
10.	Monitoring or penalizing officer										
11.	Staff for monitoring and/or regulating private sector participants										

**Table 23 Staffing at the SW managing entities**

### 7.2.3. Technical Details of the SWM System

The data obtained about the technical details of the system, could be consolidated using the following format.

The objective of the format is to compare what level of technical competence of the system is witnessed by the residents at the ground level, to that planned or assumed by the system itself.

Type of waste: HH or Bulk MSW/ BMW/ e-waste/ industrial <sup>14</sup>			
No.	Aspect	Details <sup>12</sup>	
		Total	Per ward

<sup>12</sup> As applicable, one of the columns could be blank/ the heading applicable could be modified

		As per the residents	As per system staff	As per the residents	As per system staff
1.	No. of collection vans (ghantagadi)				
2.	Capacity of collection van (Tons)				
3.	No. of collection staff				
4.	No of collection staff per vehicle				
5.	No. of transfer stations				
6.	No. of community bins				
7.	No. of transport vans				
8.	Capacity of each transport van				
9.	Other technical parameters				

**Table 24 Format for recording the technical details of existing SWM system**

### 7.3. Format for work schedule and priority

The following format could be used to summarize the data regarding the operation of the current SWM system in the town. This data is obtained from the system staff. The objective here is to identify whether at all there is any regularly planned work happening, and the factors that influence the work prioritization when it comes to the actual work happening on ground.

No.	Work	Whether done on a regular basis or as needed	What decides the need to do certain work	Priority level (high/medium/ low)
1.				
2.				

**Table 25 Format for snapshot of regularly done and contingent work**

The following format could be used to record the scheduling adopted for the work carried out for each component of the waste management system. The objective of this table is to bring out any existing mismatch between vitally interlinked components of the SWM system. For example, if the waste collection timing by a contractor stretches from 10AM to 12 noon, and the transportation by the MC is carried out only between 7AM to 9AM, it directly translates into that the waste collected lies unattended for at least 19 hours.

Type of waste: HH or Bulk MSW/ BMW/ e-waste/ industrial <sup>14</sup>							
No.	Mechanism for components	Start time			End time		
		MC	Contractor	OPS	MC	Contractor	OPS
1.	Collection						
2.	Segregation						
3.	Transportation						
4.	Treatment						
5.	Recycling						
6.	Disposal						

**Table 26 Format for recording work scheduling**

#### 7.3.1. Works completed and expenses incurred for those

This data could be obtained from the budgets and expenses related sections from either the Town Level Background Note, or the relevant documents obtained directly from the ULB.

The objective of this format is to bring out the effectiveness of the works carried out and steps taken to prevent or solve problems in the SWM sector. It also captures the often occurring incidents of new problems being created out of solutions intended to solve certain other problems.

Additionally, it also tries to highlight if the funds spent for certain steps were justified at all.

Type of waste: HH or Bulk MSW/ BMW/ e-waste/ industrial <sup>14</sup>						
No.	Year	Works carried out	Expenses	Problems that were intended to be solved/ prevented due to the works	Were the problems really solved or prevented?	New problems created after the works were completed <sup>13</sup>
1	2005-06	Purchase of collection vehicles				
...	.....	Salary of workers				
5	2009-10	Payment to third party (details)				
		Construction of treatment plant				
		Land allotment/ acquisition (details)				
		Expenses on awareness building campaigns				
<b>Total expenses incurred during last 5 years</b>						

**Table 27 Format for summarizing and assessing the works completed**

#### 7.4. Formats for Cause Analysis and Detailing

##### 7.4.1. Lapses/ gaps in the documents as causes of the problems

The internal compliance reports of the ULB, prepared by the health department, should be analyzed to understand the following:

- Problems in the town identified by the health department:
- Solutions proposed and implemented by the department:
- Problems that still remain unsolved:
- Possible reasons for the problems that were not solved by those measures:

This format enables the gaps in the self monitoring of the system. For example, in case of a pilot town taken up for the study, it was observed in the internal compliance reports that instructions to segregate the waste at household level have been issued to the residents. On the other hand, the residents reported that there is no mechanism to monitor or even issue instructions to segregate the household waste at the source.

##### 7.4.2. Problem causes and their details

The following format could be used to consolidate the causes reported by various respondents/ stakeholders of the SWM system. This shall enable taking a single overall view of how the same problems could be

<sup>13</sup> The time since the problems have existed, known from the relevant questionnaires will be the input to this column

perceived by different entities as springing from different levels. The culprits and interests identified by the respondents and summarized here shall form a part of the input to prepare the causal tree, as in Figure 5.

Type of waste: HH or Bulk MSW/ BMW/ e-waste/ industrial <sup>14</sup>							
No.	Cause reported, by sources	SWM system component	Causes reported	Type of cause (administrative / financial/ technical/ political/ geographical/ social/ other to be specified)	Problem(s) associated with the cause	Culprit responsible for the cause	Interests in perpetrating the cause
1	1. As per residents 2. As per system staff 3. As per key informants 4. Documents	Segregation					
2	(source wise classification as above)	Collection					
3		Transportation					
4		Treatment					
5		Recycling					
6		Disposal					

**Table 28 Format for summary of the causes giving rise to corresponding problems**

## 7.5. The Causal Tree Format: Organization and Assessment of Causes

### 7.5.1. Preparing the Causal Tree

Based on the problems and the cause related data summarized in the earlier sections, a causal tree should be prepared, identifying the linkages between the problems, their causes, the further causes and pointing towards the core maladies responsible for the problems. The format in Figure 5 is a general format for the causal tree. A sample branch of the causal tree has been filled in, for illustration purpose. The following format could be used to collate all problems vis-à-vis all causes reported for those problems:

No.	Problems (related to all components of the SWM system)	Causes (all types of causes, viz. geographical, social, political, technical, financial and administrative)
1.	Irregular collection	
2.	Faulty transportation	
3.	No treatment of waste	

**Table 29 Format for collating all problems and causes**

It may be noted here that some of the aspects of the problem detailing may be directly translating to being the causes of the problems.

Additionally, it may be noted that the formats designed to facilitate the preparation of the causal tree may not appear in the RSLP as such.

<sup>14</sup> A separate format for each stream of waste (MSW/ BMW/ e-waste etc.) could be prepared, depending on the interconnection and dependence of the problems, causes related to one stream, to those related to the other stream/s.

### 7.5.2. Collating and organizing exclusive causes

Based on the causal analysis and the organization so far, the various causes of problems faced by the residents should be assessed for mutual exclusivity. The following format could be used for the same. The inputs to this format would be the consolidated, exclusive causes list, emerging from the Causal Tree. The objective of this exercise is to identify cause components that operate at a level from where a number of different problems are caused. The solutions proposed should ideally address and eradicate these root level causes.

Type of waste <sup>14</sup> :						
No.	SWM system component	Problem	Type of cause (administrative/ financial/ political/ social/ geographical/ technical/ other to be specified)	Further cause	Further cause(s)	The exclusive cause, root cause or malady that needs to be treated (may be common across components)
1.	Generation and segregation					
2.	Collection					
3.	Transportation					
4.	Treatment					
5.	Recycling					
6.	Disposal					

**Table 30 Organizing causes of problems for causal tree**

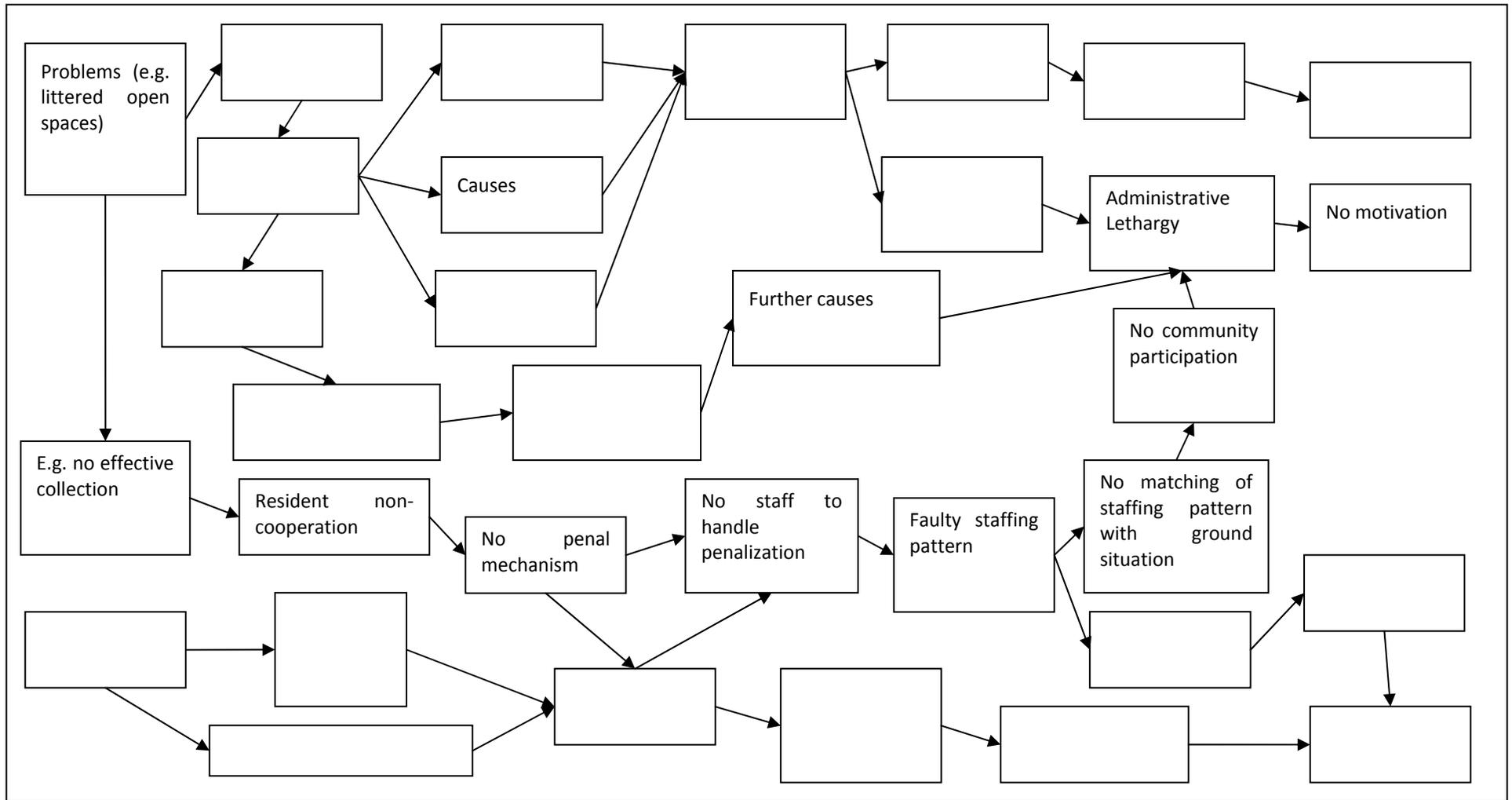


Figure 5 Format for the causal tree<sup>15</sup>

<sup>15</sup> A separate causal tree should be prepared for each waste stream, i.e. MSW, BMW, e-waste, industrial or hazardous waste etc. Also, the entries in the tree here are only for illustration purpose

### 7.6. Options for Solutions

The following format could be used to summarize all options suggested by various respondents/ stakeholders of the SWM system in the city. The objective of this format is to compile various perspectives on possible ways of solving the problems. It essentially also provides a platform to initiate a MSD, in terms of being able to juxtapose perspectives of various stakeholders towards the possible solutions, enabling them to perceive the issues and challenges, along with opportunities involved, from their own standpoint.

Type of waste <sup>14</sup> :					
No.	Cause(s) reported	Desired results to eradicate the cause			
		As per residents	As per workers	As per key informants	As per other system staff
1	Corruption and lack of willingness to work, political influence on the work <sup>16</sup>	Strong steps against corruption	Ensuring sufficient payment to workers, encouraging workers to perform better	Public participation and increased system accountability	Imposing user charges to ensure financial viability of the system
2					
3					
4					
5					
6					

**Table 31 Format to record desired results to eradicate the causes to problems**

### 7.7. Options Assessment

The following format bridges the desired results obtained from the previous section, with the options for achieving those results. The inputs to this format have already been given by various respondents during the data collection exercises.

Desired results to solve the problems of the town's SWM sector	Options for achieving the results
Financial strengthening of the ULB	Improving property tax as a revenue source
	Implementing user charges mechanism for the SWM system

**Table 32 Format for options assessment**

### 7.8. SWOT Analysis

This section aims to identify:

- a. Strengths and weaknesses of the town as a ULB to be able to implement and carry out the solutions proposed or underway, and
- b. Opportunities and threats presented by the solutions implemented/ underway.

<sup>16</sup> Indicative input currently. Rows with appropriate content should be added on these lines.

### 7.8.1. Strengths and weaknesses in terms of adopting the solutions

Keeping in perspective the solutions from the previous section, the following table attempts to assess the strengths and weaknesses of the ULB.

Aspect	Strengths			Weaknesses		
	Of the town or the ULB	Of the local academic institution	Of the community based organizations	Of the town or the ULB	Of the local academic institution	Of the community based organizations
Geographical	1. Picturesque location, highly liveable conditions that may invite large community base 2. 2ha. 17are land readily available for waste treatment plant	No data		Seclusion from the highway or the nearby strong development centres		
Social						
Political						
Financial						
Administrative						
Technical						

**Table 33 Strengths and weaknesses of local entities**

### 7.8.2. Opportunities and threats from the reform initiatives

The following format attempts to capture the details of the opportunities or threats posed by the reforms initiatives, for the town's SWM sector.

Reforms	Opportunities <sup>17</sup>	Threats	Prerequisites to ensure opportunities	Steps to mitigate the threats
1. Issue of Bonds by the ULB for raising funds	<p>1. Raising funds from the market could act as an additional source of funds for the ULB.</p> <p>2. Due to the inherent financial nature of fixed returns being payable on bonds, the funds raised through bonds carry an increased level of accountability to the stakeholders.</p>	<p>1. Considering the overall relative lack of commercial and economic activity in the town, the bonds issued by the ULB are likely to elicit a weak response.</p> <p>This is further aggravated by the fact that a former council member of the ULB has been arrested for the bankruptcy of his financial institution. This, combined with the overall economic standing of the council raises serious concerns about the credibility of the council.</p> <p>2. The obligation to provide fixed returns on the bonds may result in a compulsive user charge mechanism to recover the O&amp;M costs of the projects implemented by the ULB.</p>	Building capacity of the ULB officials and staff to handle the required work for this	Building through transparent and accountable working of the council, an image of a credible institution which could in the future go for issuance of bonds.
2. Reforms introducing other sources of funds (Property Tax, User Charges for O&M cost recovery, and Rationalized Stamp Duty)				
3. Introduction of Double Entry (Accrual Based) Financial System				
4. Introduction of Internal Earmarking of funds for providing basic services to urban poor				
5. Encouraging Public-Private Partnerships (PPPs)				
6. 74th Constitutional Amendment Act				

<sup>17</sup> Only an indicative row given here for example.

Reforms	Opportunities <sup>17</sup>	Threats	Prerequisites to ensure opportunities	Steps to mitigate the threats
7. Community Participation Law				
8. Public Disclosure Law				
9. City Planning as a function of the ULB				
10. Introduction of E-governance (GIS/MIS)				
11. Ensuring delivery of basic services				
12. Structural Reforms				
13. Administrative reforms				
14. Repeal of Urban Land Ceiling Act	No direct relevance			
15. Reforming rent control laws	No direct relevance			
16. Building by laws to streamline construction approval process	No direct relevance			
17. N.A. simplification	No direct relevance			
18. 25% earmarking of land for poor for housing (LIG/MIG)				
19. Computerization of registration of land and property				
20. Property title certification system	No direct relevance			
21. Security of tenure				
22. Bylaws for waste-water recycling				
23. bylaws for rainwater harvesting	No direct relevance			

**Table 34 Feasibility Analysis of Reforms for the ULB (In prevailing conditions)**

### 7.8.3. Opportunities and threats from the new staffing pattern

As part of the structural and administrative reforms, the staffing at the ULB also would be altered. The following table summarizes its contents and also the impacts possible on the town's SWM sector.

No.	Position / Post	No. of permanent Posts	No. of temporary Posts	Component of the SWM system that will be affected due to such staffing (segregation/ collection/ transportation/ treatment/ recycling/ disposal)
1.	Sanitary inspectors <sup>18</sup>	1 (class 3)		A single sanitary inspector handles the SWM related work in the town, and it was also reported that the same staff member is also responsible for issue of domicile certificates, birth/ death certificates etc. additional responsibilities.
2.	Health officers			
3.	Head of the health department			
4.	Supervisors			
5.	Workers (total)			
6.	Street sweepers			
7.	Drivers			
8.	Other staff related to SWM system			

**Table 35 Effects of the staffing pattern in the ULB on the SWM sector**

### 7.8.4. Opportunities and threats from on-going and proposed initiatives – the project DPR

The Ministry of Urban Development, issued guidelines as to what should be contained in a project DPR, for solid waste management. The following format summarizes a comparison of the DPR, with these guidelines, to identify the standing of the DPR in terms of adequacy and compliance.

<sup>18</sup> Only indicative input recorded here. Actual information shall be sought from the staffing pattern and input in the format.

Importance of the component	If the DPR contains the relevant aspects, what are the steps required to ensure their effectiveness?	If not <sup>****</sup> , steps needed to compensate for such shortcoming of the DPR
<b>Components specified from CPHEEO manual and JNNURM Guidelines</b>		
Population projections of the city over the project life period		
The amount of waste generated and hence the project capacity required depends directly on this	The area-wise pattern of population growth also needs to be forecasted, to ensure proper waste collection.  In one town's case, the statement and estimates of the DPR contain those for another council. (Table 1 in the annexure of the DPR)	
Present condition of the city, population and area covered by the existing SWM system		
The applicability of modifications/ improvements suggested in the DPR would be based on this.		
Justification/ need for the proposed SWM project		
Principle of accountability towards the stakeholders of the project is reflected in this component		
Soil characteristics, topography, geology of the city; groundwater tables in different seasons,		
Waste management components such as transportation, treatment and land filling have direct and important connections with soil, groundwater etc resources.		
Environmental Impact Assessment		
The project planning phase should consider the impacts the project will have on its surroundings		
Report of field study covering the quantity and quality of various types of wastes generated in the city, and the technical parameters of the existing SWM system		
Each type of waste requires dedicated management mechanism. The DPR must acknowledge this fact.		
Analysis of options possible for waste management and selection of appropriate alternative; justification of the mechanism and machinery required for waste management; Detailed design and drawings of various waste management components		

<sup>\*\*\*\*</sup> The document by the title of DPR with the study team does not contain this information

Importance of the component	If the DPR contains the relevant aspects, what are the steps required to ensure their effectiveness?	If not <sup>****</sup> , steps needed to compensate for such shortcoming of the DPR
This is also a part of the transparency and accountability in the decision making process.		
Benchmark-based justification for land requirement for treatment/ segregation facilities		
Important as a part of mechanism to ensure accountability towards the land provision by state government for SWM projects.		
Detailed plans for operation of the project, treatment of leachate, public awareness measures, issues for capacity building, community participation etc		
Apart from a competitive establishment of the project, sustainable operations and management of the project is an equally important thing. Well thought out decisions are needed to ensure that.		
<b>Additional components to be assessed</b>		
Typographical mistakes		
The DPR should be accurately prepared, reflecting the efforts put into preparation		
Validity of judgments and analysis – existing situation of solid waste in the town		
The report says (page 2) that "Sample has been given to Laboratory and waiting for report" and still the composition has been provided. The details of which laboratory was trusted the job of analysis etc have not been provided.		
Comparison of the norms required according to the type of waste generated, the population etc., to the existing situation needs to be provided in the document to justify the recommendations in the report (page 4)		
Capturing of the actual situation in terms of informally transferred workers, on ground worker problems, on ground situation of community participation needs to be properly captured to ensure the effectiveness of the project.		
All action points including the recommendation based on joint sanitary landfill with nearby Council		

**Table 36 Comparison of the project DPR to the stipulated requirements**

## 7.9. Charter of Demands, with Multi-Stakeholder Dialogue (MSD)

The formats from the previous section/s as applicable should be discussed at the multi-stakeholder dialogue, and the points raised with respect to the various aspects captured in those should be noted down and mapped with those.

### 7.9.1. Burning Issues for the MSD

The following format summarizes the burning issues that have been observed, and need elaborate discussion during the MSD.

No.	Issue	Source
1.	A total of over Rs. 1 crore has been spent on solid waste management over last three years. Considering the capacity of the system required for handling the town's solid waste (around 7.5 TPD), was this expenditure justified?	The documents, recording the expenses incurred.
2.		

Additionally, the following format could be used to prioritize the options, based on the multi-stakeholder dialogue. The mapped responsibilities of various entities in the city will serve as the directive list of demands. The steps needed to effectively implement the options need to be devised based on the SWOT analysis carried out in the relevant section.

No.	Selected option(s)	Steps needed to effectively implement the option(s)	Responsibility of various entities in taking those steps			
			ULB	LAI	CSOs	Residents
<b>Short Term Demands</b>						
1.						
2.						
3.						
<b>Long Term Demands</b>						
1.						
2.						
3.						

**Table 37 Option selection and responsibility mapping based on multi-stakeholder dialogue**

## 8. Knowledge and Information Resource

This chapter of the TRK presents a brief about the various aspects of solid waste management.

### 8.1. Solid Waste Management

There is an enormous amount of literature available, to understand solid waste management. This section attempts at giving a very brief overview to the waste management process, highlighting key aspects.

#### 8.1.1. Generation and Segregation

Solid waste generation is the root of the management system. It influences the entire management system through the quantity and quality of waste generated. According to a wide number of studies available, the per capita household waste generation is estimated at 300 grams a day, and upwards of 50% of this waste is said to be bio-degradable. It is also said that no sufficient or comprehensive data is available for the generation rates of other types of waste. Inability to estimate the amount of waste generated to be handled by SWM projects is said to be a chief problem for many projects.

Waste segregation is said to be an important aspect, especially from the collection and treatment point of view. Additionally, the non-biodegradable waste can be collected less frequently than the bio-degradable waste. Overlooking this component due to lack of waste segregation is said to lead to an unnecessary burden on the waste collection system.

Also, the recent dramatic changes in both, the amount and the composition of waste in India, especially the inclusion of e-waste, have further aggravated the problems associated with solid waste management systems.

#### 8.1.2. Collection and Transportation

Proper waste collection has been highlighted as an issue, through a widely reported low to medium waste collection efficiency (the ratio of waste collected/ waste generated) in a number of cities across India and also abroad. Despite objective monitoring parameters such as the visual impact of non-collection of waste and a measurable parameter such as the collection efficiency, a number of towns are still observed and reported to be plagued with the problem of littered neighborhoods.

Lack of awareness and sensitivity amongst the community to cooperate with the SW collection mechanism is reported to be an issue.

As a solution, most of the studies report increase in the extent and efficiency of the waste collection mechanism. However, at the same time, the role of unorganized sector in reducing the burden on waste collection mechanism, and also the issues involved in the handling of labor employed for waste collection are key aspects. Lack of facilities to such (both, organized and unorganized) labor, corruption, lack of user support are said to be further on-ground issues that need consideration.

#### 8.1.3. Treatment

Treatment of waste is observed to be the most technology-intensive step of the waste management process. A number of alternatives broadly classified into waste to energy (WTE) and composting are available and continuously under development.

While a lot of literature is available about the numerous waste treatment technologies, a key aspect of consideration is the environmental sustainability of a treatment option, vis-à-vis the time required to treat the waste with such an option. For example, studies show that over 50% of India's solid waste is bio-degradable and hence can be converted into compost. In wake of that, it is said that waste incineration projects that directly use waste as fuel, are not an appropriate option, because of the non-utilization of compost potential and also the pollution caused by indiscriminate incineration of waste to produce energy.

However, advancements in terms of rapid composting and increasing the efficiency of bio-gas production by waste treatment are the overall areas that are said to gain an increasing focus.

#### 8.1.4. Recycling

According to a number of studies, the recent increase in the amount of plastics and other recyclable material in solid waste has resulted in an increased importance of the recycling stage of the waste management process. However, at the same time, it is observed that most of the recycling is handled in India through unorganized sector. In most of the towns, a number of members of the unorganized recycling sector were reported to be working in sub-human conditions at open waste dumps, and even deaths resulting from ailments contracted due to such work were reported.

It is thus observed that recycling has umbilical connections with waste segregation, not only in terms of technology, but also social implications of the same.

#### 8.1.5. Disposal

A number of environmental issues related to land, water and air pollution due to improper waste disposal, and the range of technological alternatives to handle those, have been widely discussed across all the discourse available regarding solid waste management.

At the same time, the social implications of the same cannot be ignored. For example, it was reported in the news that ladies refused to marry men residing in a village where a large city dumped its waste in Maharashtra, on account of the nuisance besetting the entire village.

It is reported that most of the ULBs have still not taken steps to ensure scientific and sustainable waste disposal, long after the deadline set by the MSW (M&H) Rules, 2000, for them to do so.

### 8.2. Urban Reforms and Solid Waste

#### 8.2.1. India – Policy History

The 74<sup>th</sup> Constitutional Amendment Act is considered as a reform by means of which the ULBs became autonomously responsible for basic service provision, of which SWM was made a part.

##### *The traditional approach to SWM*

The regional municipalities acts in force entrusted with the ULBs, the responsibility of keeping the municipal limits clean. However, it can be noted that such responsibility was limited to the waste collection and transportation away from the source. The following table summarizes the provisions related to SWM, from a number of regional municipal acts:

Act (the amendment year in brackets)	Summary of the provisions
Mumbai Regional Municipality Act, 1949 (1984)	<ol style="list-style-type: none"> <li>1. Responsibilities of the municipality:               <ol style="list-style-type: none"> <li>i. To transport and dispose all kinds of solid waste</li> <li>ii. To ensure cleanliness of all roads and community bins</li> <li>iii. To charge a fine equal to the cost of waste collection, from those waste generators who do not ensure their waste reaching the municipality's collection mechanism</li> </ol> </li> <li>2. Responsibilities of waste generators:               <ol style="list-style-type: none"> <li>i. To ensure their waste reaches the municipality's waste collection mechanism</li> <li>ii. To ensure no nuisance is caused to anyone while fulfilling responsibility (i)</li> <li>iii. To maintain cleanliness in the respective premises</li> </ol> </li> <li>3. No person can perform the task of collecting or transporting waste</li> </ol>
Rajasthan Municipality Act, 1954 (1980)	
Gujarat Municipality Act, 1963	
Maharashtra Municipality Act, 1965 (1980)	

Act (the amendment year in brackets)	Summary of the provisions
Goa, Daman and Diu Municipality Act, 1968 (1994)	without the permission from the municipality

**Table 38 Summary of provisions related to SWM from Municipal Acts**

A number of task force and expert reports were also published, that concentrated on the collection, transportation and treatment aspects of SWM. Very little or no emphasis seems to have been laid on the control of generation of solid waste. Also, by and large, the onus of recycling of waste has been explicitly passed on to the NGOs and other community based organizations. This responsibility is also said to be of the nature of 'supporting waste pickers that play an important role in recycling of waste'.

#### **Currently applicable rules and regulations**

Based on a number of efforts to improve the SWM situation in the country, including the most prominent ones by Ms Almitra Patel, a number of rules were promulgated. The following table attempts to capture a brief of such rules.

Rules	Brief of the provisions
Municipal Solid Waste (Management and Handling) Rules, 2000	<ol style="list-style-type: none"> <li>1. The Maharashtra Pollution Control Board is the monitoring authority for the rules</li> <li>2. Regular submission of compliance reports by the ULB to the PCB</li> <li>3. Proper SW treatment and disposal systems to be established by the ULBs before December 2003</li> <li>4. Scientific waste collection, transport and treatment, along with minimizing human handling of waste and attempting to reduce waste generation</li> <li>5. Technical parameters and standards for landfills, incineration facilities etc.</li> </ol>
Biomedical Waste (Management and Handling) Rules, 1998	<ol style="list-style-type: none"> <li>1. Technical details and standards with which the BMW treatment facilities should comply</li> <li>2. Institutional structure comprising a committee to monitor the enforcement of the rules</li> </ol>
Maharashtra Non-biodegradable Waste Ordinance, 2006; including the Maharashtra Plastic Bags (Manufacture and Usage) Notification, 2006 and Non-biodegradable Waste (Proper and Scientific Collection, Segregation and Disposal Within Municipal Limits) Notification, 2006	<ol style="list-style-type: none"> <li>1. Dedicated mechanisms should be established by the ULBs to handle the non-biodegradable waste</li> <li>2. The State may regulate the manufacturing and usage of such non-biodegradable materials</li> <li>3. Technical details of the kinds of plastic allowed to be manufactured and used have been included in the ordinances.</li> <li>4. Regulations regarding periodic submission of compliance reports are also a part of the ordinances and notifications.</li> </ol>
Circular for Transfer of Government Land to ULBs for Solid Waste Treatment and Disposal, September 2 <sup>nd</sup> , 2003	The District Collector is empowered to transfer government lands to the ULBs for the purpose of solid waste treatment and disposal.
Government's decision to establish district-level committees to ensure proper enforcement of the MSW (M&H) Rules, 2000	The committee shall assist the ULB in selection of site and establishment of proper landfill facilities, among other things.
Government Resolution of Feb. 20 <sup>th</sup> , 2004 to establish waste handling facilities from the local development funds of MLA/ MLC	The development funds with the MLA/ MLC are allowed to be utilized for establishment of solid waste management facilities.

**Table 39 Briefs of currently applicable solid waste related regulations in Maharashtra**

## 8.2.2. Reforms-regime and its direct impacts for the SWM sector

The regime of reforms launched as a part of the JNNURM encompasses the UIDSSMT as well, of which SWM is an integral part. The following table attempts at summarizing what are said to be the direct impacts of various reforms, for the SWM sector.

Reforms	Implications for the SWM (solid waste management) sector
<b>Finance Related Reforms</b>	
1. Issue of Bonds by the ULB for raising funds	<ol style="list-style-type: none"> <li>1. Raising funds from the market would act as an additional source of funds for the ULB, and may aid ULB's contribution to the PPP and other initiatives requiring investments.</li> <li>2. Due to the inherent financial nature of fixed returns being payable on bonds, the funds raised through bonds carry an increased level of accountability to the stakeholders.</li> <li>3. Additionally, the obligation to provide fixed returns on the bonds may result in a compulsive user charge mechanism to recover the O&amp;M costs of the projects implemented by the ULB.</li> </ol>
2. Reforms introducing other sources of funds (Property Tax, User Charges for O&M cost recovery, and Rationalized Stamp Duty)	<ol style="list-style-type: none"> <li>1. While the rationalization, PT<sup>20</sup> may reduce cases of property tax payment evasion, linking of property tax with locality may raise issues related to equity of service provision in particular areas. For example, the level of basic service provision such as SWM, water supply or sewage should ideally be uniform across all areas of a city; however, the difference in PT payments made by residents of different localities may result (informally at the political level in the ULB) in differences between the level of service provision across different areas.</li> <li>2. Establishment of accountability of the ULB to the residents through a clear relation between user charges and SWM system provision may boost revenues. A well regulated user charges mechanism is a key, though.</li> <li>3. Direct inclusion of high end technology (such as GIS) in property tax mechanism may mean upping the tax for many payers, necessitating a mechanism to ensure equity in property tax charging.</li> </ol>
3. Introduction of Double Entry (Accrual Based) Financial System	<ol style="list-style-type: none"> <li>1. With the introduction of this, it may be more transparent and direct to assess the health and effectiveness of the SWM system and also the ULB. However, such judging may require a higher level of knowledge of accounting as a field.</li> </ol>
4. Introduction of Internal Earmarking of funds for providing basic services to urban poort	<ol style="list-style-type: none"> <li>1. This reform may mean bringing the poor localities in the service ambit, unlike the currently observed situation at many towns covered under the study.</li> </ol>
<b>Finance and Governance Related Reforms</b>	
5. Encouraging Public-Private Partnerships (PPPs)	<ol style="list-style-type: none"> <li>1. Commercialization through privatization of municipal services such as SWM, may put burden of user charges on the users.</li> </ol>
<b>Governance Related Reforms</b>	
6. 74th Constitutional Amendment Act	<ol style="list-style-type: none"> <li>1. Among other things, the ULB has been made totally responsible for SWM services by this act. This may result in a direct accountability of the locally selected government body to its residents, for service provision.</li> </ol>
7. Community Participation Law	<ol style="list-style-type: none"> <li>1. Better decision making (e.g. what kind of systems will perform better for particular areas) has been made possible through direct community participation, vis-à-vis the current closed-doors system.</li> <li>2. Through participation and inviting comments from the community stakeholders,</li> </ol>

<sup>20</sup> Property Tax

Reforms	Implications for the SWM (solid waste management) sector
	<p>the equity principle may find more space in the decision making process.</p> <p>3. Through community participation in decision making, the self accountability of the citizenry may be enhanced. (For example, if a decision is made to enforce source segregation of waste, if residents are a part of the decision made, they are more likely to comply) This may result in better system operation.</p>
8. Public Disclosure Law	<p>1. Establishing Public Consumption Standards is a part of the steps to be taken for this reform. Such standards may be extended to the SWM system, translating possibly to the upper limit on how much waste could be generated.</p> <p>2. Increased accountability towards public through regular voluntary disclosure of information by the relevant governing bodies would help mitigate the helplessness expressed by the citizenry, towards the decision making framework, and the corruption giving rise to service failures, including those of SWM system.</p> <p>3. Key and far-reaching decisions such as the site of the SW treatment plant, collection mechanism to be implemented could be invited public opinion on, through information disclosure. This may result in avoiding delays arising out of improper planning and grievance redress in the relevant conditions.</p>
9. City Planning as a function of the ULB	1. Advance planning for a suitable system of SWM, and the DCRs <sup>21</sup> required for that as part of the city planning, may address the inequity- and inefficiency- related problems.
10. Introduction of E-governance (GIS/MIS)	<p>1. Enabling remote grievance registration without personal contact, vis-à-vis the current situation where residents hesitate/ are unable to visit the ULB themselves, may improve the resident feedback mechanism.</p> <p>2. At the same time, such a reform may translate in abolition of mechanism for grievance registration in person, thereby alienating the residents who do not have access to communication modes such as the internet.</p> <p>3. Better monitoring of systems by higher-ups in the hierarchy may be possible.</p>
11. Ensuring delivery of basic services	1. Ensuring SWM will also be covered as a basic service, and this may mean ensuring accountability through service provision to all residents, and also through a well functioning grievance redress mechanism, by the ULB.
12. Structural Reforms	1. Creation of cadres for class 2 and class 3 staff may address problems arising out of locally vested interests of staff such as those of health inspector, head of the health department, sanitary inspector etc.
13. Administrative reforms	1. Overall improvements in transparency and accountability may be achieved, possibly contributing to effective services provision.
<b>Land or Housing Related Reforms</b>	
14. Repeal of Urban Land Ceiling Act	No direct relevance
15. Reforming rent control laws	No direct relevance
16. Building by laws to streamline construction approval process	No direct relevance
17. N.A. simplification	No direct relevance
18. 25% earmarking of land for poor for housing (LIG/MIG)	1. Studies carried out in a number of towns showed that a significant contribution to a city's SWM problems originated in illegal settlements, especially of economically weaker sections. Earmarking of land for housing of those may ensure identification of poor settlements, thereby possibly translating to avoidance of exclusion of such areas from SWM provision.

<sup>21</sup> Development Control Regulations

Reforms	Implications for the SWM (solid waste management) sector
19. Computerization of registration of land and property	1. A possibly simplified property registration mechanism through remote systems may ensure property identification, further resulting in avoidance of unregistered properties, improving tax collection and the overall financial health of the ULB.
20. Property title certification system	No direct relevance
21. Security of tenure	1. Illegal settlements, especially of the economically weaker sections, may be avoided as a result of this reform. Ensuring SWM service provision to those may thus be achieved.
<b>Non-drinking Water Related Reforms</b>	
22. Bylaws for waste-water recycling	1. An improved drain management is an implicit prerequisite for this reform. Such improvement may aid the SWM service provision, through avoidance of dumping of waste in drains.
23. bylaws for rainwater harvesting	No direct relevance

**Table 40 Brief of implications on SWM of reforms under the JNNURM regime**

### 8.2.3. Indirect impacts of the reforms-regime

Many of the reforms that do not affect the SWM system directly nevertheless have a number of indirect impacts.

1. The enforcement of accrual based accounting systems may improve the clarity in assessing the feasibility of certain projects, involving any waste management stage.
2. To ensure IT enabled governance infrastructure, a large amount of skill set and investments are required, which are intended to be brought in via private sector participation. Such reforms that involve a radical shift to infrastructure-intensive operations are said to be industry-friendly.
3. The structural and administrative reforms, at the same time, may result in a dearth of staff, necessitating private sector participation in the service provision.
4. Such commercialization and privatization of basic services such as SWM may have issues such as no service provision to the residents who cannot afford the service.
5. Streamlining and simplification of construction activities in the municipal limits are said to further fuel the process of rapid urbanization, likely to increase the pressure on the urban service provision mechanism. This also translates to an added burden on the solid waste management system.

### 8.2.4. Steps taken in the recent past

A release from the Press Information Bureau, Government of India, dated March 5, 2010 states<sup>22</sup>:

"The Government is aware of the growing problems faced by Metros and big cities in management of solid waste. Government of India has initiated following actions:

- The Ministry of Environment and Forests, Government of India, has notified the 'Municipal Solid Waste (Management and Handling) Rules, 2000' which has specific directives to the urban local bodies for proper and scientific management of municipal solid waste.
- The Ministry of Urban Development has published a Manual on Municipal Solid Waste Management in May, 2000 to assist ULBs in management of municipal solid waste.
- A Task Force set up by Ministry of Urban Development in March, 2003, has furnished its report on "Integrated Plant Nutrient Management".
- Under the Twelfth Finance Commission an award of Rs. 2500 crores was made to urban local bodies for the management of solid waste in all Class I cities in the country during the period 2005-10.

<sup>22</sup> Source: [http://www.pib.nic.in/release/rel\\_print\\_page1.asp?reid=58987](http://www.pib.nic.in/release/rel_print_page1.asp?reid=58987)

- A Pilot project on Solid Waste Management and Drainage scheme in ten selected airfield towns is being implemented at a total cost of Rs.130.67 crores. Six projects have been completed /commissioned and four projects are at various stages of completion.
- Under the Urban Infrastructure Governance (UIG) and Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT) 41 and 51 number of solid waste management projects have been approved at an estimated cost of Rs.2236.01 crores and Rs.327.02 crores respectively. The projects are at different stages of implementation.
- Under the 10% lump sum scheme for solid waste management in the North East Region including Sikkim, five projects have been approved since the year 2001-02.
- The Technology Advisory Group on solid waste management finalized its report and the Ministry has circulated the report to all the State Governments for adoption.
- The report of the Technology Advisory Group broadly covers various technologies available for the treatment of municipal solid waste, the extent of application of these technologies in India, Government of India's initiatives and schemes, financial aspects giving details of sectoral lending by financial institutions, the extent of private sector participation, legal issues related to private sector participation, fiscal incentives for solid waste management infrastructure financing by the state and central governments, strategies to be adopted for building community awareness and public participation and human resource development through internal capacity building.

This information was given by Shri Saugata Roy, Minister of State, Urban Development in reply to a question by Shri Sonawane Pratap Narayanrao in Lok Sabha today."

Additionally, the 12<sup>th</sup> Finance Commission, appointed in November 2002 has a directive related to SWM that says<sup>23</sup>:

- A grant of Rs.20,000 crore for the Panchayati Raj institutions and Rs.5,000 crore for urban local bodies to be given to States for the period 2005-10.
- Priority to be given to expenditure on operation and maintenance (O&M) costs of water supply and sanitation, while utilizing the grants for the Panchayats. At least 50 per cent of the grants recommended for urban local bodies to be earmarked for the scheme of solid waste management through public-private partnership.

The National Urban Sanitation Policy also places significant emphasis on SWM aspect. However, the mention in this regard is limited to 'Solid waste collected and disposed off fully'.

The point here is that apart from effective, and environmentally and commercially sustainable solid waste collection and treatment initiatives, it is important also to look at the generation, segregation and recycling aspects. It is observed that most of the regulations and other decision making frameworks so far concentrate almost exclusively on the collection and treatment/ disposal part of solid waste management.

### 8.2.5. Opportunities for Public Participation

Owing partly to the legal and policy framework dealing with the SWM, and also to the very nature of the sector, a number of opportunities emerge for public participation. The following table presents a snapshot of those.

Stage in the SWM system	Medium/ platform for public participation	Brief details of how the participation can take place
Policy formation	Community based organizations, local level governance institutions	Assessment of and critical inputs to the policies and decision making framework for SWM system design
Generation	Direct	Attempts to reduce waste generation through sensitive and balanced lifestyle
Segregation	Direct	Commitment to carry out segregation and proper storage at source

<sup>23</sup> Source: [indiabudget.nic.in/es2004-05/chapt2005/chap25.pdf](http://indiabudget.nic.in/es2004-05/chapt2005/chap25.pdf)

Stage in the SWM system	Medium/ platform for public participation	Brief details of how the participation can take place
Collection and transportation	Direct and through local community based organizations	<ul style="list-style-type: none"> <li>Cooperating with the collection system to ensure full collection</li> <li>Working out a locally suited mechanism involving unorganized labour and local CBOs<sup>24</sup></li> </ul>
Recycling, treatment and disposal	CBOs, local self governance institutions	Developing environmentally and economically sustainable options for waste treatment, recycling and disposal

**Table 41 Brief of opportunities for public participation in SWM systems**

Additionally, Ms Almitra Patel has demonstrated how the judicial system can be used to influence policy making mechanisms<sup>25</sup>.

### 8.3. Issues and Challenges

#### 8.3.1. Widely observed general challenges in SWM

The following table summarizes the generally observed challenges in SWM, across most of the discourse regarding SWM.

Challenge Aspect	Brief details of observations in the discourse
Absence of participatory SWM	<ol style="list-style-type: none"> <li>A general lack of insensitivity with the solid waste generators is observed. This leads to unscrupulous amounts of waste generation, lack of source segregation and improper handling of waste and indiscriminate dumping.</li> <li>Absence of an effective solid waste generation control mechanism further fuels the above point.</li> </ol>
Financial unsustainability of SWM initiatives	<ol style="list-style-type: none"> <li>Records of observations in the SWM discourse indicate that numerous community-participation based and other SWM initiatives are extremely funds-intensive, apart from being financially unsustainable. Such initiatives not only need enormous initial investment but also a sound support to cover working costs. Such models have been observed to fail once the funds dry up.</li> <li>On the other hand, problems in implementation of user charge mechanisms have also been reported in various studies. E.g. if households are charged fixed amount irrespective of quantity of waste generated, equity issues may be raised. Whereas, if charges are applied based on quantity of waste generation, alternate, illicit ways of waste dumping may be resorted to by the waste generators. The actual problems in implementation of this, such as the measuring and recording mechanism and the issues in those are said to be an added hindrance.</li> </ol>
Lack of proper management of private participation in SWM	Even though it is said that private sector participation would enhance the SWM sector as a whole, a collateral requirement is that of building adequate technical and managerial capabilities with the ULBs to be able to handle private sector mechanisms. In absence of that, it has been observed that a number of contractually and technically problematic situations arise.

**Table 42 Brief of general SWM sector challenges**

<sup>24</sup> Community Based Organizations

<sup>25</sup> Source: [www.almitrapatel.com](http://www.almitrapatel.com)

### 8.3.2. Issues with the current regime of policy and scheme initiatives

1. According to a number of studies, it is starkly seen that an ad hoc and sudden decrease in especially the number of class 4 workers who are at the forefront of the cleaning mechanism, has resulted in lack of cleanliness.
  - a. While the administrative and structural reforms direct reduction in all types of manpower, the aspect of human labour intensive work has not been addressed properly.
  - b. Even though private sector participation is encouraged to make up for such lack, the regulations necessary to avoid a number of labour and other related issues is absent, as mentioned in point no. 5 hereunder.
2. The e-governance related reforms do not consider the fact that proper power supply and availability of computers and internet is limited to only a certain, narrow economic class of the Indian society.
  - a. Additionally, the e-governance and all IT-related reforms would enable only the 'haves' class of the society to participate in the governance mechanism, simply because of the fact that IT and computers are still remote concepts for a large population in India due to financial constraints.
3. Waste generation control is not addressed effectively in the reforms regime.
  - a. This is rooted in the fact that in the Public Disclosure Law, 'Publication of benchmarks for public consumption' is a step of the reform, whose actor is specified to be 'ULB/ Parastatal'. Lack of a clear responsibility mechanism in this provision may have given rise to the absence of generation regulation in SWM sector.
  - b. Also, though the MSW (M&H) rules provide for the ULBs to encourage solid waste generation, no clear directives on how exactly that is to be achieved have been provided. This, combined with the general lethargy and lack of capabilities at the ULB level translates to no concrete action taken for solid waste generation reduction.
4. Land acquisition for waste treatment/ disposal projects, while observed to be a major issue, does not find any mention in the reforms-directives.
  - a. While the reform directing earmarking of land for EWS housing aims to bring the EWS in urban service provision umbrella, the other significant incidental requirements of a sector such as SWM in terms of land required for proper transfer, treatment, recycling and disposal facilities have been either ignored or assumed to be taken care of by private mechanisms, thereby subject to market dynamics related to land.
  - b. Even though the Collector is empowered to transfer government land to the ULBs for waste treatment and disposal, lack of clear reforms directives supporting such institutional structures fails to build on the potential strengths of it.
5. Regulation of the private sector that enters through the PPP-encouraged scenario is not a part of the reforms.
  - a. For example, in case of transportation, when a private party operates a tolled highway, the toll payable by various types of vehicles per unit length of the highway is regulated by the National Highways Authority of India. On similar lines, a user charge mechanism (also in line with the reforms directing O&M cost recovery through user charges) and other aspects of the SWM system should be regulated. Even though this may not seem a straightforward task, at least studies related to this aspect should be carried out, involving experts, community representatives and other stakeholders of the SWM system. Neither such explicit directives nor implied steps have been included in the reforms regime.
  - b. On the other hand, in a number of places where private participation in various SWM system stages was studied, numerous issues related to labour treatment, their wages and other operational issues were observed. A clear set of regulations sorting those are essential to ensure proper SWM service delivery.
6. While addressing wastewater recycling in a separate reform, the issues of leachate treatment, and groundwater pollution due to waste disposal have not been addressed.

## 8.4. Learning from Past Experience

The discourse available about SWM talks of a few lessons based on the past experiences in that regard. A number of changes have also been proposed based on these lessons.

### 8.4.1. Lessons

#### *Locally relevant decision-making*

It has been observed that almost every place has a unique combination of existing constraints and situations when it comes to various SWM stages, right from generation to disposal. It is thus essential to profoundly and systematically study the local conditions and constraints, before adopting solutions that have worked elsewhere, and before designing entirely new SWM systems. Carrying out detailed studies, making the results public and holding public consultations on the key decision parameters of SWM system design are indeed key aspects.

#### *Information, education and communication*

It is observed in a number of regional studies that lack of dissemination of success or failure stories results in either repetition of mistakes or lack of resorting to established mechanisms. IEC also from the resident perspective building is an essential parameter. It is said to be an important thing to build sensitivity amongst the waste generators as to what happens to the waste produced by them, and the challenges in handling it, rather than just having local neighborhoods clean.

#### *Need to make SWM financially sustainable*

Temporary, expensive and unsustainable alternatives have usually observed to fail, be it regarding collection or treatment or disposal of waste. It is therefore needed to build options for waste treatment that are financially sustainable and plausible to monitor.

#### *Enforcement of rules and self-discipline*

Source segregation of waste is said to be an extremely important aspect of waste management, for it is observed to have a direct impact on the subsequent stages of waste management. While punitive mechanisms are one way of ensuring it, building self-discipline amongst waste generators cannot be ignored as an effective way out.

### 8.4.2. Changes Proposed for Implementation

Based on the discussion briefed in the previous section, the following table attempts at briefing the various alternatives suggested for effective waste management, on a policy or regulatory level.

<b>Principle for effective waste management</b>	<b>Alternatives suggested</b>
Community and stakeholder participation	<ol style="list-style-type: none"> <li>1. Principles of reduction and reuse to be disseminated amongst waste generators</li> <li>2. User charges and other system parameters to be transparently discussed and decided with stakeholder participation</li> <li>3. Platforms for community and stakeholder participation need to be well established, through CBOs and other organizations</li> <li>4. Scientific and equitable waste management decision making for the city as a whole</li> </ol>
Financial sustainability	<ol style="list-style-type: none"> <li>1. Selection and implementation of financially sustainable (along with environmentally and socially sound) waste treatment systems</li> </ol>

Principle for effective waste management	Alternatives suggested
	2. Recovery of O&M costs through an equitable, transparent and accountable system of user charges for the above
Managing the private sector participation in a better manner	1. Introduction of regulation to ensure adequate service delivery through private sector, along with ensuring proper compliance with labor handling and other applicable rules and regulations 2. Capacity building of the local administration to be able to adequately manage the private sector participation in waste management.

**Table 43 Brief of policy level alternatives proposed for effective SWM**

### 8.4.3. Lessons from Various Models<sup>26</sup>

The following table attempts to capture a snapshot of various models of SWM adopted or planned at different places, and the lessons thrown up by the issues faced by those, or their success points.

It may however be noted that this list is not exhaustive, and a number of experiments have been and still are being carried out. The point is to highlight the need for thorough examination of the applicability and feasibility of each model component at various places, based on the local conditions.

Salient Features of the Model	Lessons
Karachi, Pakistan <sup>27</sup>	
1. Bio-medical waste management through private sector participation is the theme of the model 2. User charges need to be paid directly to the waste management operator, by the hospitals subscribing to the service.	1. Consent of the users upon the user charges proposed to be levied is a key. Without that, it is observed that a substantial potential developed by the operator is not utilized in Karachi. 2. Monitoring, evaluation and enforcement mechanism, along with strict regulation are key parameters in ensuring sustainable waste management. In Karachi's case, such laxity in regulation enforcement gave opportunities to the BMW generators to opt out of the treatment stream, thereby raising both, financial issues for the operator, and environmental issues by indiscriminate bio-medical waste dumping. 3. Frequent on-ground surveys to assess the exact amount and quantity of waste generation are a vital aspect to ensure effectiveness of the city's SWM system. Lack of this in Karachi has given rise to the system's inability to handle new types of waste generated, e.g. e-waste. 4. Awareness generation, to increase the political 'value' and 'visibility' attached to SWM service provision is an important aspect, for the local governing bodies to take up the service provision. This is because the local politics affects the service provision scenario to a very large extent.
Nairobi, Kenya <sup>28</sup>	
1. Only about 25 per cent of the estimated 1,500 tonnes of solid waste generated	5. Equity issues associated with the fact that the relatively high income areas are serviced well by the SWM

<sup>26</sup> Based purely on secondary sources of information

<sup>27</sup> Healthcare Waste Management in Karachi, Pakistan – Case Study Report, WASTE, The Netherlands, October 2008

<sup>28</sup> Studies based on JICA (Japan International Cooperation Agency, 1998) documentation

Salient Features of the Model	Lessons
<p>daily in Nairobi gets collected.</p> <ol style="list-style-type: none"> <li>2. Until the mid 1970s the Nairobi City Council (NCC) singly collected over 90 per cent of the waste.</li> <li>3. In the mid 1980s, the appalling NCC performance and demand for municipal solid waste management services attracted private sector providers.</li> <li>4. Estimated no. of private companies engaged in solid waste collection services in the city is 60.</li> </ol>	<p>entities, both, private and the NCC.</p> <ol style="list-style-type: none"> <li>6. The study informs that as a result of above, the low income households are ready to pay higher user charges if promised better service delivery.</li> <li>7. Streamlined administration of the ULB, public education, and enforcement of laws and regulations are essential components to ensure a sustainable and effective waste management system.</li> <li>8. Well-defined policies regulating the entire waste management stream need to be formulated, to ensure effective on-ground waste management.</li> <li>9. Informal agents such as the individuals at landfills, play an important role in waste management system. In Nairobi's case, this is demonstrated by the fact that the corresponding waste management agencies had to bribe such informal agents, to continue using a supposedly out-of-service landfill facilities.</li> <li>10. While at a policy level the community and residents can compel indiscriminate solid waste dumpers to pay for the damage, the cost of litigation is a prohibitive factor that needs to be taken care of. This underscores the importance of a well defined and effective law enforcement mechanism.</li> <li>11. Unregulated private sector participation not only results in inequity in service provision, but also translates to large inefficiencies and non compliance with standards.</li> </ol>
London <sup>29</sup>	
<ol style="list-style-type: none"> <li>1. In response to the duty placed on the city's Mayor by the Greater London Act, the Mayor published a comprehensive waste management strategy for the city, including clear and objective set of targets.</li> <li>2. Landfill allowances are tradable entitlements granted to various waste disposal authorities.</li> <li>3. The project report consisted of building clear cut future scenarios based on various parameters. Modeling and analysis was carried out for these scenarios.</li> </ol>	<ol style="list-style-type: none"> <li>1. A bottom-up approach encompassing thorough analysis of waste composition should be the underlying principle of waste management system design.</li> <li>2. Pre-set recycling targets based on the waste composition, are a key parameter of the system design.</li> <li>3. Construction of a comprehensive data-set including area-level details of the solid waste condition is an essential part of the system design.</li> <li>4. Multi-criteria, and cost and sensitivity analysis of various options has to be carried out to ensure success of the system design.</li> <li>5. Concrete and clear policy mechanism is a useful tool to ensure accomplishment of project-level targets. In case of London, the mechanism consists of the Household Waste Recycling Act, 2003, Landfill Allowance Trading Scheme under the Waste and Emissions Act, 2003, Planning Policy Statement on Sustainable Waste Management.</li> <li>6. Clear and objective assumptions need to be enunciated, that define the success or failure of a system initiative. E.g. in this case, the rate of recycling household waste was assumed to be at different levels, to assess the performance of various scenarios considered.</li> </ol>
Community Participation at Kozhikode <sup>30</sup> (Kudumbashree model)	

<sup>29</sup> Challenges, Choices and Decisions – Waste Modelling for London, Phase I Report, March 2006

Salient Features of the Model	Lessons
<ol style="list-style-type: none"> <li>1. Primary Collection: Separate bins (Green and white bins) have been provided in each house for segregated collection of wastes. The Kudumbashree Volunteers organize door to door collection of the waste and moved to secondary collection points.</li> <li>2. Transportation: The waste is transported to corporation's waste treatment plant site.</li> <li>3. Processing : At the treatment plant, Bio degradable waste is converted into bio manure.</li> <li>4. Two units ( each units consist of 10 members ) of kudumbashree have been formed in each of the select wards.</li> <li>5. Each unit procured 2 Auto Rickshaws for primary collection through Bank Finance</li> <li>6. Subsidy was arranged from the plan fund for the units to purchase auto rickshaw</li> </ol>	<ol style="list-style-type: none"> <li>1. Enforcement of HH waste segregation at source has eased a lot of burden from the SWM system of the city</li> <li>2. Policy level decision to provide subsidy for auto rickshaw purchase was a key to facilitating the ground level CBO participation in the SWM collection mechanism.</li> <li>3. A sound support at the secondary waste collection level, from the city corporation was also essential to make the SWM model successful.</li> </ol>

**Table 44 Lessons from a few waste management models**

<sup>30</sup> Source: <http://www.kozhikodecorporation.org/php/showCategory.php?linkid=51>

## Section D: TOOLS, FORMATS, K-RESOURCES (SEWERAGE)

### 1. Tools for interacting with Citizens/residents

#### 1.1. Questionnaire: Citizen Survey

1. Name
2. Place of residence
3. Attribute of the ward selected
4. Religions
 

4.1. Hindu	4.4. New Buddhist
4.2. Muslim	4.5. Shikh
4.3. Christian	4.6. Other.....
5. Caste
 

5.1. General	5.3. SC		Group
5.2. OBC	5.4. ST		
6. Class Group
  - 6.1. Below Poverty line
  - 6.2. Middle Class
  - 6.3. Higher Class
7. What type of drainage system is there in your area?
 

7.1. Open drainage system (Open Gutters)	(If Yes, follow Section A)
7.2. No Drainage System	(If yes, Follow Section B)
7.3. Undersground drainage System	(If Yes, follow Section C)

#### Section A: - Questions with respect to open Drainage System (Open Gutters)

##### *Grey-water*

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>8. Do you face any problems with respect to grey water drains (in you bathroom/society common drains)           <ol style="list-style-type: none"> <li>8.1. Yes (If Yes, follow Q- 9,10,11 12)</li> <li>8.2. No</li> </ol> </li> <li>9. If yes, which of the following problems do you face?           <ol style="list-style-type: none"> <li>9.1. In non-monsoon conditions</li> <li>9.2. Water clogging</li> <li>9.3. Water does not drain out due to stagnated water in open drains</li> <li>9.4. Outside sewerage water enters back in the bathroom</li> <li>9.5. In monsoon/rainy season               <ol style="list-style-type: none"> <li>9.5.1. In monsoon season only the water from the sewers enters back in bathroom</li> <li>9.5.2. Other problems</li> </ol> </li> </ol> </li> </ol> | <ol style="list-style-type: none"> <li>10.2. Manually collect and throw away</li> <li>10.3. Family members clean the open gutter and let the were flow</li> </ol> <ol style="list-style-type: none"> <li>11. What are the impacts of the problems clogging in the bathroom?           <ol style="list-style-type: none"> <li>11.1. Delay in home duties,</li> <li>11.2. Time killing</li> <li>11.3. Drudgery</li> <li>11.4. Bad smell, stinking environment</li> </ol> </li> <li>12. Reasons behind the problems in the grey water drains           <ol style="list-style-type: none"> <li>12.1. lower size pipes</li> <li>12.2. litter clogging in the drain lines</li> <li>12.3. Sufficient gradient was not maintained during fixing the pipes</li> </ol> </li> <li>13. What solutions would you suggest for fixing the problems           <ol style="list-style-type: none"> <li>13.1. Increase the diameter of the pipes that connects to the main drain</li> </ol> </li> </ol> |
|---|--|
10. How do you deal with water clogging in the bathroom?
    - 10.1. Manually drain out

- 13.2. Main drain lines should be below enough from the level of the bathroom
- 13.3. Sufficient gradient should be maintained while fixing the pipes (that connects

bathroom to the main drain line in the lane)

*Sanitation - Owned Private Toilets (In an Open Gutter System)*

- 14. Do you own private toilets?
  - 14.1. Yes
  - 14.2. No (If No, Follow section C)
- 15. What problems do you face with respect to owned toilets?
  - 15.1. No problems
  - 15.2. Clogging of sewage/soil in toilets
  - 15.3. Overflowing septic tank
- 16. Has anybody (or you) linked your toilets directly to the open gutter? If yes, what problems it generate?
  - 16.1. In addition to sewage water, sludge and soil also enters in to open gutter lines and clogging
  - 16.2. Increases the bad smell horribly
  - 16.3. Creates additional burden for the open gutter cleaners (employees)
  - 16.4. All of the above
- 17. What is its Impact?
  - 17.1. Stinks and reeks
  - 17.2. Increased water use increases the workload of collecting and storing water
  - 17.3. Extra expenditure
- 18. What is the regular system for cleaning the private septic tanks?
  - 18.1. Pay to municipality and it sends the booster-sucker cleaning machine and vehicle
  - 18.2. No system
  - 18.3. Call private agencies and get it cleaned

- 19. Is Municipal System working? What are your experiences
  - 19.1. Yes, pay the fees and municipality sends a vehicle
  - 19.2. No, one had to depend upon a private agency
  - 19.3. Both, municipal and private agencies are there and no system is efficient
- 20. How do you cope?
  - 20.1. Pay to private contractors for cleaning of septic tank and had to pay extra money
  - 20.2. Have to use extra amounts of water,
- 21. What are the reasons?
  - 21.1. Pipe connecting to drain lines is damaged, clogged and not repaired by the concerned society, and no grievance redress by ULB health department
  - 21.2. Flawed design
  - 21.3. Municipal system is not efficient
  - 21.4. Private agencies charge heavy money and provide bad service, no control on them
  - 21.5. People are either careless or not aware of the problems
  - 21.6. Other

22. Solutions suggested

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*Open drainage Lines*

- 23. Due to open drainage lines, what problems do you face?
  - 23.1. Sewage clogs, flows on road
  - 23.2. Stinks
  - 23.3. Insects and mosquitoes proliferate
- 24. How do you cope this problems
  - 24.1. Residents clean it on their own
  - 24.2. Residents gives money to worker for cleaning drainage line
  - 24.3. Residents close their front of house drainage line putting cover on the open gutter lines
  - 24.4. Buy mosquito repellents! Buy nets to prevent mosquitoes etc.

- 25. What Impacts
  - 25.1. Impact on health
  - 25.2. Extra expenditure
  - 25.3. Accidents (due to open gutters)
- 26. Reasons
  - 26.1. Irregularity in cleaning drainage lines
  - 26.2. people throws waste in drainage line
  - 26.3. Narrow Drainage lines
  - 26.4. Shallow Drainage lines
  - 26.5. unauthorized constructions, encroachments
  - 26.6. Residence on unauthorized lay-outs
- 27. Solutions suggested

*Storm Water Issues in open gutter system*

- 28. Is there separate line for storm water?

- 28.1. Yes
- 28.2. No (If No, follow next questions)
- 29. Then how does it flow?
  - 29.1. Storm water goes into drainage line
  - 29.2. Storm water flow naturally
- 30. What problems do you face with respect to storm water drains
  - 30.1. Storm water accumulate in front of house
  - 30.2. Storm water flows across the roads
  - 30.3. Accumulated storm water rushes in house
  - 30.4. Other
- 31. Impact
  - 31.1. Damage to articles in houses (especially, in case short rise houses located along the roadside)
  - 31.2. Shifting of articles, furniture and other things in the houses
  - 31.3. Drudgery - cleaning of homes, manually draining of entered water, lot of toiling
- 32. Reasons
  - 32.1. Roads were lifted due to frequent repairing and level of roads gone up than the floor-level of the houses
  - 32.2. Lack of coordination between road contractors, and open-gutter contractors
  - 32.3. No separate thought has been given while constructing the gutter lines for storm water
  - 32.4. Natural drains have been encroached
  - 32.5. Other \_\_\_\_\_
- 33. Solutions
 

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**PART B: Issues when there is a complete absence Drainage System (Especially in Slums)**

*Grey water issues in situation of absence of drain lines*

- 34. Since you do not have any type of drainage line, how do you manage to drain the grey-water?
  - 34.1. On the road
  - 34.2. In the kitchen Garden
  - 34.3. In soak pits
  - 34.4. In the open, unused land-plots
  - 34.5. Septic tank
  - 34.6. Just anywhere
- 35. In absence of the drain line, which problems you face?
  - 35.1. Water clogging on the road
  - 35.2. Slippery premises
  - 35.3. Stinking environment
- 36. Impact of absence of drain lines
  - 36.1. Quarrels because water clogs in front of neighbors houses
  - 36.2. Increase in insects and mosquitoes
  - 36.3. Road Accidents
  - 36.4. Accidents especially of children
  - 36.5. road-accidents
  - 36.6. Diseases (children, women, all)
- 37. What are the causes behind absence of the drain line
  - 37.1. ULB does not pay attention
  - 37.2. Council member is in the opposition
  - 37.3. Council member represent ruling class, but weak
  - 37.4. Improper planning, no enough place (land) for drain lines
  - 37.5. Colony situated on unauthorized lay outs
  - 37.6. Improper strata for the laying/digging the drain lines
  - 37.7. Planned project was not implemented but, completed on paper
  - 37.8. Half left work by the contractor
- 38. What solutions would you suggest for fixing the problems?

*Sewage*

*Water*

*Drains*

*issues*

- 39. Do you own private toilet?
  - 39.1. Yes, (If yes, follow Q 40)
  - 39.2. No
- 40. Since there are no sewer lines laid / constructed in you area, If No, where you drain the toilet sewage?
  - 40.1. Septic tank
  - 40.2. Soak pit
  - 40.3. Open dug pit
- 41. Due to absence of sewer lines, what problems do you face?
  - 41.1. Septic tank overflows
  - 41.2. Soak pits / Dug pits overflows,
  - 41.3. No problems as of yet
  - 41.4. Sewage from other parts of the city is released in the premises of our colony
- 42. Impacts
  - 42.1. Same as given in Question 32
- 43. Reasons

- 43.1. Strata not suitable for laying pipelines
- 43.2. Below sea level areas (in coastal cities)
- 44. Solutions?

- 43.3.No natural drain available (very rare cases)

*Storm water drain issues (where there is an absence of the systems)*

- 45. In absence of the drainage lines, how the storm water drains out from your area?
  - 45.1. Natural drainage is there and seldom issues occur
  - 45.2. There are certain places in the area/ward where the storm water clogs
- 46. What problems do you face/the families face when water accumulates
  - 46.1. Water enters in the premises
  - 46.2. Water enters in the houses
  - 46.3. Water clogs and traffic jams is a common scene in monsoon season
  - 46.4. Other problems\_\_\_\_\_
- 47. How it affects?
  - 47.1. Articles in the house get damaged

- 47.2. A lot of time has to be spent in shifting the luggage and furniture from one place to another
- 47.3. Water has to be drained manually
- 47.4. Seepage in the walls,
- 47.5. All slippery environment, accidents
- 47.6. Water contamination and diseases
- 48. What are the reasons
  - 48.1. Slum is unauthorized, hence no scheme
  - 48.2. Locality is authorized but municipal planning is very slow
  - 48.3. Weak political leadership
  - 48.4. Leader/Council Member from Opposition
  - 48.5. Other.....

*Sanitation (Public Toilets)*

- 49. Do you have private toilets?
  - 49.1. Yes (If Yes follow Q14, 15, 16, 17, 18)
  - 49.2. No (If No , follow next questions)
- 50. If no, how do you manage?
  - 50.1. Use Public Toilets
  - 50.2. Open Defecation (If open defecation, follow Q 56)
- 51. What problems do you face with respect to public toilet in your vicinity?
  - 51.1. Not maintained
  - 51.2. Not repaired
  - 51.3. No electricity fittings, no connections, stolen away, damaged etc
  - 51.4. No sufficient water storage, no water connection,
  - 51.5. Sewage flows out of the tank and spreads in the vicinity

- 51.6. Toilets are there but insufficient in number, Inadequate.
- 52. How do you cope with the situations?
  - 52.1. Water is carried from home
  - 52.2. Users maintain it by contributing money and contracting the maintenance out
  - 52.3. Open defecation
  - 52.4. Users clean it on their own
- 53. Impacts (refer ....)
- 54. Reasons of these problems
  - 54.1. Neglect by the ULB administration (Workers (employees) do not maintain, no repairing, etc)
  - 54.2. Common reasons (refer...)
- 55. Solutions
 

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*Open Defecation*

- 56. What problems do you face, as you do not have public toilet facility?
  - 56.1. Road-side Defecation
  - 56.2. Open plots
  - 56.3. Women have to go late nights or early in the morning in the dark
  - 56.4. On the banks of river or lake or seashore
  - 56.5. In rainy season, problems intensify
  - 56.6. Have to walk down to distant and abandoned/deserted places
  - 56.7. Have to go in the groups

- 57. Impacts of the problems
  - 57.1. Roads littered with soil
  - 57.2. Danger of snake-bites, insect bites
  - 57.3. Accidents (in the dark)
  - 57.4. Health issues, mainly for women and children
  - 57.5. Contamination of water sources
  - 57.6. stinks
  - 57.7. Insects, mosquitoes proliferate
  - 57.8. Time killing
- 58. Reasons

- 58.1. Unavailability of land
- 58.2. Vote-politics, opposition council member, etc
- 58.3. Weak political representation of the community
- 58.4. Many projects implemented, only on paper

58.5. Colony settled on unauthorized lay outs, or beyond municipality limit

59. Solutions

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### PART C: Disposal of Sewage

#### *Disposal of sewage*

60. Where does sewage dispose?

- 60.1. In river
- 60.2. In water pond
- 60.3. In sea
- 60.4. Into open space
- 60.5. Into field

61. Impacts

- 61.1. Impacts on health
- 61.2. Scattered stink
- 61.3. Spreading insects
- 61.4. water contamination

62. Solution

#### *Sewage Treatment Plant*

63. Is there available sewage treatment plant?

- 63.1. Yes (follow next questions)
- 63.2. No (If No, go to Q 58)

64. What are the problems in sewage treatment plant?

- 64.1. Stinks spread in area
- 64.2. Untreated sewage clogging in the area

65. Impact

- 65.1. Impact on health
- 65.2. Spreading of insects, mosquito

66. Reasons

- 66.1. Irregularity in maintenance
- 66.2. Improper process of sewage treatment
- 66.3. Technical problems

67. Solutions

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### 1.2. Focus Group Discussion Guidelines for Citizens/Residents

1. Background Information of the participants and the area

1.1. Name of the area

1.2. Rough details of the area

[Socio-political set-up, Geographical and other attributes etc. (refer list of attributes given in the section....)]

1.3. Wards covered

1.4. Names of the participants

2. Issues in Open gutter System [Grey water, Toilets (Public and Private), sewage and storm water and absence of Drainage lines)

2.1. Questions: *Grey-water* in an open gutter situation

2.1.1. What problems do you face with respect to grey water drains from your sinks and bathrooms to the open gutter?

[Clogging of water in the bathrooms and sinks, Back entry of the gutter-water in the bathrooms and sinks,]

2.1.2. To What extent this problem is faced in your ward/area/colony/slum etc?

2.1.3. Is there any seasonality aspect to the problems - intensifying problems in the monsoons?

2.1.4. How do you and every other person cope with these problems?

[We contribute and get the gutters cleaned or We own clean them or We are accustomed to it or other please specify]

2.1.5.	What are the causes of these problems [Causes are in-house - flawed construction of sink and bathroom, pipe-clogging, not enough cleanliness maintained] [Causes are with respect to system: Road and gutter levels are almost equal to the level of house-bathrooms, roads were lifted over the years due to repeated repairing, sufficient gradient not maintained, garbage clogging in the open gutters etc.] [Gutter construction is left half-way, not connected to natural drains or river or <i>nallah</i> , or any other system]
2.1.6.	Have people linked sewage outlets (whether of the septic tanks or the toilets) to the open gutters? Does that intensify the problems?
2.1.7.	What Impacts do they have on your family, health-wise, money-wise, time-wise? [Stinking environment, mosquitoes, Time-killing, other]
2.1.8.	Whom do you hold responsible for these problems? [Municipality and road contractors, Municipal workers - Sweepers who push the garbage in the gutters as well as the workers who inefficiently clean them] [Officers who do not pay attention, Council Members, who themselves are contractors and neglect citizen's/resident's issues, others ... (specific to the area or ward)]
2.1.9.	What are the solutions to these problems? [Gradient of the gutters need to be maintained, Gutters need to cleaned regularly]
2.2.	Problems with respect to using private Toilets linked to open gutters (Especially in case of short rise houses and small bungalows)
2.2.1.	What is legal and what is illegal in case of giving outlets to open gutter? [Outlet of the septic tank could be given but direct outlet should not be given]
2.2.2.	What problems do you face with respect to owned problems? How do you cope? [Clogging of sewage/soil, Overflowing septic tank; Pay to private contractors for cleaning of septic tank and had to pay extra money, Have to use extra amounts of water] Impacts? [Stinks and reeks, Increased water use increases the workload of collecting and storing water, Extra expenditure]
2.2.3.	What are the causes? [Causes are in-house - flawed construction of toilet, pipe-clogging, not enough cleanliness maintained, septic tank is not constructed] [Causes are with respect to system: septic tank is not cleaned, municipality does not respond to requests to send booster-sucker vehicle, sufficient gradient is not available to link septic tank to the open gutter, garbage clogging in the open gutters etc.]
2.2.4.	Whom do you hold responsible? What are the solutions? [People, system, all]
2.3.	Questions w.r.t. open gutters when is it used as sewer line by linking toilets (public and private)
2.3.1.	Do you face any problems with respect to the sewer lines and sanitation? What sort of? [Open gutter is clogged with the garbage and does not flow properly. When clogs, overflows and spreads across the street, enters in the premises of houses etc.] [Open gutter contains sewage also, stinks and give rise to mosquitoes, Even when there is not garbage, flows very slow, In the monsoon the problem is aggravated]
2.3.2.	Does the municipality send own employees to clean open gutters? Or is it contracted out to any contractor? If contracted, what has been your experience with the contractor? [Contractor is better or worse than municipal employees, action on complaints is faster/slower/completely that earlier or completely neglected ]
2.3.3.	Causes of the problems [People have linked toilets or septic tank outlets to the gutters and municipal officers neglect it. People are indolent, apathetic and self-centered] [Half constructed, low quality construction of open gutters, not connected to natural drains or river or <i>nallah</i> , or any other system, not connected to further treatment plant or disposal system ]
2.3.4.	How do you cope with the system? [Pay and get it cleaned, Just adjust as it is, pressurize council member and get it cleaned through municipality, complain and officer send the workers, contracted out]
2.3.5.	Whom do you hold responsible? Why? How do you think their stakes operate?

[Municipality officers, Council members, contractors, Public, All]
2.3.6. Do you face any problems with respect to the sewer lines and sanitation? What sort of? [Open gutter is clogged with the garbage and does not flow properly. When clogs, overflows and spreads across the street, enters in the premises of houses etc., Open gutter contains sewage also, stinks and give rise to mosquitoes, Even when there is not garbage, flows very slow In the monsoon the problem is aggravated]
2.4. Questions: Storm water drains
2.4.1. What happens with the open gutter in the rainy season? (Problems) [Overflows, storm-water clogs, water does not get drained and stagnates across roads, enters in the house-premises, back-enters in the bathrooms and toilets, enters in the house
2.4.2. Extent, scale and scope of the problems?
2.4.3. What are the main causes for these problems [undersized open gutters not exactly designed for grey +sewage + storm-water together, unfinished and half left construction of the gutters, encroachments on the natural drains and <i>nallhas</i> in the area]
2.4.4. Impacts and Coping strategies [damages to houses, articles in the house, dangers to children, contamination of water, etc] [If water enters in the premises dewatering has to be done, incur costs]
2.4.5. Solutions and expectations from the Municipality! [Road contractors need to be monitored, gutter-cleaning should be efficient, problem-prone areas need to be studied and appropriately handled, interdepartmental constructions while laying the pipelines, watch on all types of private-pipe laying etc needs be strictly monitored, effective punishments to the violators of the law]
<b>3. Questions: Sanitation: Public Toilets</b>
3.1.1. How many public toilets are there in you area? Is the system same for both public and private toilets? [Toilets have septic tanks and those are further cleaned by municipality on request]
3.1.2. How many of you use public toilets? What problems do you face with respect to public toilets? [ <i>Half left construction</i> - No electricity fittings, No water and electricity connection, lack/insufficient water storage, Toilets are there but insufficient in number] [ <i>Not maintained</i> : Damaged but not repaired; parts, fittings, doors stolen away; not amenable to use, Sewage flows out of the tank and spreads in the vicinity as septic tank is not cleaned] [ <i>Public toilets are in an abandoned state.</i> ]
3.1.3. How do you cope with the situation? [Water is carried with from home, Users maintain it by contributing money and contracting the maintenance out or Users clean it on their own] [Back to the original practice of open defecation] - <i>If open defecation is practiced, then follow 3.1.4</i>
3.1.4. Don't you think open defecation create any problems? Why? [Defecation, Road-side or Open plots, Women have to go late nights to early in the morning, In rainy season, problem intensify, On the banks of river or lake or seashore, Have to walk down to distant and abandoned/deserted place]
3.1.5. Impacts of the open defecation [Roads littered with soil, Danger of snake-bites, insect bites, Accidents (in the dark) Heath issues, mainly for women and children, Contamination of water sources, stinking, Insects, mosquitoes proliferate, Time waste]
3.1.6. Problems in the solving open defecation issues. [Unavailability of land, Vote-politics, opposition council member, etc, Weak political representation of the community, Many projects implemented, only on paper, Colony settled on unauthorized lay outs, or beyond municipality limit]
<b>4. Questions for FGD, in case no system for drains /gutters have been laid</b>
<b>4.1. Questions: Grey water</b>
4.1.1. Where and how do you drain out the grey water? [On the road, In the kitchen Garden, Soak pit, on the open, unused land-plots, Septic tank]
4.1.2. In absence of the drain line, which problems you face?

<p>[Water clogging on the road, Quarrels because water clogs in front of neighbors house, Increase in insects and mosquitoes, Stinking environment, Impact of absence of drain lines, road-accidents, diseases (children, women, all)]</p> <p>4.1.3. What are the causes behind absence of the drain line [ULB does not pay attention, Council member/corporation member is in opposition, Council member is in the ruling class, but weak, Improper planning, no enough place for drain lines, Colony situated on unauthorized lay outs, improper strata for the laying/digging the drain lines, Planned project was not implemented but, completed on paper, half left work by the contractor]</p> <p>4.1.4. What solutions would you suggest for fixing the problems?</p>
<p><b>4.2. Questions : Toilet sewage</b></p>
<p>4.2.1. In your area are sewer lines laid [Yes or No ]</p> <p>4.2.2. If No, where you drain the toilet sewage? [Septic tank, Soak pit, Open dug pit, Storm water open line (gutter)]</p> <p>4.2.3. Due to absence of sewer lines, what problems do you face? [Septic tank overflows, Septic tank linked to open gutter, Soak pits / Dug pits overflows]</p> <p>4.2.4. Reasons [Strata not suitable for laying pipelines, Below sea level areas (in coastal cities), No natural drain available (very rare cases)]</p> <p>4.2.5. Solutions?</p>

### 1.3. Transect walk - Observations Points

1. To which direction flows the sewage? Of What types? Which are the parts of the city that flows?
2. Has the area visited any particular feature - For example
  - 2.1. the area is nearer to the river in which the sewage is released and hence sewage of the major part of the city accumulates in the area or being carried through the area, through open/underground gutter OR
  - 2.2. Open gutters are half left, and sewage is just left in the open plots in the area
3. In case no gutter/sewer lines, how is the situation? (*Try to catch the vivid details*)
  - 3.1. Major clogging points
  - 3.2. visible causes
4. In case of public toilets
  - 4.1. Design, Half left status
  - 4.2. Facilities, its status
  - 4.3. usage, culture of usage
  - 4.4. carrying capacity
  - 4.5. septic tank and its status etc
5. Open defecation
  - 5.1. Areas, premises/locality around the area where open defecation is practiced
  - 5.2. Where water drain in/out? Which colonies are affected
  - 5.3. Who owns the lands?
6. While citizen/residents are reporting the issues during survey, crosscheck the visible issues, such as
  - 6.1. Shallowness/Narrowness of the pipes
  - 6.2. Half left Constructions
  - 6.3. Whether the problem is caused by neglect of the ULB or people's behaviour or neglect by people?
  - 6.4. Enroachments over the gutter and natural drain lines
  - 6.5. Who are the enroachers , common public/hoteliers/traders-shopkeepers/others
7. Issues with the settlement/colony/area and sewage
  - 7.1. availability of land for laying the lines
  - 7.2. Locations, houses, buildings - conjusted settings, etc
  - 7.3. Clogging, linking of sewage outlets to open gutters, hoteliers practices etc.

## 2. Tools for Understanding issues in the sewerage system and ULB

### 2.1. Focus Group Discussions with Municipal employees involved in gutter cleaning

<p>1. What is the number of the total employees? How many of them work for gutter-cleaning? How many have been assigned the work of cleaning and maintaining the public toilets? Is there separate staff assigned for the booster-sucker vehicle?</p> <p>2. How many of them work? [Take the details for each of the category viz gutter cleaning as well as the cleaning of public toilets]</p> <p>3. How many posts of total number of the employees have been regularised?</p>
<p>4. What sorts of the tools and equipments have been provided to you by the municipality?</p> <p>4.1. Uniform</p> <p>4.2. Gum Boot</p> <p>4.3. Masks</p> <p>4.4. Handgloves</p> <p>4.5. Spade, shovels</p> <p>4.6. Baskets</p> <p>4.7. toilet brushes</p> <p>5. What is your schedule of leaves? Officially sanctioned leaves (Sick leaves, casual leaves, other leaves, maternity leaves, paternity leaves)</p> <p>6. How much sanitation allowances do you get? If not Why?</p>
<p>7. What is the work schedule</p> <p>7.1. Continuous eight hours of work</p> <p>7.2. Distributed in to shifts ( morning 6 to 10 and afternoon 2 to 6)</p> <p>8. How the work is prioritized?</p> <p>8.1. Fixed work areas/wards, no daily planning</p> <p>8.2. As per the urgency fixed by Sanitary Officer, after the urgent work, routine work is done</p> <p>8.3. Daily work is planned and assigned by the Sanitary inspector</p> <p>9. Who influences the priority of the work</p> <p>9.1. Council member (Ruling? or Opposition also?)</p> <p>9.2. Officers (bureaucracy)</p> <p>9.3. Citizen's complaint</p> <p>9.4. Citizen-and employee connections</p> <p>9.5. Employee and Council connections</p> <p>9.6. Officer's and employee-connections</p>
<p>10. What are the causes with respect Citizens's issues with respect to waste-water drains and private toilets? [Share the area details and specific complaints reported by the citizen/residents during the</p>
<p>11. What are the causes with respect to Non-maintenance of the public toilets? [Share the area details and specific complaints reported by the citizen/residents during the citizen/resident interaction]</p>
<p><i>Common Questions and Prompts for Q10 and Q 11</i></p> <p>11.1. Shortage of sanitary workers: Main reasons could be          [(a). Vacancies not filled, (b). Posts not regularised and still employees are working on temporary basis, (c) Sanitary workers are transferred/deputed to other department's such as water supply, (d) Some of the sanitary workers work as peon as they have political support, (e) Some of the sanitary workers serve to the officers and politicians for their personal work (housework), (f) Some just do not work, but regularly sign musters, (g) some of them also do job outside), (h) Subcontracting - work contracted to others, (i) Long leaves, (j) frequent absentees]</p> <p>11.2. Scarcity or dearth of equipments          [(a) Sanitary inspectors never distributes the equipments, (b) low quality equipments that immediately get damaged (c) Scraped material never allotted again, given only once (d) Sale of good quality equipment by</p>

workers and purchase inferior quality in place of sold

11.3. Improper Planning

[(a) councilors intervention or officer's interventions, (b) Sanitary Inspector apathetic and lethargic to planning, (c) Deputation of sanitary worker disproportionate to work-load or the area of the ward]

11.4. Non-compliance or disregard of work by Sanitary workers

[(a) No regularity in salaries, (b) Politics in work allocation - e.g. hard & strenuous work given to particular workers repeatedly, (c) improper treatment by the Sanitary Officer, (d) Addiction to alcohol (e) Ratio of old-aged workers is higher/highest

11.5. Other reasons (technical, geographical)

[(a) Narrow lanes disallow the cleaning or lifting the garbage cleaned and kept aside the gutter, (b) encroachment and unauthorised constructions (whole colony or part), (c) Half-left incomplete construction of the open gutters, (d) Public do not comply with their civic duties and clog the open gutters

11.6. Specific reasons with respect to usage of public toilets

[(a) No public toilets have been provided with water storage facilities, hence stinking toilets, (b) Citizen do not use properly, (c) Number of toilets disproportionate to population, huge population pressure]

12. What are the solutions on the problems in the sewerage as well as employees issues?

12.1. Workers transferred should be brought back to the work related to sanitation or gutter cleaning

12.2. New recruitment

12.3. Health benefits and facilities, equipments needs be done

12.4. No political intervention

12.5. Regular payments

12.6. Punishment/awareness building to people who violates the duties (citizen/residents)

13. Solutions specific to Public Toilets

13.1. Need to increase the number of public toilets

13.2. Water facilities

13.3. Pay and use

13.4. Awareness building

**2.2. Interview Schedule: Sanitoty Inspectors/HoD-Health Dept. /C' Person Health Committee /CO/President of the ULB**

1. Crosscheking of the issues reported from the city (area-wise)  
[share the complaints area-wise with respect to following]
  - 1.1. Water Clogging in open gutters
  - 1.2. Overflowing across roads (sewage as well as storm-water)
  - 1.3. Seasonality and major storm-water issues
  - 1.4. Public Toilets/Open defecation
  
2. What do you think are the further causes behind the problems mentioned below?
  - 2.1. Improper Cleaning of Public toilets and private septic tanks?  
[Why our booster-sucker vehicle does not work, what are the issues involved in it? Dont you get adequate disel allownace to clean septic tanks of public toilets? Why ULB funds are not being used for the same]
  
  - 2.2. Improper /inefficient cleaning by the sanitary workers]  
[Shortage of sanitary workers, Scarcity or dearth of equipments, Improper Planning, Non-compliabnce or disregard of work by Sanitary workers, Other reasons (technical, geographical)]
  
  - 2.3. If cleaning is contracted to some contractor?  
[What is the contracting process? What is covered in the contracting? What is the monitoring mechanism? How do you coordinate with citizen's grievances and ensure that contractor takes actions on it? Has ever the contractor has been enalised? To what extent? How his performance been after peanalising]
  
  - 2.4. Improper (gredient, narrow, less carrying capacity, etc), imcoplete, half-left, low quality constructions of gutters  
[Improper monitoring of contrctution contractor, improper technical evaluation while sanctioning the work as well as cleairng if bills, no competent technical authority available at ULB for caarrying out technical evaluations and sanctionin of the proposals]  
[No contractor is willing to bid for project financed through ULB funds because of high risks of corruption, No speedy clearing of bills, Majority contractors are council members]
  
  - 2.5. Improper monitoring of the sanitation workers  
[Staffing given by Directorate of Municipal Administration disallow new recruitment, no ratio could be maintained for ensring adquate staff, for example: 'X' number of staff for 'Y' meters of gutter line, Staff cant be controlled as political intervnetions and pressure, Staff earler recruited is loyal to politicains and not to officers, hence apathy in officers to take actions, Council members expect use to serve them, work-prioritization has no norms, council members influence them etc]
  
  - 2.6. Improper prioratization for repairing and new work  
[No planning, hence no work could be sanctioned, no technically eligible staff even for HoD-health posts, Absese of norms to for priortizing work sanctinin from ULB funds]
  
  - 2.7. Staff-issues  
[leaves, vacancies, deputation, transfer to other departments, etc.]
  
  - 2.8. Encroachments/improper permissions for new constructions  
[Political will, protection and free-hand to Chief officer to remove enchroachments, political protection to people who seek permissions to unauthorised constructions or hide unauthorized plans and seek permissions]
  
3. What is your planning with respect to the areas that do not have drainage system? As well as Adequate or no public toilets but need it?

[Schemes the officer/ULB looking for, the problems in getting the schemes sanctioned, other options for raising finance etc.]

4. How are you dealing with the storm-water drain system?  
[Are you favor linking storm water drains with the underground drainage scheme? or should sewage drains and storm water drain be separate systems? Why]
5. What is your planning regarding disposal system?  
[Is Sewage treatment scheme is being planned, proposed? Is it feasible financially? technically?]
6. Had you proposed anything under UIDSSMT scheme? Are you going to propose anything under State's own urban renewal scheme (like for example; *Maharashtra Nagari Punaruthhan Yojana*)
  - 6.1. If not sanctioned? why it did not get sanctioned?
  - 6.2. What plans do you have
7. In case, sewerage scheme is sanctioned, is the work going on properly  
*Share your observations with the inspector/officer/CO with respect to work. You may observe following points and use them as prompts for asking further questions.*
  - 7.1. How this new project is going to solve the problems?
  - 7.2. What are the current problems you or the implementing agency is facing? How ULB is trying to solve them?
    - (a) Delays in sanctioning led to revision of costs, however, ULB has to pay for the increased project costs as per central guidelines, but ULB is already burdened with loans or shortage of funds
    - (b) ULB hitherto could not pay for the 10%, only paid for 10% of first installment of project estimate.
    - (c) Public protests in digging trenches for underground drainage, as it is damaging the foundations of their existing houses and buildings
    - (d) Strata issues, were not considered during the survey and preparation of DPR and costs, hence increased costs, and issues of sharing the burden of increased costs. DPR preparing agency is not ready to accept her mistakes.
    - (e) Wrong STP locations, people's protests to STPs, STPs designed in within the flood-lines
    - (f) Scheme is not planned for whole city because of budget constraints
    - (g) Scheme is not planned considering the limits
8. Do you know about the list of 23 reforms suggested under JNNURM/UIDSSMT? Which Reforms are related and applicable to your department and services offered/looked after by your department?
  - 8.1. How do you think that the scheme would be financially feasible in post implementation period?  
[Is it appropriate to levy new taxes such as betterment tax, sanitation tax on the citizen? Is the concept of user charges applicable in your service? for example - *pay and use* toilets. Would people be able to pay it? What are the threats? Private contracting, for example - for STP is OK?
  - 8.2. To what extent your department and your municipal Council is capable to monitor work of the technically sound, big companies who would be interested in getting the contracts of STP?  
[What are the issues involved? Would you need trainings?, Do you think training would be sufficient and useful and your staff would learn? OR this work also would be contracted out?]
  - 8.3. How much scope for computerization is there in your department?

### 3. Tools for Interviewing Key Informant

#### 3.1. Schedule for Interviewing Informants having Technical Background

1. Which of the urban wastewater needs separate/ dedicated systems to manage it, in the context of the town?  
[a. Sewage (from toilets), b. Grey water (from dishwashing and bathrooms), c. Storm drains, d. Others]
2. In the context of the question 1, what do you think is the scenario of your town, issues in it? What should be an ideal plan to resolve / address the issues? How far the municipal council has gone ahead in the direction of solving the problems?
3. What is the average time span (years) for which a sewage system is typically designed? Does this depend on the existing population base of the town?
4. What are the issues in assuming a % of per capita water use, as the wastewater generated?  
[Large fluctuation in actual volume of wastewater generated, Over-capable treatment systems Non-recognition of alternate ends for wastewater flow, e.g. into soak pits and septic tanks]
5. What are the challenges and hindrances in making the sewage management system expandable and modular?  
[Topography of the town, Sub-strata of the town, Physical parameters (rainfall, population etc.), please specify]
6. What are the issues in gravity based sewage system?  
[Large slopes in the sewage lines required, demanding more ground cutting and filling, More possibility of clogging and choking, Other, please specify]
7. What are the issues in pumping based sewage system?  
[Filtering and grit removal become more important (to ensure proper functioning of the pumping system, Enormous electricity bills, Dependence on electricity supply, Other, please specify]
8. How could the road surface digging be best handled when carrying out the work of underground sewage lines?
9. Why can/ cannot the mechanism to recover flushing charges be implemented?  
[Non willingness to pay, Technical difficulties (please specify), Institutional or political hindrances (please specify)]
10. What are the issues causing hindrances in ensuring appropriate slopes and internal surfacing of the sewage lines?  
[Managing the work, Current norms of payment and delivery in contracting, Lack of technical capacity and capability (please specify)]  
[Lack of information at the planning stage, Due to corruption or Lack of capacity and capability at the planning authority level or Other (please specify)]
11. How can new connection making (from residents' points to the main sewage line) be ensured to follow the appropriate procedure and specifications?

### **3.2. Informants having Administrative/Managerial Background**

1. What is your opinion about the sewage system and sanitation in your town?  
[In the context of the issues reported by the citizen / residents which are the major problem areas, why?]
2. What is your analysis of the problems in the sewage system and sanitation?  
[Social, Financial, Political, Other dimensions]
3. What solutions do you suggest? In your opinion, can an open gutter system also be effectively managed? How?  
[Effective contracting, effective monitoring of the work of the municipal employees, people's participation]
4. What efforts have been made hitherto in order to solve the problems?  
[Community participation in Public Toilets management?, Community participation in prohibiting the encroachments?, Pushing municipality to solve issues with the gutter line, having new projects based on proper planning, Other]
5. If ULB decides upon a project to do it, what are the hurdles?  
[What are the typically administrative issues involved in it?, Financial, managerial, Sanctioning of the money?]
6. Do you think, financial reforms, especially application of user charges is possible to sewerage sector?  
How?  
[What needs to be done to effectively implement reforms? How people would respond if levied? What should be the management structure? Do you think your ULB is capable to do that?]
7. What other reforms are relevant to this sector?

## 4. Data Organization and Analysis formats

The data obtained regarding the problems and other details concerning various components of the Sewerage system could be summarized with the following format. It could be used for the data obtained from:

- a. the resident survey/Focus Group Discussion,
- b. information from system inspection,
- c. information from the system interviews, and
- d. information obtained from the key informants,

### 4.1. Format for Summarizing problem-detailing

#### 4.1.1. Problems with respect to sanitation and sewerage in the town

The objective of this format is to identify the various aspects of the problems, based on the perspectives of various stakeholders who are the respondents or data sources.

No.	Aspects of problem detailing	Components <sup>31</sup>			
		Answers (as per the response to the relevant questions from the questionnaire)			
		As per the residents	As per the system inspection	As per the system staff	As per the other respondents
1	Problems related to The Component <sup>32</sup>				
2	Names of areas where the problem(s) is/are observed				
3	Extent of the problems in terms of various parameters (social, economic and geographical) related to The Component				
4	Coping strategies adopted for problems in The Component				
5	Effects of the problems related to The Component				
6	Effects of each Component's coping strategies on the residents				
7	Effects of the problems and the residents' coping strategies on other municipal services				

**Table 45 Format for snapshot of problem detailing related to Sewerage Components**

<sup>31</sup> Three Components: (A) Grey water, private toilets, sewer-lines and storm water in **Open gutter System**, (B) Grey water, Toilets (Public and Private), Open Defecation, and storm water issues when there is **absence of Drainage lines** and (C) **Disposal of waste**

<sup>32</sup> The Component would be one of the Three mentioned in the previous table: Open gutter System, absence of Drainage lines and Disposal of waste. However, in the first two, there are four sub-components in each. Thus, there will be eight tables for each type of sewerage system stream being studied, excluding one table for disposal of waste.

## 4.2. Formats for Summarizing several aspects of the system

### 4.2.1. Existing situation of the Sewerage system – extent and existence

The existing situation of the Sewerage system in the city may provide valuable insights to why certain problems exist, in other words, the causes for the problems. The data obtained from area survey, system inspection, and informant interviews could be arranged in the following format, to identify the overall extent of service existence in the city/ town.

The number of areas where the extent and existence of sewerage related service provision is to be studied, can be extracted from the header of the questionnaire for residents, and from the transect walk related information, collected from the corresponding sections.

The objective here is to bring out the inequity in service existence, based on the area distribution. This could be juxtaposed with the other extents of the problems, as seen in section 1, to further highlight the exclusion of residents from certain class/ caste/ region being excluded from the service provision mechanism.

Type of Sewerage System: : (a) Open gutter System, (b) Absence of system <sup>33</sup>						
No.	Component	Service exists		No service exists		Total sample size (total no. of areas surveyed)
		Number of areas <sup>34</sup>	Percentage of areas (frequency * 100 / total sample size)	Number of areas	Percentage of areas (frequency * 100 / total sample size)	
1.	Grey Water					
2.	Private Toilets					
3.	Public Toilets					
4.	Open Gutter lines					
5.	Open Defecation					
6.	Storm water					

Table 46 Format for snapshot of the existing Sewerage situation

### 4.2.2. Grievance Redressal Mechanism

The following format could be used to summarize the situation related to the grievance redress mechanism in the town. The objective of the format is to bring out how effective the grievance-redress mechanism in the Sewerage system of the city is, if at all it exists.

Sewerage components								
No.	Sewerage management component	Grievance redress mechanism (as per system staff and other sources of information)						
		No. of staff responsible for GR	Designation of GR staff	Frequency of accepting grievance applications	Time required for acknowledging grievance receipt	Approving authority for grievance redress	Mechanism to track the status of grievance	Time required for addressing grievance
1.	Open Gutter Lines (including issues of grey-water, sewage and storm-water)							
2.	Public Toilets							
3.	Treatment and disposal of sewage							

Table 47 Format for snapshot of situation of grievance redress mechanism

<sup>33</sup> A separate table should be prepared for each type of sewerage components

<sup>34</sup> Some sources may yield direct % answers for these headings

No.	Level of staff <sup>35</sup>	Strength	Role and function of staff
12.	Workers		
13.	Supervisors		
14.	Sanitary inspectors		
15.	Grievance redress officer		
16.	Monitoring or penalizing officer		
17.	Staff to monitor private participation in the sector		

**Table 48 Staffing at the Sewerage managing entities**

#### 4.2.3. Technical Details of the Sewerage System

The data obtained about the technical details of the system, could be consolidated using the following format.

The objective of the format is to compare what level of technical competence of the system is witnessed by the residents at the ground level, to that planned or assumed by the system itself.

No.	Aspect	Details <sup>36</sup>	
		As per the residents	As per system
1.	Length of Drainage lines (in Meter)		
2.	No of private toilets		
3.	No of public Toilets		
4.	No of workers for cleaning public toilets		
5.	No. of workers for cleaning Drainage lines		
6.	No. of booster-sucker machines		
7.	Other technical parameters		

**Table 49 Format for recording the technical details of existing Sewerage system**

#### 4.2.4. Format for work schedule and priority

The following format could be used to summarize the data regarding the operation of the current Sewerage system in the town. This data is obtained from the system staff. The objective here is to identify whether at all there is any regularly planned work happening, and the factors that influence the work prioritization when it comes to the actual work happening on ground.

No.	Work	Whether done on a regular basis or as needed	What decides the need to do certain work	Priority level (high/ medium/ low)
1				
2				

**Table 50 Format for work scheduling at MCs sewerage department**

#### 4.2.5. Works completed and expenses incurred for those

This data could be obtained from the budgets and expenses related sections from either the Town Level Background Note, or the relevant documents obtained directly from the MC.

<sup>35</sup> Only for illustration here. The actual staff levels should be added/ removed based on the situation

<sup>36</sup> As applicable, one of the columns could be blank/ the heading applicable could be modified

The objective of this format is to bring out the effectiveness of the works carried out and steps taken to prevent or solve problems in the sewerage sector. It also captures the often-occurring incidents of new problems being created out of solutions intended to solve certain other problems.

Additionally, it also tries to highlight if the funds spent for certain steps were justified at all.

No.	Year	Works carried out	Expenses	Problems that were intended to be solved/ prevented due to the works	Were the problems really solved or prevented?	New problems created after the works were completed
1	2005-06 ..... 2009-10	Purchase of uniforms				
...		Salary of workers				
...		Repairing drainage lines				
5		New Construction of Drainage lines				
		Purchase of equipment and consumables (boots, powder, tools for the workers)				
		Expenses on citizen awareness building campaigns				
<b>Total expenses incurred during last 5 years</b>						

**Table 51 Format for summarizing and assessing the works completed**

### **4.3. Formats for Cause Analysis and Detailing**

#### **4.3.1. Lapses/ gaps in the documents as causes of the problems**

The internal compliance reports of the ULB, prepared by the health department, should be analyzed to understand the following:

- ❖ Problems in the town identified by the health department:
- ❖ Solutions proposed and implemented by the department:
- ❖ Problems that still remain unsolved:
- ❖ Possible reasons for the problems that were not solved by those measures

#### **4.3.2. Problem causes and their details**

The following format could be used to consolidate the causes reported by various respondents/ stakeholders of the Sewerage system. This shall enable taking a single overall view of how the same problems could be perceived by different entities as springing from different levels. The culprits and interests identified by the respondents and summarized here shall form a part of the input to prepare the causal tree, as in Figure 6.

No.	Sewerage system component	Cause reported	Components			
			Cause and the type of cause (administrative/ financial/ technical/ political/ geographical / social/ other to be specified)	Culprit responsible for the cause	Problem(s) associated with the cause	Interests in perpetrating the cause
1	Open Gutter	1. As per residents 2. As per system staff 3. As per key informants 4. Documents				
2	Public Toilets	(source wise classification as above)				
3	Storm water Drainage line					
4	Treatment of sewage		...			
5	Disposal of sewage		...			

**Table 52 Format for summary of the causes giving rise to corresponding problems**

#### **4.4. The Causal Tree Format: Organization and Assessment of Causes**

##### **4.4.1. Collating and organizing exclusive root causes**

Based on the causal analysis and the organization so far, the various causes of problems faced by the residents should be assessed for mutual exclusivity. The following format could be used for the same. The objective of this exercise is to identify cause components that operate at a level from where a number of different problems are caused. The solutions proposed should ideally address and eradicate these root level causes.

No.	Sewerage system component	Problem	Type of cause (administrative/ financial/ political/ social/ geographical/ technical/ other to be specified)	Further cause	Further cause(s)	The exclusive cause, root cause or malady that needs to be treated (may be common across components)
7.	Open Drainage lines					
8.	Public Toilets					
9.	storm water drainage lines					
10.	Treatment					
11.	Disposal					

**Table 53 Organizing causes of problems for causal tree**

##### **4.4.2. Preparing the Causal Tree**

Based on the problems and the cause related data summarized earlier, a causal tree should be prepared, identifying the linkages between the problems, their causes, the further causes and pointing towards the core maladies responsible for the problems. The format in Figure 6 is a general format for the causal tree. The following format could be used to collate all problems vis-à-vis all causes reported for those problems:

No.	Problems (related to all components of the Sewerage system)	Causes (all types of causes, viz. geographical, social, political, technical, financial and administrative)
-----	---	---

4.	clogging drainage lines	
5.	irregularity in cleaning public toilets	
6.	No treatment of sewage	
7.	...(entries from data collected so far)	

**Table 54 Format for collating all problems and causes**

It may be noted here that some of the aspects of the problem detailing may be directly translating to being the causes of the problems.

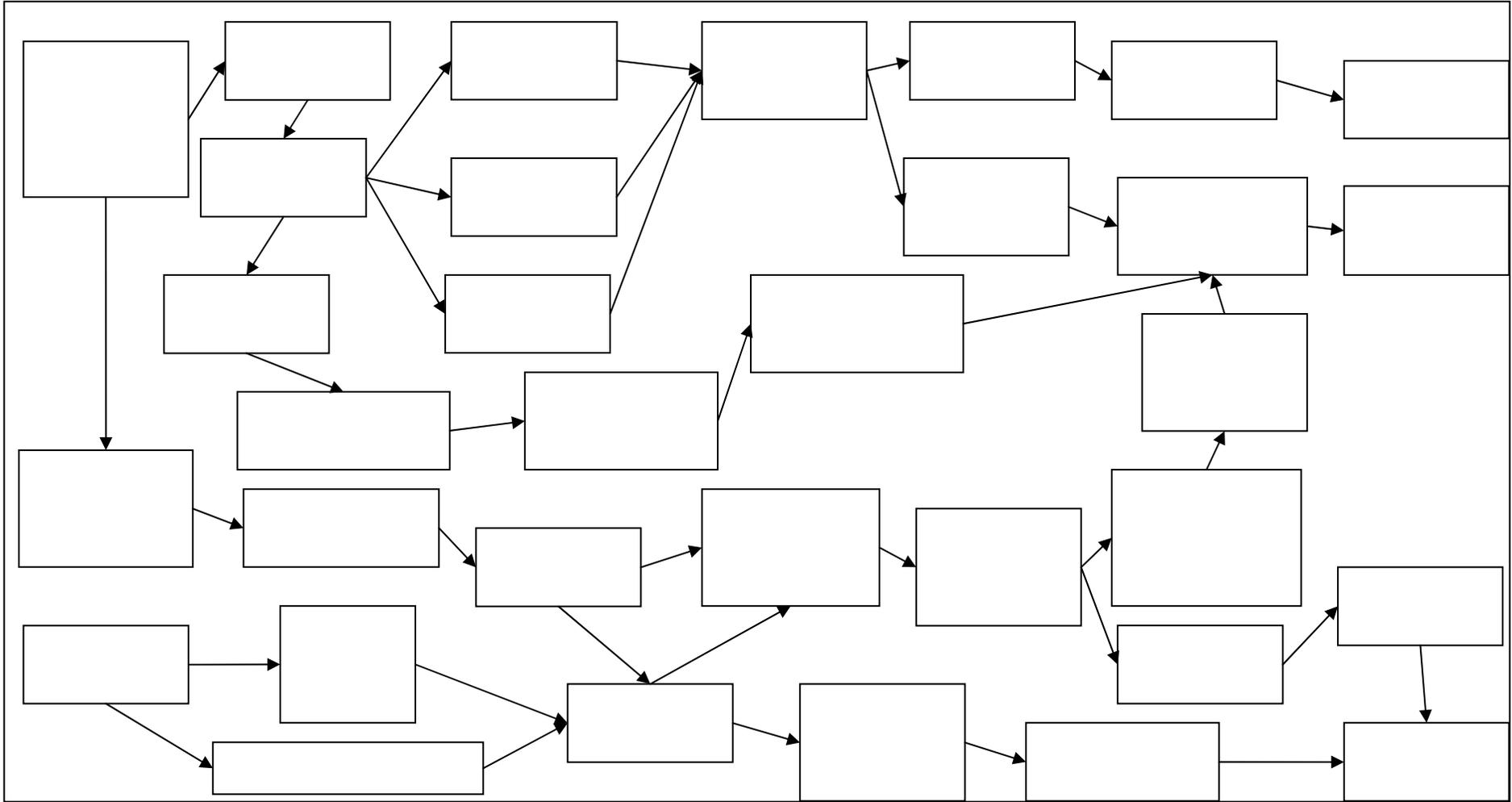


Figure 6 Sample Format for the causal tree

## 4.5. Formats for Option Summarization

### 4.5.1. Processing data about desired results to solve the problems

The following format could be used to summarize all options suggested by various respondents/ stakeholders of the Sewerage system in the city. The objective of this format is to compile various perspectives on possible ways of solving the problems. It essentially also provides a platform to initiate a MSD, in terms of being able to juxtapose perspectives of various stakeholders towards the possible solutions, enabling them to perceive the issues and challenges, along with opportunities involved, from their own standpoint.

No.	Cause(s) reported	Desired results to eradicate the cause			
		As per residents	As per workers	As per key informants	As per other system staff
1					
2					
3					
4					
5					

Table 55 Format to record possible solutions to eradicate the causes to problems

### 4.5.2. Options Assessment

Analysis of the effectiveness and the mutual linkages, for mutual exclusion of the proposed options to solve the problems revealed that there are a number of desired results, that could be achieved with a definite set of multiple options. The following table collates the same.

Desired results to solve the problems of sewerage sector	Options for achieving the results
Financial strengthening of the MC	
Improvement of the collection efficiency	
Ensuring proper Cleaning, treatment and disposal of sewage	
Having adequately capable staff	
Ensuring public participation to reduce corruption	
Having strict regulations and monitoring mechanism implemented to ensure minimal deviation from the prescribed norms	

Table 56 Consolidation of options possible to achieve desired results

## 4.6. Formats for SWOT Analyses

The formats in this section could be used to identify:

- Strengths and weaknesses of the city/ town as a ULB to be able to implement and carry out the solutions proposed or underway, and
- Opportunities and threats presented by the solutions implemented/ underway.

#### 4.6.1. Strengths and weaknesses in terms of adopting the solutions

Keeping in perspective the solutions from the previous section, the following format could be used to assess the strengths and weaknesses of the ULB. The inputs to this format would be obtained either from the Town Level Background Note (TLBN), or a study of the strengths and weaknesses of the various local entities. The objective of this exercise is to assess which of the local entities would be able to carry what responsibilities related to the possible solutions. These points could also form a part of the discussions at the MSD.

Local CSOs/LAI <sup>37</sup> /APMC /industry/ federations of traders/Unions/OPS <sup>38</sup>		
Aspect	Strengths	Weaknesses
Geographical		
Social		
Political		
Financial		
Administrative		
Technical		

**Table 57 Strengths and weaknesses of local entities**

#### 4.6.2. Opportunities and threats posed by reforms initiative – new staffing pattern

The formats in this section could be used to analyze the extent to which the proposed reforms influence the Sewerage sector in the town/ city. The information regarding the reforms committed to/ implemented by the ULB can be obtained from the Town Level Background Note, or the relevant data collection carried out as per the overall guidelines.

Assessment of the effect of the new staffing pattern on the Sewerage system could be done with the following format. The objective here is to attempt to translate what the staffing pattern means directly for the city's Sewerage sector.

No.	Position / Post	No. of permanent Posts	No. of temporary Posts	Component of the sewage handling system that will be affected due to such staffing
9.	Sanitary inspectors			
10.	Health officers			
11.	Head of the health department			
12.	Supervisors			
13.	Workers			
14.	Other staff related to the sewage system			

**Table 58 Assessing effect of the new staffing pattern on the service system**

#### 4.6.3. Opportunities and threats from the other reform initiatives

The implications of reforms and project schemes for the Sewerage sector could be used to fill the following formats, to detail the opportunities or threats posed by the reforms initiatives. This would again have to be carried out from the perspective of the problems and the solutions proposed for the problems, as in the corresponding earlier sections.

<sup>37</sup> Local academic institutions

<sup>38</sup> A separate table should be prepared for each entity

No.	Reform	Opportunities	Threats	Prerequisites to ensure opportunities	Steps needed to mitigate the Threats
1					
..					
..					
23					

**Table 59 Feasibility Analysis of Reforms for the ULB (In prevailing conditions)**

#### 4.6.4. Opportunities and threats from other on-going and proposed initiatives- the project DPR

The Ministry of Urban Development, issued guidelines as to what should be contained in a project DPR, for Sewerage management. The following format enables comparison of the DPR in a city, with the guidelines, to identify the shortcomings in the DPR. The format is also extended with an attempt to identify the possible action points to rectify problems arising out of such shortcomings.

If the DPR contains the relevant aspects, what are the steps required to ensure their effectiveness?	If not <sup>39</sup> , steps needed to compensate for such shortcoming of the DPR
<b>Components specified from CPHEEO manual and JNNURM Guidelines</b>	
<b>Population projections of the city over the project life period</b>	
<b>Present condition of the city, population and area covered by the existing Sewerage system</b>	
<b>Justification/ need for the proposed Sewerage project</b>	
<b>Soil characteristics, topography, geology of the city; groundwater tables in different seasons,</b>	
<b>Environmental Impact Assessment</b>	
<b>Report of field study covering the quantity and quality of various types of Sewage generated in the city, and the technical parameters of the existing Sewerage system</b>	
<b>Analysis of options possible for sewerage management and selection of appropriate alternative; justification of the mechanism and machinery required for sewerage management; Detailed design and drawings of various sewerage management components</b>	
<b>Benchmark-based justification for land requirement for underground drainage lines/Treatment/ Disposal facilities</b>	
<b>Detailed plans for operation of the project, treatment, public awareness measures, issues for capacity building, community participation etc</b>	

**Table 60 Format for comparison of the DPR to the stipulated requirements**

#### 4.7. Charter of Demands, with Multi-Stakeholder Dialogue (MSD)

<sup>39</sup> The document by the title of DPR with the study team does not contain this information

The formats from the previous section/s as applicable should be discussed at the multi-stakeholder dialogue, and the points raised with respect to the various aspects captured in those should be noted down and mapped with those.

#### 4.7.1. Burning Issues for the MSD

The following format summarizes the burning issues that have been observed, and need elaborate discussion during the MSD.

No.	Issue	Source
3.	A total of over Rs. 1 crore has been spent on solid waste management over last three years. Considering the capacity of the system required for handling the town's solid waste (around 7.5 TPD), was this expenditure justified?	The documents, recording the expenses incurred.
4.		

#### 4.7.2. Charter of demands with responsibility allocation

Additionally, the following format could be used to prioritize the options, based on the multi-stakeholder dialogue. The mapped responsibilities of various entities in the city will serve as the directive list of demands. The steps needed to effectively implement the options need to be devised based on the SWOT analysis carried out in the relevant section.

No.	Selected option(s)	Steps needed to effectively implement the option(s)	Responsibility of various entities in taking those steps			
			ULB	LAI	CSOs	Residents
<b>Short Term Demands</b>						
4.						
5.						
6.						
<b>Long Term Demands</b>						
4.						
5.						
6.						

Table 61 Option selection and responsibility mapping based on multi-stakeholder dialogue

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## 5. Knowledge and Information Resource

This section attempts to capture the insights about issues, challenges and the current situation of the sewage management system, especially in India and Maharashtra.

### 5.1. Understanding the Sewerage Management System

The various stages in sewage management systems are summarized here.

#### 5.1.1. Generation

At the source of the sewage management systems is the generation of sewage, mostly in the form of grey water (discharge from dishwashing and bathrooms), and sewerage itself (drainage from the toilets). Since in most of the places, storm water drains are also often combined with the sewage management system, issues concerning both, storm and non-storm discharge are observed together. Storm discharge is also therefore often considered for the analysis of sewage management systems.

For the purpose of the study taken up here, the generation component includes the private toilets, and also the public toilets. In fact, extent of sanitation as an issue finds the most significant relevance to this aspect of the sewage management system.

#### 5.1.2. Collection and transport

Ideally, the storm drains need only to be transported from the catchment area to the nearest water body, while the other types of discharge (grey water and sewage) need treatment before disposal.

The sewage collection and transport systems needed for both types of water are therefore ideally different. The storm water and grey water can be collected and transported by open systems (though separate due to different treatment requirements), sewage from the toilets needs to be transported through a closed system.

From the physical point of view, the collection and transport system forms that part of the system which collects the sewage from either directly the toilets or the outlets of the septic tanks, and transports the discharge to the treatment point.

### **5.1.3. Treatment and recycling**

Water scarcity on one hand, and the possibility of treatment and recycling of water on the other, form a significant combination. With varying types of physical, chemical and biological technologies available to treat sewage, water of varying degrees of usability can be obtained from the recycling process on the sewage. Filtration and reduction of biological and chemical oxygen demand (BOD and COD) of the water, on a broad level form important aspects of the treatment of sewage.

### **5.1.4. Disposal**

As long as the water flowing out of a sewage management system is not considered as a pollutant, natural water bodies are considered to be the ideal discharge for the treated water. However, non-treatment of sewage and its discharge in water bodies, especially those with water uses downstream, is a greatly emphasized issue in almost all the literature available on sewage management.

## **5.2. Sectoral developments and current situation in India**

With the constantly increasing in-migration to the urban centres in India from the rural areas, the pressure on service provision systems has been soaring, especially after the 1990s.

Sanitation, and as its integral part, sewage management, is an essential aspect of the public health. Despite a slew of policy initiatives taken up for the sewage sector in India, it is reported that 8 million of India's toilets are dry, and 1 million sanitation workers carry faeces overhead (International Dalit Solidarity Network, 2002). 29% of India's households do not have access to toilets, while 2.2 million people are regular targets of diseases caused due to lack of sanitation, children forming a major part of the victim set (Wash Facts and Figures, 2003). This underscores the emerging need for effective management to ensure sanitation and public health. The JNNURM regime of projects and reforms, including the UIDSSMT are parts of the endeavour to address this need.

In times when there was no piped water supply, the amount and extent of grey-water generation from households was limited. Defecation used to occur at open spaces reserved for the purpose, outside settlements. Sanitation, especially sewage management, was not looked at as a public service especially before India's independence.

After independence, hygienic water supply was set as a prime objective to ensure public health, while only the third five-year plan was the first step taken towards allotting solid financial support to sewage and drainage management.

Increasing urbanization and industrialization also drove the states to be instructed to enact laws related to water pollution.

The subsequent five-year plans focused on consideration of sewage management as a service essentially linked to water supply, and the need for user charge mechanism to cater to the increasing expenses to manage sewage. Capacity building of sanitation engineers, and ensuring proper toilets were also parts of the evolving strategy.

In the course of increase in the capital and the operational costs of the sewage management systems, the policy structure has even been modified so as to encourage private investments in the sewage management sector.

### **5.2.1. 74th Constitutional Amendment Act**

In the 74<sup>th</sup> CAA, the responsibility for public health and cleanliness was entirely transferred to the urban local bodies (ULBs). This included the responsibilities to plan for, and execute, the building of municipal service provision systems. Sanitation was one of the subjects transferred accordingly.

The components that are generally included under the purview of ULBs with regard to sewage management are:

- a. Arranging for public toilets for the population that does not have access to private toilets; ensuring water supply in the public toilets, management of the sewage generated in the public toilets either through septic tanks or collection and transport of the sewage; regular clearing of the septic tanks; and ensuring regular maintenance and repairs of the public toilets
- b. Ensuring that the domestic sewage (both grey water and sewerage) is carried away through collection and transportation system, and regular maintenance and repairs of the system

- c. Establishing well planned and closed systems for sewage management in urban areas, which are regularly maintained and repaired
- d. Ensuring well planned systems for management of storm drains
- e. Establishment of sewage treatment plants (STPs) to treat the sewage generated in the urban areas, that are well maintained, and
- f. Ensuring proper public health by appropriate management of sewage in the urban areas

### **5.2.2. Institutional structure**

#### ***CPHEEO***

The Central Public Health and Environmental Engineering Organization (CPHEEO) is the organization extending technical support to the Ministry Of Urban Development, in the matters related to water supply and sanitation. The support includes policy directives, research support, assistance for financing, and suggestion of technological alternatives for sanitation and sewage management.

The CPHEEO has also set the normative structure for estimating the volume of sewage generated by a certain set of population. Vital planning, construction and maintenance advices constitute the CPHEEO's manual on sewage management systems. According to that, 80% of the water consumption should reach the sewers, unless data is available to the contrary. However, the manual also states that the sewer lines should be designed to handle a discharge of at least 100 litres per capita per day (LPCD). This is an essential planning input. The manual is available for free download at [http://urbanindia.nic.in/publicinfo/manual\\_sewage.htm](http://urbanindia.nic.in/publicinfo/manual_sewage.htm).

#### ***Pollution Control Board(s) (PCBs)***

The Central Pollution Control Board, among other things, advises the central government on pollution control, and issues directives for effluent management. The Maharashtra PCB (MPCB) is responsible for monitoring and controlling pollution on the state level. The local self governance bodies are required to take approval and certificate from the MPCB for the pollution control systems established by them, vide the Water (Pollution Prevention and Control) Act, 1974.

#### ***Environmental Department***

The environmental department is also a nodal agency, that issues Government Resolutions that have so far stipulated a time bound program to be followed by the local self governance bodies, to manage the sewage generated by them. The department also indicated the source of standards to be followed while establishing such management systems.

### **5.2.3. Sewage management in Maharashtra**

#### ***Legislation***

According to the section 457(c) of the Mumbai Regional Municipalities Act, 1949, municipal corporations have been authorized to formulate and implement rules for sewage management. This includes construction, maintenance and repair of drain lines, plan and construct public toilets, and regulation of the effluent discharge from commercial establishment into municipal drains.

This and the municipal council related legislation also have rules to be adhered to by the residents. No new construction has been allowed without construction of proper bathrooms. Property owners have also been authorized to use the municipal drains to release discharge from bathrooms, and to use properties or drains belonging to others to carry through the discharge generated by them, in case no other drains are available.

#### ***Government Resolutions (GR) and Notifications***

A GR dated 6<sup>th</sup> February, 1999, prohibited manual transport of faeces. Immediate establishment of sewage treatment and management systems has been made a thrust area according to a directive from the MPCB. 2002-03 saw the implementation of *Sant Gadge Baba Naagari Swachchhata Abhiyan*. This included construction of public toilets, prohibiting open defecation, and ensuring overall cleanliness of the urban premises. This was carried out on a competitive bases, with the better performing ULBs being awarded for the performance.

The National Building Code of 2005 includes provisions for public toilets. The Water Supply And Sanitation department has subsequently considered the increasing floating population in the cities, and issued notification in May, 2008 for construction of public toilets.

### **5.2.4. Decision making at the urban local level**

#### ***Administrative and financial approvals***

At the ULB level, the health committee makes decisions for the sewage management systems at the city level. The ward committees in the corporations make decisions at the ward levels. These decisions are then scrutinized by the Standing Committee, which is further tabled in the General Body of the ULB. The Commissioner/ Chief Officer thereafter approves the resolution, subsequent to establishing the legality of the same. The execution is then carried out as per the approval.

#### ***System for financial management***

Before the implementation of the JNNURM regime, there was no grant for management of sewage. Construction and operation of the sewage management system in the city/ towns used to be carried out totally from the MC funds. The user charge for the sewage systems in the cities/ towns was included in the property tax, and hence no separate sanitation tax used to be charged to the residents.

### 5.3. The modern concept of sustainable sanitation

As is evident from the discussion presented heretofore, the conventional approach to sanitation is likely to be unable to meet the needs universally, and especially in countries like India, with fast growing population and increasing rate of urbanization.

Such rocketing pressure in this context, has been reported to result in an increased priority to:

- ❖ Identify appropriate simple, affordable decentralized sanitation systems and promote their adoption
- ❖ Implement appropriate technologies with the participation of the communities to be served, and
- ❖ Focus on health and hygiene education so that physical facilities would be properly used and maintained, and that hygienic behaviour would support the improvements brought about by the infrastructure.
- ❖ The destruction of pathogens through flow stream separation, containment and specific treatment.
- ❖ Resource conservation through a reduced use of potable water as a transport medium for human waste and by recovering wastewater for irrigation
- ❖ The elimination or minimization of wastewater discharges to the environment
- ❖ The need to close the resource loops through the productive use of the nutrients and energy (biogas) contained in excreta

This modern concept represents the paradigm shift initiated in response to satisfying the health needs of unserved, mostly poor population groups. The following sub-sections summarize the information available across the freely available literature regarding sustainable sanitation.

#### What is sustainable sanitation?

Sustainable sanitation has recently been characterized by the Sustainable Sanitation Alliance (SuSanA): “The main objective of a sanitation system is to protect and promote human health by providing a clean environment and breaking the cycle of disease. In order to be sustainable, a sanitation system has to be not only economically viable, socially acceptable, and technically and institutionally appropriate, it should also protect the environment and the natural resources” - SuSanA (2008). When improving an existing and/or designing a new sanitation system, sustainability criteria related to the following aspects should be considered:

(1) **Health and hygiene:** includes the risk of exposure to pathogens and hazardous substances that could affect public health at all points of the sanitation system from the toilet via the collection and treatment system to the point of reuse or disposal and downstream populations. This topic also covers aspects such as hygiene, nutrition and improvement of livelihood achieved by the application of a certain sanitation system, as well as downstream effects.

(2) **Environment and natural resources:** involves the required energy, water and other natural resources for construction, operation and maintenance of the system, as well as the potential emissions to the environment resulting from use. It also includes the degree of recycling and reuse practiced and the effects of these (e.g. reusing wastewater; returning nutrients and organic material to agriculture), and the protecting of other nonrenewable resources, for example through the production of renewable energies (e.g. biogas).

(3) **Technology and operation:** incorporates the functionality and the ease with which the entire system including the collection, transport, treatment and reuse and/or final disposal can be constructed, operated and monitored by the local community and/or the technical teams of the local utilities. Furthermore, the robustness of the system, its vulnerability towards power cuts, water shortages, floods, etc. and the flexibility and adaptability of its technical elements to the existing infrastructure and to demographic and socioeconomic developments are important aspects to be evaluated.

(4) **Financial and economic issues:** relate to the capacity of households and communities to pay for sanitation, including the construction, operation, maintenance and necessary reinvestments in the system. Besides the evaluation of these direct costs, also direct benefits e.g. from recycled products (soil conditioner, fertilizer, energy and reclaimed water) and, external costs and benefits have to be taken into account. Such external costs are e.g. environmental pollution and health hazards, while benefits include increased agricultural productivity and subsistence economy, employment creation, improved health and reduced environmental risks.

(5) **Socio-cultural and institutional aspects:** the criteria in this category evaluate the socio-cultural acceptance and appropriateness of the system, convenience, system perceptions, gender issues and impacts on human dignity, the contribution to food security, compliance with the legal framework and stable and efficient institutional settings. Most sanitation systems have been designed with these aspects in mind, but in practice they are failing far too often because some of the criteria are not met. In fact, there is probably no system which is absolutely sustainable. The concept of sustainability is more of a direction rather than a stage to reach.

Nevertheless, it is crucial, that sanitation systems are evaluated carefully with regard to all dimensions of sustainability. Since there is no one-for-all sanitation solution which fulfils the sustainability criteria in different circumstances to the same extent, this system evaluation will depend on the local framework and has to take into consideration existing environmental, technical, socio-cultural and economic conditions. Taking into consideration the entire range of sustainability criteria, it is important to observe some basic principles when planning and implementing a sanitation system. These were already developed some years ago by a group of experts and were endorsed by the members of the Water Supply and Sanitation Collaborative Council as the **“Bellagio Principles for Sustainable Sanitation”** during its 5th Global Forum in November 2000:

(a) Human dignity, quality of life and environmental security at household level should be at the centre of any sanitation approach.

(b) In line with good governance principles, decision making should involve participation of all stakeholders, especially the consumers and providers of services.

### **Sustainability is key to long term success**

Despite its vastness and population of more than 1 billion, India is working hard and successful in providing water and sanitation facilities to its people. The Joint Monitoring Programme (WHO/UNICEF) 2004 report states that India has succeeded in providing 86% of its population with improved water supply and 33% with improved sanitation. Because of the slow progress in sanitation, the government of India, both at central and state levels, has increased activities and funding, and has committed to achieving the sanitation MDG target by 2012. Water supply and sanitation is a State responsibility under the Constitution of India and following the 73<sup>rd</sup> and 74<sup>th</sup> Constitutional Amendments, the States give the responsibility and powers to the Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULBs). States generally plan, design and execute water supply schemes (and often continue to operate them) through their State Public Health Engineering Departments (or as in the case of some states, Panchayati Raj Engineering Departments or Rural Development Engineering Departments) and Water Boards. However, the Centre has seen the need over many years for coordination and harmonization of standards. It has also been responsible, through the Five Year Plans, for guiding much of the investment in the sector as well as for improving financial instruments for infrastructure implementation in the states. Similarly, it has taken a lead in recommending styles of water supply and sanitation organisations, in promoting the needs for training and research, and most recently in promoting water quality monitoring and human resources development programmes. In addition, a variety of different government institutions at the Centre have a role in the management of drinking water supply as the government strives to fulfill its responsibilities for water resources coordination, pollution control and financing of infrastructure development.

A variety of central institutions are involved with water supply and sanitation, either directly or indirectly. The Central Water Commission (CWC) in the Ministry of Water Resources (MoWR) has responsibilities for regulating the use of surface water for irrigation, industry and drinking water purposes. The CWC also mediates in inter-state water allocation disputes. The Central Groundwater Board (CGWB) of the same Ministry has an overseeing responsibility for the monitoring of groundwater levels and rates of depletion, as well as production of water resource inventories and maps. The rural sector has a strong water supply sector reform agenda, based on a paradigm shift towards decentralization, demand responsiveness and peoples centered approach, increasingly taking the role of government from a direct service provider to a facilitator. Likewise, the Total Sanitation Campaign (TSC) approach of the Restructured Centrally Sponsored Rural Sanitation Programme (RCRSP), which is based on the successful model of Midnapur (West Bengal), is also being adopted in other districts of the country with appropriate changes to suit the local conditions and perceptions.

In the urban context the 10<sup>th</sup> five year Plan places significant emphasis on Urban Water Supply and Sanitation (UWSS). In November 2008 a national urban sanitation strategy has been presented by the Ministry for Urban Development, GOI, that names “Open defecation free cities” and “Promoting recycle and reuse of treated wastewater for non-potable applications” among the focal policy goals. The national rural sanitation programme of the Indian government began in 1986. It has evolved into the Total Sanitation Campaign (TSC), which now operates in 578 districts of 30 states/union territories and is resourced with over US\$1 billion, to reach India's rural population of 71%. TSC successfully encourages households to finance their own toilets while giving financial incentives to poorer people. The 1% average annual progress of 1981-2001 grew to 3% in 2002-2007 and presently suggests an annual growth of 5-7%. A nationwide network of Rural Sanitary Marts and Production Centres has been established with government funds, although they are run primarily by NGOs and CBOs. (Community Based Organisations) This has boosted the supply chain, promoting sanitation and hygiene, catering to 138 million rural households of which around 55% are still without toilets. From three decades of a government-driven programme suggest that visionary policies, combined resources, a strong institutional setting and decentralised delivery are key to reaching at least half of the population without

toilets by 2012, the end of India's 11th five-year plan. Although progress is uneven, models in West Bengal, Maharashtra and elsewhere show how informed strategies, strong peoples participation, strong monitoring and political determination yield results that can be scaled up rapidly. Efforts are being intensified by the Government of India (GOI) to focus on provision of sanitation in schools and communities. Awards have been created like **Nirmal Gram Puraskar**, which is an incentive scheme to add vigour to the sanitation drive by local self governments. To achieve the paradigm shift in rural sanitation in India the GOI uses innovative financial incentives as part of the larger total sanitation campaign and has empowered people to innovate and implement successful models across the country. These models include rural sanitary marts and production centres including outlets not only to provide the materials required for construction of sanitary latrines and other facilities, but also items required as a part of the sanitation package. The rural sanitary mart also serves as counseling centre for those interested in building a toilet on their own. Nongovernmental organizations and local governments have established such marts in remote areas. On state level innovative community-led approaches for total sanitation in Tamil Nadu, Maharashtra and West Bengal have taken huge strides in rural sanitation in the last four years, largely as a result of adoption of a community led total sanitation approach. The five types of innovation — technology, procurement, community mobilization, monitoring and financing at micro level — are a

**Model for other states to follow and to achieve the MDG goals.**

NGOs (both national and international) have played a significant role in the sector in India over the past three decades. Due to their decentralised structure they have exhibited comparative advantages that other organisations lack. These include the capacity to: (i) reach the rural poor and remote areas (ii) promote local participation (iii) operate at low costs, and (iv) adapt and be innovative on local level when needed. The initial involvement of NGOs in the sector came in the sixties with the famines in Bihar (1964) and Maharashtra (1969). Several external multilateral and bilateral agencies provide assistance to the sector in India. Some of the external support agencies (ESAs) include the bilateral agencies of Japan, the United Kingdom, the United States, Denmark, Sweden, Germany, Australia, Netherlands, etc and multilaterals such as the World Bank, WHO, UNICEF, Water and Sanitation Program – South Asia, UNDP, and the European Union. While in percentage terms the levels of external donor assistance in relation to government investments have been falling, ESAs have made valuable contributions to the sector in terms of supporting demonstration and experimentation at the project level, research, introduction of technological innovations, etc. More recently, ESAs have supported reform agendas – most recent donor assisted projects have emphasized innovative features as conditions for lending, such as user participation, cost sharing and cost recovery. They have also adopted an integrated demand oriented approach to sector operations. Therefore India is now on track in achieving the sanitation development goals. However, the Government of India is underlining, that long-term sustainability of the achieved sanitation coverage rates and of the services and infrastructure implemented is key and needs to be the heart of all efforts. This aim can not be reached with “business as usual” alone. While the Indian “Total Sanitation

Campaign” (TSC) is one of the large scale Programmes of the Government of India (GOI) that bring innovation into sanitation provision and has strongly contributed to demand creation and increased ownership for sanitation on the ground, India clearly appreciates the joint activities under the Indo-German development cooperation in the field of sanitation, which addresses aspects of how sanitation systems can be made economically and ecologically more sustainable, as well as socio-cultural appropriate and accepted. (Reference: GTZ Sustainable sanitation in India November 2008)

**5.4. Urban reforms and sewerage management**

The following table captures in brief, the impacts that the urban reforms are likely to have, on the sewage management sector.

Reforms	Implications for the sewage management sector
Finance Related Reforms	
24. Issue of Bonds by the ULB for raising funds	4. Raising funds from the market would act as an additional source of funds for the ULB, and may aid ULB's contribution to the PPP and other initiatives requiring investments. 5. Due to the inherent financial nature of fixed returns being payable on bonds, the funds raised through bonds carry an increased level of accountability to the stakeholders. 6. Additionally, the obligation to provide fixed returns on the bonds may result in a compulsive user charge mechanism to recover the O&M costs of the projects implemented by the ULB.

Reforms	Implications for the sewage management sector
25. Reforms introducing other sources of funds (Property Tax (PT), User Charges for O&M cost recovery, and Rationalized Stamp Duty)	<p>4. While the rationalization, PT may reduce cases of property tax payment evasion, linking of property tax with locality may raise issues related to equity of service provision in particular areas. For example, the level of basic service provision such as SWM, water supply or sewage should ideally be uniform across all areas of a city; however, the difference in PT payments made by residents of different localities may result (informally at the political level in the ULB) in differences between the level of service provision across different areas.</p> <p>5. Establishment of accountability of the ULB to the residents through a clear relation between user charges and sewage management system provision may boost revenues. A well regulated user charges mechanism is a key, though.</p> <p>6. Direct inclusion of high end technology (such as GIS) in property tax mechanism may mean upping the tax for many payers, necessitating a mechanism to ensure equity in property tax charging.</p>
26. Introduction of Double Entry (Accrual Based) Financial System	2. With the introduction of this, it may be more transparent and direct to assess the health and effectiveness of the sewage management system and also the ULB. However, such judging may require a higher level of knowledge of accounting as a field.
27. Introduction of Internal Earmarking of funds for providing basic services to urban poort	2. This reform may mean bringing the poor localities in the service ambit, unlike the currently observed situation at many towns covered under the study.
<b>Finance and Governance Related Reforms</b>	
28. Encouraging Public-Private Partnerships (PPPs)	2. Commercialization through privatization of municipal services such as sewage management, may put burden of user charges on the users.
<b>Governance Related Reforms</b>	
29. 74th Constitutional Amendment Act	2. Among other things, the ULB has been responsible for sanitation services by this Act. This may result in a direct accountability of the locally selected government body to its residents, for service provision.
30. Community Participation Law	<p>4. Better decision making (e.g. what kind of sewage management systems are required for particular areas) has been made possible through direct community participation, vis-à-vis the current closed-doors system of decision making.</p> <p>5. Through participation and inviting comments from the community stakeholders, the equity principle may find more space in the decision making process.</p>
31. Public Disclosure Law	<p>4. Establishing Public Consumption Standards is a part of the steps to be taken for this reform. Such standards may be extended to the sewage system, translating possibly to the upper limit on how much sewage could be generated per capita or per household.</p> <p>5. Increased accountability towards public through regular voluntary disclosure of information by the relevant governing bodies would help mitigate the helplessness expressed by the citizenry, towards the decision making framework, and the corruption giving rise to service failures, including those of the sewage management system.</p> <p>6. Key and far-reaching decisions such as the site of the STP and the schedule of drain lines to be constructed, could be invited public opinion on, through information disclosure. This may result in avoiding delays arising out of improper planning and grievance redress in the relevant conditions.</p>
32. City Planning as a function of the ULB	2. Advance planning for a suitable system for sewage management, and the DCRs <sup>40</sup> required for that as part of the city planning, may address the inequity- and inefficiency- related problems.

<sup>40</sup> Development Control Regulations

Reforms	Implications for the sewage management sector
33. Introduction of E-governance (GIS/MIS)	<p>4. Enabling remote grievance registration without personal contact, vis-à-vis the current situation where residents hesitate/ are unable to visit the ULB themselves, may improve the resident feedback mechanism.</p> <p>5. At the same time, such a reform may translate in abolition of mechanism for grievance registration in person, thereby alienating the residents who do not have access to communication modes such as the internet.</p> <p>6. Better monitoring of systems by higher-ups in the hierarchy may be possible.</p>
34. Ensuring delivery of basic services	2. Ensuring sewage management will also be covered as a basic service, and this may mean ensuring accountability through service provision to all residents, and also through a well functioning grievance redress mechanism, by the ULB.
35. Structural Reforms	2. Creation of cadres for class 2 and class 3 staff may address problems arising out of locally vested interests of staff such as those of health inspector, head of the health department, sanitary inspector etc.
36. Administrative reforms	2. Overall improvements in transparency and accountability may be achieved, possibly contributing to effective services provision.
<b>Land or Housing Related Reforms</b>	
37. Repeal of Urban Land Ceiling Act	No direct relevance
38. Reforming rent control laws	No direct relevance
39. Building by laws to streamline construction approval process	No direct relevance
40. N.A. simplification	No direct relevance
41. 25% earmarking of land for poor for housing (LIG/MIG)	1. Studies carried out in a number of towns showed that a significant contribution to a city's sewage and drainage problems originated in illegal settlements, especially of economically weaker sections. Earmarking of land for housing of those may ensure identification of poor settlements, thereby possibly translating to avoidance of exclusion of such areas from sewage management provision.
42. Computerization of registration of land and property	2. A possibly simplified property registration mechanism through remote systems may ensure property identification, further resulting in avoidance of unregistered properties, improving tax collection and the overall financial health of the ULB.
43. Property title certification system	No direct relevance
44. Security of tenure	2. Illegal settlements, especially of the economically weaker sections, may be avoided as a result of this reform. Ensuring sewage management service provision to those may thus be achieved.
<b>Non-drinking Water Related Reforms</b>	
45. Bylaws for wastewater recycling	2. Recycling of wastewater is considered as a significant component of sustainable sewage management. Such reform implementation may therefore extend significant thrust to the sustainability of sewage management. Strong regulation and enforcement form the basic requirements for achieving the desired results.
46. Bylaws for rainwater harvesting	No direct relevance

**Table 62 Implication of reforms for sewage management sector**

### **5.5. Issues and challenges**

- ❖ Financial issues: It is reported that the capital costs of establishment of the sewage system are a tremendous amount. Additionally, the operation and maintenance of the STPs due to components subject heavily to the filtration and related corrosive processes, demand high O&M expenses too. Therefore, the effectiveness of grant schemes that fund the capital expenses of the sewage management projects is

often questioned, owing to the high O&M costs of such systems that can seldom be borne by the ULBs in the small and medium towns.

- ❖ **Poor Awareness:** Sanitation has been accorded low priority and there is poor awareness about its inherent linkages with public health. This is reportedly a more serious case in the small and medium towns. Lack of capacity at both, the citizen and the city management levels often result in sewage management being ignored.
- ❖ **Social and Occupational aspects of Sanitation:** Despite the appropriate legal framework, progress towards the elimination of manual scavenging has shown limited success. Little or no attention has been paid towards the occupational hazard faced by sanitation workers daily. Especially in case of small and medium towns, the social aspects of the scavenging system still make their presence felt, to this effect.
- ❖ **Fragmented Institutional Roles and Responsibilities:** There are considerable gaps and overlaps in institutional roles and responsibilities at the national, state, and city levels. Lack of an Integrated City-wide Approach: Sanitation investments are currently planned in a piece-meal manner and do not take into account the full cycle of safe confinement, treatment and safe disposal.
- ❖ **Limited Technology Choices:** It is also reported that technologies have been focused on limited options that have not been cost-effective, and sustainability of investments has been in question, further aggravating the financial issues mentioned earlier.
- ❖ **Lack of Demand Responsiveness:** Sanitation has been provided by public agencies in a supply-driven manner, with little regard for demands and preferences of households as customers of sanitation services.

**5.6. Learning from past Experiences**

The following table captures in brief the lessons that can be drawn from a few of the experiments carried out in the sewage management sector.

Salient features of the model	Lessons
<b>Making nightsoil-based biogas plants viable in Maharashtra’s Pune district<sup>41</sup></b>	
<p>human night soil is anaerobically digested through a process of biomethanation, the wastes are better managed and valuable energy in the form of biogas is recovered. maintainace charges recovered form user charges of the toilets. Currently, there are about 75 family-owned human nightsoil-based biogas plants in Dehu providing kitchen fuel for villagers.</p>	<p>Biogas generated from night soil serves a dual purpose of providing energy and helping manage human waste. Human night soil is a good substrate for generating biogas. However, night soil from 25-30 persons per day is required for generating 1 cubic metre biogas. While biogas generated from night soil of community toilets, which are used by larger numbers of people, have proved viable, gas produced from individual toilets used by 5-10 persons are inadequate for any practical use.</p> <p>Keeping this in mind, a new strategy has been evolved in Dehu village of Maharashtra’s Pune district, where some families allow their neighbours to use their toilets for a nominal maintenance charge making attached biogas plants economically viable.</p> <p>The strategy has also eased the village Panchayat’s responsibilities for human night soil management and reduced environmental pollution due to open defecation.</p> <p>By letting neighbours use their latrines, the owner benefits in three ways: (1) He gets maintenance charges from the user families. (2) He uses the biogas generated in his own kitchen. (3) Wherever possible, the recovery of manure is also an advantage. The latrine user families gain by access to latrines at a nominal cost. The village benefits because open defecation is reduced and the latrines are maintained by the owners and are not a responsibility of the Panchayat.</p>
<b>The CLHI Pilot, Kalyani, Tamilnadu</b>	
<p>CLHI pilot has proved that given an opportunity and empowerment the local communities can decide locally and initiate collective local action towards improving their environment which directly affects their health</p> <p>By triggering CLTS approach</p>	<p>It was amply clear that CLTS was just a beginning of series of collective local actions. Within short time empowered communities moved on to other actions and eliminated wash waste water accumulation around hand pumps. They also cleaned up age old clogged drains within the slum.</p> <p>Subsidy and associated local politics were found to be the main hurdle of community’s self mobilization. Bhuttabazar slum where CLTS was triggered first was the last to achieve ODF status. Konagar Nagar slum where subsidized sanitation programme of KUSP was already initiated was very close to Bhuttabazar. This raised the expectation of Bhuttabazar</p>

<sup>41</sup> by- Dr S V Mapuskar

Salient features of the model	Lessons
<p>poorest communities could also be awakened who could totally stop open defecation</p> <p>It is possible to bring about a sustained change in hygiene behaviour of the community only when they decide to stop open defecation and improve environmental sanitation.</p> <p>The local community established mechanism for monitoring of progress of CLTS and evolved their own style of creating pressure on a few resistant households. No out side agency could do that in any slum.</p> <p>One striking difference that emerged from the pilot was that the CLTS communities were much faster in ensuring ODF status of the slum as compared to the only one slum that was given free toilets by KUSP. Till then Kongarbagan slum with 365 House holds were still not using the toilets constructed by the project. Whereas at least fiver slum communities who constructed toilets with their own resources totally stopped OD.</p>	<p>community who were waiting to receive subsidy and even after many families had dug pits for construction of toilets the local political leader made falls promise of subsidy.</p> <p>Attitude of the elected representatives are also very important factors in adoption of CLTS approach by municipalities. Ward councilors were exposed to this approach through number of workshops and CLTS slum visits</p> <p>Serious lack of confidence of the professionals (Doctors and Engineers) on local community's ability is a hurdle. Old mindset of technical people and philanthropic attitude of "doling the poor" are obstacles which need to be changed through training and exposure for success of CLTS.</p> <p>Flexibility of the CLTS approach and freedom of choosing toilet models by the communities themselves was found to be a powerful starter. Stopping open defecation first and then moving up the sanitation ladder by constructing better toilet was found in many slums. In most cases the poor community first constructed the substructure and started using the toilet with a temporary cover around the squatting place. Gradually they improved the superstructure.</p> <p>Knowing the fact that the toilets could be built by spending only Rupees 150—200 for the first time was extremely exciting news for the community immediately after triggering of CLTS.</p> <p>More importance was given on scientifically breaking the "fecal-oral contamination route" but not on costlier options of toilet models and technical details at first. Once the community moved out of age-old practice of open defecation, they started realizing the importance of technically sound toilet models easily. Hygiene behavior change followed improvement of toilet structure. In places where structures came first without a shift in collective hygiene behavior it was too difficult to change it. Community with new toilets in each households continued open defecation for days and months.</p> <p>Converting individual household subsidy to collective community reward after collective achievement of ODF status was found to be a powerful encouraging technique. Three solar lamps were given to the first ODF slum of Kalyani by the Municipality Chairman. This gave them a great deal of encouragement and a sense of pride.</p> <p>Political will of the municipality leadership is very crucial in the implementation and success of urban CLTS. Chairman's decision of "no subsidy" and "no open defecation" outcome oriented approach and taking the council in confidence and getting the collective decision approved in the board of councilors meeting are very important steps of institutionalization of CLTS approach in Municipalities.</p>
<b>Composting toilets – the future of sanitation?42</b>	
<p>An Eco-san separating pan Tin drum for faeces and barrel for urine collection</p> <p>Waste composting in two tin drums 'Tippy tap' for washing with minimum water below the rain water collection drum</p>	<p>in places with a high water table and in hard rock area technically appropriate solutions are either not available or are costly to implement. In such a scenario one emerging solution is a dry composting toilet</p> <p>A composting toilet collects human waste and converts it to a fertilizer resource for plant growth without polluting water bodies or groundwater. One such urine separating composting toilet system looks like this</p> <p>The urine is collected in a plastic barrel and after dilution with water in proportions of 1 to 3 or 1 to 8 can be used for plants, especially trees, where it makes a good fertilizer with its high nitrogen content. The faeces is collected in a tin box and once the tin box is full it is replaced with another. The full box is allowed to compost for 3 weeks and then transferred for further composting to either a large composting drum or to to an earthen pit.</p>

Salient features of the model	Lessons
	<p>By harvesting water from the rooftop of the toilet into a simple 200 litre drum all the water requirement of washing in the toilet can be met by the toilet roof itself.</p> <p>Eco-san alternatives are coming up in many places in the world including Sweden, Germany, Denmark, the USA, China and Sri Lanka to name a few. India too has its Eco-san heroes in Dr Bindeshwar Pathak of the Sulabh movement and Paul Calvert in Trivandrum, Kerala.</p>
<b>Orangi , Pakistan: sanitation piolt project<sup>43</sup></b>	
<p>Monitoring of communication and constant feedback are essential. weekly meetings informed discussion between staff and community members, keeping minutes and documentation and regular follow-up are to be maintained Building public support for the project and encouraging contributions from academics and consultants are necessary. however, aggressive marketing like public relations blitzes should be avoided.</p> <p>Transparency is standard good practice. all accounts of the organisation, including and most especially the salary of staff, are to be published regularly and made public.</p> <p>Wider collective decision-making is always more desirable.</p> <p>local issues, realities and concerns have to be properly transmitted through dialogue to the concerned government agencies and politicians</p>	<p>Following the principle of relying on knowledge that already exists, and after extensive consultations, the decision was made by the community at large to improve on the existing technologies, trying this out in lanes, which had not yet installed sewers, rather than replacing existing sewers. This resolution was first taken by a couple of brave lane committees and following the successful installation of sewers has now been replicated throughout Orangi.</p> <p>All decisions and responsibilities on individual lane sewers rest with lane people, while household connection from the latrine to the lane sewer is the responsibility of household owner. The community is the client, responsible for supervising any contractor.</p> <p>There is clearly differentiates between internal and external components, the internal component is defined as the territory level sewer lines, at the lane level, while the external component is the trunk sewers removing the effluent form the settlement. funding for internal components, its maintenance is solely the responsibility of the community. fund used for external component.</p>
<b>Asian Development Bank (ADB) study<sup>44</sup>— Recommendations</b>	
<p>Successful pro-poor sanitation programs must be scaled up Investments must be customized and targeted to those most in need</p> <p>Cost-effective options must be explored.</p> <p>Proper planning and sequencing must be applied</p> <p>Community-based solutions must be adopted where possible</p> <p>Innovative partnerships must be forged to stimulate investments</p>	<p>Successful models must be replicated and scaled up to serve those who cannot provide for their own needs under existing service delivery systems. only a few of the poor who have inadequate sanitation can be assisted right away. Due to limited resources, programs should target groups or locations lagging behind the furthest.</p> <p>Appropriate lower-cost solutions offer a safe alternative to a wider range of the population. Higher-cost options can be explored when economic growth permits.</p> <p>Investing in incremental improvements is an approach that one could consider if affordability of sanitation investment is an issue. Careful planning is required to ensure that investments do not become wasteful and redundant.</p> <p>An approach known as Community-Led Total Sanitation (CLTS) has been found to be effective in promoting change at the community level. Efforts must address socio-cultural attitudes toward sanitation and involve women as agents of change. Another innovation is the socialized</p>

<sup>43</sup> A Water Aid Report by Akbar Zaidi

<sup>44</sup> Sanitation in India: Progress, Differentials, Correlates, and Challenges

Salient features of the model	Lessons
	<p>community-fund raising, which has met great success among the rural poor.</p> <p>The key is to stimulate investments from as wide a range of sources as possible, including the private sector, nongovernmental organizations (NGOs), and consumers themselves. This may require working with a wide range of partners through innovative public–private partnerships.</p>

## SECTION E: TOOLS AND FORMATS (TOWN LEVEL BACKGROUND NOTE)

### 1. Introduction

#### 1.1. What is TLBN?

Analyzing the local problem and finding appropriate solution in a systematic manner would require considerable background data and information on local issues. This data and information could be obtained on 'as needed' basis. Alternately, it was also felt that it would be worthwhile to attempt preparing a Town Level Background Note (or TLBN), in addition to preparation of RSLP. This TLBN could be seen as merely a support document for efforts to prepare RSLPs. Alternatively it could also be seen as a stand-alone document by itself, containing background information on the town covering a range of relevant issues and sectors. Considering its utility for preparing RSLPs, the local CSOs could be motivated to prepare TLBN as a companion volume of RSLP. It is also possible that a local academic institute could be motivated to prepare this rather as a research-oriented output, a task fitting their role and perspective.

#### 1.2. Objective of TLBN

The primary objective of the Town level Background Note is to provide necessary background information on a comprehensive range of aspects and issues pertaining to the town in order to equip the end-users of TRK (of RSLP). In order to develop RSLPs, it was thought essential to have a background to the town specific information.

TLBN could also be seen as a stand-alone document providing such data and information as to create a realistic and broader picture of town and thus promoting informed understanding of the town among citizens and even to prompt them to undertake efforts to prepare RSLP on different problems faced by them.

#### 1.3. Key Aspects of the TLBN

The TLBN will provide preliminary information on different aspects of the town such as its demography, endowment and access to natural resources, historical process of urbanization and its pace, its economic history and present status, development of the ULB and its present status, status of reforms (reforms committed to, and implemented).

By providing the aforementioned information, the TLBN would facilitate a more effective application of the TRK in the process of RSLP preparation. Similar to the other knowledge resources provided in the TRK, the TLBN would enable the users to effectively use the town background information while assessing the solutions and the SWOT position of the town.

In line with the other project outputs such as National Level Background Document, and State Level Background Paper, the TLBN would share a similar structure. The shrinking scope of these products is signified by the respective terms, i.e. **Document** at the national level, **Paper** at the state level, and **Note** at the town level.

Even though this is part of the requirements of the RSLP, this document would be considered as a standalone KP at the town level. This sub-output addresses the objective of the capturing the *Status of Reforms* in the sample town.

#### 1.4. Contents of the TLBN

The contents of the TLBN are as follows:

- Part A: Basic Information on the Town
  - (1) Natural Resources Situation and Environmental Context
  - (2) Historical development of the town

- (3) Economic History and Current Economic Activity including Industrial/ Trading Activity
- (4) Socio-cultural Composition
- (5) Demographics and Urbanization
- (6) Pressing Development Issues of the Town

- Part B: The Development and Current Status of the ULB
  - (1) Development of the ULB
  - (2) Current Status regarding Financial Health, Administration, Functions, etc.
- Part C: Current Status of Reforms and Projects in the Town (Pre & Post 2005)
  - (1) Past Projects Implemented by the ULB
  - (2) Projects Sanctioned or Implemented under the JNNURM Regime
  - (3) Structural and Administrative Reforms
  - (4) Financial & Accounting Reforms
  - (5) Other Reforms

In summary, it was thought to be useful to prepare TLBN—along with RSLP replacing the TLSR—as a supporting or a stand-alone document. On this background, let's discuss the steps involved in preparation of TLBN in the next sub-section.

### **1.5. Steps involved in Preparation of TLBN**

As indicated in the outline (sub-section 1.4), the content of TLBN is based on analysis of both, primary as well as secondary data. We envisage following six steps for preparing TLBN with the help of both types of data:

- (1) Town-Walk/Transact in order to get a first hand feel of the town and recording observations from town-walk in an intermediate-level format
- (2) Collecting various documents from the ULB as well as sources other than ULB, and reviewing the documents with the help of intermediate formats for obtaining and collating data from these documents
- (3) Conducting Key Informant Interviews (KIIs) and summarizing the data and insights with the help of intermediate-level formats
- (4) Final Analysis of data from primary (KIIs) and secondary sources (ULB-level documents) with the help of final formats for analysis
- (5) Matching the availability of analyzed data with broad chapters of TLBN (the outline given in section 1.4)
- (6) Organizing and developing (wherever required) the analysis in a logical sequence on the basis of extended outline of TLBN

In Section 2, we have discussed step no. 1 – 3, while in Section 3, we have discussed step no. 4 and 5, and provided the extended outline required during the final stage of TLBN in Section 4. Though it is desirable to conduct these steps in the above-mentioned sequence, this sequence, especially sequence for first three steps is flexible and we may club together these steps as per availability of resources. Let's begin with discussion of first two steps.

## 2. Data Collection Tools and Intermediate Summary Formats for TLBN

As discussed above, this section gives description of tools for data collection from two primary sources, viz., transacts or town-walk and Key Informant Interview (KII) along with intermediate level formats for summarizing and collating the data.

### 2.1. Tools, Guidelines and Summary Sheet for Town Walk (Transact)

#### 2.1.1. Objectives

Town walk holds an important place in the data collection activity for the Town level background note. It is based on one of the PRA techniques of the *Transect walk*. The primary objective of the Town Walk is getting a first hand feel of the town, its physical as well as the socio-economic and socio-political setting and understanding issues with respect to community participation. The three primary objectives of the Town Walk are:

- (a) To understand the status of the basic municipal services in different parts of the town/town
- (b) To get a broad understanding the socio-politico-economic and environmental dimensions of the issues
- (c) To get familiarize with the major concentration of various types activities (trade, small manufacturing, residential, industrial etc) in different parts of the town

#### 2.1.2. Activity

The study group is expected to roam in the town keeping in view the aforementioned objectives, with or without the local participants/guide/key informants etc, in order to observe and interact with/interview citizen whom the group is likely to meet during walk.

This resembles to street *intercept surveys*, however, street intercept surveys entail execution of a structured questionnaire to every person/respondent the researcher confronts with.

#### 2.1.3. Planning a transect walk

Any study group or researcher would prefer to cover parts of the town with diverse features and try doing a background work. That is certainly essential. However, please note that selection of the area for transect walk is not as rigorous as *cluster sampling* that is proposed for sampling process of the wards for RSLP. A background work done for two hours to understand the town would be sufficient to understand the physical characteristics and area of the town and with this information the group would be able to plan a transact.

#### ***Attributes for selecting the area***

Nevertheless, the group could try to capture following attributes of the areas in *transact*. (*Kindly note that this list is indicative and covering almost all attributes might be resource intensive, but if possible highly desired*)

- *Density Variation*: Densely populated (generally older parts), to medium to lower density areas (newly planned colonies, neatly planned etc.
- *Areas concentrated with particular class* (For example Dharavi and Nariman Point), caste
- *Areas having special features* [Socially, environmentally, politically sensitive/influential areas OR Crowded parts, (trading/tourism/market/temples/highways)]
- *Areas having severe problems / Success stories with reference to municipal services*

#### ***Resources that could be used***

- *Google-Maps/ Wiki-mapia are one of the resources that would give you a physical feel of the town, even before entering in. Printouts of the maps with areas plotted on to it would greatly help.*
- *Local contacts, informants could give directions. If the study groups could organize a local group having diverse background/expertise or interest areas, it would be a great value addition.*

- *If data collection activity on RSLP with reference to any sector is being carried out for the same town, the researcher or the study group member working on TLBN could join the RSLP team as and when required for doing the transect walk.*

**Time required**

- *For Town Walk:* Ideally two days, because the study group might have to do a two to three walks. By doing so, the group would get opportunities to fill up the gaps and enrich the data. However, properly planned transects would also minimize the efforts.
- *For per Interaction:* It depends how the response is, however, if the response is good, and the investigator feels that relevant and good amount of data/insights are being yielded a maximum of 20 minutes could be spent per interactions.

**How big the sample should be?**

This entirely depends on the judgment of the study group member; however he can take this judgment for that particular area and not for whole town. Our experience suggests that per area 2 respondents per respondent type (See table below) would be sufficient.

There are certain factors that determine the sample size. While planning the transect walk, the study group member ought to look for *key informants* who would talk about the area covered in the town walk, despite the fact that there are difficulties in finding the informants. However, *Key informants* could validate the data gathered during the survey, then and there. If the study group could get such informants list and appointments in the planning phase, they have an option to reduce the sample size. Council members (both past and present are good source for such data). Similarly, if the study group has an expert group from the town who could contribute in validating data, though the members does not represent the area surveyed.

Similarly, if the RSLP is being done simultaneously in the town, the member associated with TLBN also has an option to delve in to the field notes of the RSLP team. It could give important insights about the status of the basic services. Squeezing relevant data from RSLP-field notes would save the member's time and enable to focus more on other points.

Availability of resources (human, financial, time) is also other important factors.

**2.1.4. Data Collection and discussion points**

S.R.	Respondent Type	Data Collection Points
1.	A resident (without considering his profession) or trace passer	I. Basic services (water, sewerage, waste and land-housing, transport related) <ul style="list-style-type: none"> <li>• Sewage: Whether exists? Open underground, and issues within [clogging, mosquitoes, stinking environment etc. + grey water, sanitation, public toilets, storm-water, sewage]</li> <li>• Water: access, disparity in supply, adequacy, quality, politics in supply, local sources,</li> <li>• Waste: Collection system, efficiency, waste-type (household, bio-medical, e-waste etc), community bins?</li> </ul> II. Political representation, issues within, dimensions/primary causes of the problems III. Effectiveness of municipality/private contractor who is providing services to municipality and its grievance redressal mechanism. IV. Socially, Politically, Environmentally sensitive issues
2.	A shop-keeper (retailer or Bulk), A hotelier (including 2,3 stater)	I. The major trading activity in the town, including the trade-type s/he is involved, its scale, scope (current and future), employment it generates for the town II. Services he expects from the municipality III. Major demands of the trade-association he represents IV. Contact details of the KIs (Association president etc)

S.R.	Respondent Type	Data Collection Points
3.	A laborer	I. Type of work he is involved in, his living place and status of services there II. Major types of jobs available for laborers, how do they obtain work, their issues (wages, social security benefits) III. KIs (If at all he knows and their contact details)
4.	Small vendor (Tea-stall, Bidi-Shop, fruit-shop, kamwali-bai, hawker etc.)	I. Security of tenure issues (hawkers) and demands, Have they tried to access place in shopping complex constructed by ULB) and demands related to other facilities, etc. II. Bulk markets (from where they purchase articles/goods for retail trading) and their size
5.	Senior Citizen	I. History of the area, historical development of the area/town [How old is the area? Whether name of the area indicates historical factor? What caused people reside in this particular area? Whether they have received patronage from someone? What have been the major historical changes in the area till the date? (these changes may be in terms of economic activities, habitations, political patronage, changes in geographical surroundings, infrastructure and so on

**Table 63 Data Collection Guide for Town Walk-TLBN**

### 2.1.5. Format for summarizing Data

Facts and insights from these interactions need to be collated together, in order to gain an overview of town-level issues from the viewpoint of citizens. For this purpose classify the information and observations under the headings provided in the table below and jot them down in the respective table. A glance at the headings will reveal that they are but derived from the data and discussion points (table 1).

Name of the Area Observed	Geo-environ Attributes	Socio-political composition	Status of Basic Services				Economic Activities (nature, scale)
			Water Supply	SWM	Sewerage	Housing	

**Table 64 Collating Data from Transact**

## 2.2. Collection of Secondary data from ULBs and Summary formats

Collecting various documents from the ULB is the key task during this step. A primary interaction with the senior ULB officials (C.O., Chairperson and deputy chairperson) as well administrative staff in the concerned departments would help ice-breaking.

Along with formal letters for the C.O. (CC to the Chairperson and deputy chairperson), accessing data would also be a process of building rapport with the administrative personnel, who would be the key people in the process of accessing the required documents, and gaining insights into the system's perspective of looking at town-level issues. Hence, a primary visit (ice-breaking) in order to identify appropriate people (who would be willing to provide necessary documents and also share their experiences)

### 2.2.1. Checklist of Documents to be collected from the ULB

No.	Name of Document	Objective / Content of the Document	Source
1.	Map of the town	To have an aerial view of the town, to get familiar with the directions, to plan the transect walk	City Engineers office - Department of Buildings and Constructions
2.	List of electoral wards	To identify various attributes of the town and plan the transect walk	<ul style="list-style-type: none"> <li>▪ Department of Municipal Records, OR</li> <li>▪ Election Department</li> </ul>
3.	Development Plan of the Town (prepared by the Town Planning Authority)	<ul style="list-style-type: none"> <li>▪ Development Plan attempts to lay vision for the development of town, but focused more on existing status of land-use and future planning.</li> <li>▪ It provides information on location of the city, demographic trajectory, occupational distribution, and key infrastructure needs of town, projections of the growth and future requirements.</li> <li>▪ Also advocates direction of development of the town in the long run, suggests project-proposals for land-use and infrastructure development, extension of municipal limit, etc.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Office of the Town Planning</li> </ul>
4.	Budgets (last 10 years)	<ul style="list-style-type: none"> <li>▪ Important to understand the financial health of the ULB. These give details of item wise income and expenditure of the ULB, which form an essential component of the Financial Status of the ULB.</li> </ul>	Accounts Department
5.	Scheme-Specific financial data	<ul style="list-style-type: none"> <li>▪ Expenses incurred on infrastructure projects under various schemes, mainly to cross-check and compare the expenditure pattern with the issues and problems</li> </ul>	
6.	Status of UIDSSMT financial data (Project expenses)	<ul style="list-style-type: none"> <li>▪ Gives an overview of the finance received by the UIDSSMT, its status. Prompts for Accountant/UIDSSMT in charge interviews could be drawn</li> </ul>	In the concerned department that is handling project. (If water supply project, then WS department and so) OR City Engineer OR Administrative Officer
7.	JNNURM Checklist - submitted time to time by the ULB	<ul style="list-style-type: none"> <li>▪ Tracks the performance of the ULB in implementing reforms. A series of submissions to SLNA shows the claims made by the ULB regarding its implementation. On that basis actual status of reforms could be cross-checked.</li> </ul>	Administrative Officer OR UIDSSMT project in Charge (Engineer)

No.	Name of Document	Objective / Content of the Document	Source
8.	Resolutions (General Body of the ULB)	<ul style="list-style-type: none"> <li>Important to understand the trend of demands of the council members also what is passed, and what is not passed. Also decisions could be compared to work list undertaken by the ULB as well as issues raised by the citizen.</li> </ul>	Administrative Officer
9.	Resolutions (Standing Committee)	<ul style="list-style-type: none"> <li>Standing Committee is dominated by Ruling Party. The decisions taken by SC could be compared as same as the decision of the GB, however, difference among the two would throw light on the influence of the ruling party and the work sanctioned.</li> </ul>	Officer of the Administrative Officer
10.	<i>Akrutibandha</i> (Revised Staffing Pattern) generally prepared by the Directorate of Municipal Administration or MOUD-state	<ul style="list-style-type: none"> <li>Revised staffing pattern for the ULB suggested by the DMA or MOUD shows the trends with respect to downsizing of ULBs. This data enables to analyze staff requirements viz a viz configuration as well as requirements viz a viz availability, thereby shows how governments are preparing ground for privatizing the services.</li> </ul>	Office of the Chief Administrative Officer. /Head Clerk
11.	Section-wise Vacancies (Current status)		
12.	Report on status of JNNURM	This gives details about the status of mandatory reforms in the ULB and selection of optional reforms by the ULB, along with their status	Department of Building and Constructions.
13.	Coastal Regulation Zone - Planning and Maps (Applicable to only coastal cities)	Gives the details of the regulations posed by the CRZ planning.	

## 2.2.2. Summary formats for Obtaining and summarizing data from ULB-Level Documents

The first step towards analyzing these documents would be to obtain required data from them. Some of the documents are quite simple, and obtaining data from them will just require noting down the points from relevant heads, for example, status of execution of UIDSSMT: we would just require to note down figures of receipts and expenditure in provided years; JNNURM reform checklist: we would just require to note down the time-lines given for each reform. However, some documents may require more in-depth browsing and processing for obtaining required data. These are: *Akrutibandha* (staffing pattern), D.P., resolutions of G.B. and S.C., and budget reports. Provided below are some simple formats which provide guidelines for extracting specific data from these documents:

### **Staff Configuration (*Akrutibandha*)**

Since *Akrutibandha* gives the revised staffing pattern of the ULB, we need to understand the on-paper, i.e. expected status of staffing pattern in the ULB. Some *Akrutibandhas* may provide a summary useful for this purpose, however, some may not. In such cases, use the following table for summarizing details about staffing pattern. We have given a filled in sample based on one of the ULBs, so replace the columns by appropriate details by using the same format. Once this table is ready, it is easier to raise questions about the implications and actual status of staffing pattern. These questions can be raised in the KILs with concerned personnel.

Type	Regular	Promotions, New Appointments
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Type	Regular				Promotions, New Appointments			
	Sanctioned Posts	Posts in Service	Additional	Vacancies	Sanctioned Posts	Posts in Service	Additional	Vacancies
Class I	8	1	0	7	10	2	0	8
Class II	8	2	0	6	23	9	0	14
Class III	150	77	6	79	459	320	25	164
Class IV	926	748	0	178	63	44	1	20
Total	1092	828	6	270	555	375	26	206

**Table 65 Format for Summarizing Akrutibandha**

**Resolutions of the General Body of the ULB as well as of the Standing Committee**

In order to understand the pattern of decision-making we need to obtain resolutions of GB and SC meetings for last five years, minimum three years. These are bulky documents, and in order to obtain relevant insights, we need to process them with the help of following two tables. The first table aims at providing overview of decisions in every meeting. For filling in this table, we need to note down in brief every decision in each meeting. Next table is a step forward; it prepares the ground for drawing insights and inferences from the decisions. We have provided a sample of filled in table on the basis of resolutions of GBs in one of the ULBs. Since the same formats are to be utilized for classifying SC and GB resolutions, we have not given formats for each of them separately.

No.	Year	Date	Topics of Decisions in Brief	Status	
				Complete	Pending

**Table 66 Decisions in GB/SC**

Meeting Type	Year	Date	Number of Decisions Made	Topic/s of Decision	Specially Remarkable Decisions
General Body	2007-08	2 <sup>nd</sup> March	36	1. Passing of Tenders (20) 2. Disciplinary Action on ULB staff (9) 3. Modifications in D.P. (5) 4. Water Supply during Summer (2)	
		10 <sup>th</sup> Aug			

**Table 67 Classifying Decisions according to Frequency**

**Development Plan (Prepared by the Town Planning Authority)**

The land-use proposals in D.P. are based on the overview of various aspects of the town, and hence, it gives us information on many aspects of the town. This information is obtained from the government document, it contains adequate statistics on various aspects, and therefore, it can be considered authentic for including in the TLBN.

Development Plan is usually a bulky document, and therefore in order to facilitate the task of obtaining data from it, we have provided below a list of relevant section from the D.P. We have also

appended a column in front of this list for the purpose of jotting down relevant information in front of each section.

Relevant Sections from Development plan (D.P.) <sup>45</sup>		Summary Points
1.	General (which gives details on history and geographical location of the town)	
2.	Demographic Composition	
3.	Occupational Structure and Economic Activities	
4.	Social Infrastructure	
5.	Transport	
6.	Observations and conclusions about problems in the town	
7.	Review of execution of previous development plan	
8.	Proposals for future (along with time span)	
9.	Details about reservations	
10.	Estimated cost of execution of proposals	

**Table 68 Format for Obtaining Data from D.P.**

### **Budget Reports**

During our visits to various ULB's we found that there is no uniformity in the presentation of budget reports. For example, some reports may have a separate detailing on various schemes, while some reports may show them under the heading 'capital receipts'. Some reports may provide details about status of loans under separate heading; some reports may include them under another sub-headings; some reports may give details of cash in hand and investments in various banks or posts in the budget reports itself, while some may not include them in the budget report. Thus the first step towards analyzing the balance sheets or budget reports would be to understand their structure.

Hence, understanding the structure of each ULB report from the Chief Accountant or other senior representative of the finance department could be the best possible way to understand the structure of the budget reports. This will minimize the task of comprehending the budgets in the analysis phase. In case, it is not possible to gain this interaction from direct interviews, we can record the following information by browsing the budget reports of that ULB:

No	Content Head of the Data to be Obtained	Available (Y/N)	Page Numbers and Sections
1.	Summary of the entire report, which can be used as an index to the report		
2.	Main components under the headings 'Income' and 'Expenditure' of the ULB		
3.	Sub-components of each of these main components		
4.	Sections that provide estimates and actual figures for every main component and sub-component		
5.	Scheme-specific data (income and expenditure)		
6.	Loan liability		
7.	Repayment of Loan (Estimates and Actual payments)		
8.	Cash in Hand at the end of the year and, Investments (Estimates and Actual Investments)		

**Table 69 Information Available in the Budget Report**

Based on this table, we should also be able to prepare a table on the structure of budget-report for that specific ULB, which can be used while analyzing the data. Provided below is a sample for 'income of the ULB':

<sup>45</sup> The wording of titles of chapters in D.P. may be different, hence, we have given content heads from relevant sections

Main Component	Part 1 Revenue Receipts	Part 2 Capital Receipts	Part 3 Loan and investment Related
Sub-components	<ul style="list-style-type: none"> <li>▪ Taxes</li> <li>▪ Utility Services</li> <li>▪ Grants</li> <li>▪ Collection Under Special Acts</li> <li>▪ Miscellaneous Receipts</li> </ul>	<ul style="list-style-type: none"> <li>▪ MLA Fund</li> <li>▪ MP Fund</li> <li>▪ 12th Finance</li> <li>▪ <i>Dalit Vasti</i></li> <li>▪ Vaidhanik Vikas Mandal</li> </ul>	<ul style="list-style-type: none"> <li>Loan</li> <li>Repayment</li> <li>Investment</li> <li>PPF</li> <li>Pension</li> <li>Education Fund</li> <li>Transfers from Capital Receipts</li> </ul>

**Table 70 Components and Sub-components of Budget Reports**

### 2.2.3. Listing and Identifying Options for Documents, in case those could not be obtained

It is a common experience that some or the other required document is not available with the ULBs. It is necessary to list such documents on the basis of checklist and follow some alternatives in order to obtain minimum information on those aspects. The table below lists some key documents and suggests alternatives for obtaining required information

No.	Document	Suggested Alternative
1	Financial Data on Various Schemes	<ul style="list-style-type: none"> <li>a. This data is either part of the budget or it is available with the department in charge of specific scheme; so obtaining both is one option, so that we get the data from either of them</li> <li>b. KIs with in-charge of those specific scheme: figures for income and expenditure or income and balance for minimum last three years should be asked to the in-charge, who is bound to have these figures</li> <li>c. If this source is also not available, search through resolutions of GB and SC (minimum last three years), which are likely to have these figures</li> </ul>
2.	Data on some vital financial aspects, such as loans, ULB Fund	<ul style="list-style-type: none"> <li>▪ This data is also expected to be available in the budget; however, it is wise to ask for this data separately from the Chief Accountant, who is bound to have this data at least for last three years.</li> <li>▪ C.E.O./Commissioner is also expected have these figures</li> <li>▪ Minutes of GB and SC meetings are also potential sources for obtaining data on these aspects</li> </ul>
3.	Resolutions of GB, SC	<ul style="list-style-type: none"> <li>▪ KI with the in-charge of these meetings, who is well aware of: (a) frequency of these meetings and factors responsible for low or high frequency (b) average no. of decisions made in each meeting; (c) financial aspect of decisions: what is the minimum and maximum amount sanctioned (d) dynamics involved in GB and SC</li> <li>d. Another option could be ask for 'agendas' which gives no. of decisions as well as their typology</li> </ul>
4.	Development Plan	<ul style="list-style-type: none"> <li>▪ If D.P. is not available with the ULB, then in a district place, we can also approach the office of town-planning, which has a record of D.P. as well as modifications introduced in D.P.</li> </ul>

**Table 71 Alternatives for Ensuring Availability of Data on Key Aspects of the ULB**

### 2.2.4. Checklist of Data-Points to be obtained from Non-ULB Sources

Background information about the town is to be obtained from ULB as well as non-ULB sources. Template on collection of ULB-level references indicates for what content non-ULB references are to be located. In addition, there are some standard non-ULB references, which help in gaining information required for TLBN. The table below provides description of these sources:

Name of the Reference	Objective/Content from the Reference	Source
Gazette of the district	Gazette gives brief details on the geographical and environmental attributes of the town as well as the block in which the town is located. It also gives primary clues about the town and block on: administrative status (HQ etc.), topography, demographic composition, political history and history of the ULB.	Collector Office
Books on town/city written from various aspects and	The content depends on the book you select. Generally Books are available on: History, geography, political dynamics, development Issues, statistics on the town, geography textbook for the third standard	(a) Government or Public Library (b) Private institutions Libraries (c) Personal Libraries (d) Libraries maintained by Journalists Associations
Articles written on the city/ULB on a variety of subject and from a variety of perspective.	a. Journals b. Newspaper cuttings	
www.en.wikemapi a.org	This website also gives brief details about the basic info about the town. (as mentioned in the Gazette)	Websites
Google (maps)	This website gives geographical location of the town. It also provides location of various parts in the town, as well as topographical details about the town.	
Website of the respective ULB	This website (if available) details about the history of the ULB, structure of the ULB, as well as status of UIDSSMT. The website may be browsed for other details like budget and proposed schemes in the ULB.	

**Table 72 Data Points to be obtained from non-ULB sources**

### 2.2.5. Format for Obtaining Data from Non-ULB References

Multiple references are likely to be accessed from visits to the non-ULB locations. In order to obtain the required information from these references, it will be useful to classify them as per the broader content heads provided in Section I. Classification thus obtained can be recorded in the following format:

TLBN Content Head	Names of the Documents
<b>Part A: Basic Information on the Town</b>	
(1) Historical development of the town	
(2) Natural Resources Situation and Environmental Context	
(3) Economic History and Current Economic Activity including Industrial/ Trading Activity	
(4) Demographics and Urbanization	
(5) Social and Cultural Features	
<b>Part B: The Development and Current Status of the ULB</b>	
(1) Development of the ULB	
(2) Current Financial Status (Health), Administration, Functions, etc.	
<b>Part C: Current Status of Reforms and Projects in the Town (Pre &amp; Post 2005)</b>	
(1) Past Projects Implemented by the ULB	
(2) Projects Sanctioned or Implemented under the JNNURM Regime	
(3) Structural and Administrative Reforms	

**Table 73 Classifying non-ULB documents on the basis of outline of TLBN content**

With the above exercise, we will have a primary feel about the issues in the town as well as in ULB. This is expected to prepare us for conducting Key Informant Interviews with a range of stakeholders in the town.

## 2.4. Conducting Key Informant Interviews (KIIs)

KIIs are a very important tool of primary data collection, as far as TLBN is concerned. They help you gain insights about multiple aspects of the town in a short span of time. Hence, identification of KIIs (Key Informants) becomes critical in the process of preparation of TLBN. If we are familiar to the town, identification of KIIs should be easy, provided, we ensure comprehensiveness in their selection. However, if we are not familiar to the town, we would need a primary visit to the town in order to get adequate contacts for identifying KIIs.

In this section we have given multiple KI profiles along with data points for obtaining information and insights for them. We need to cover as many types of KIIs as possible, as 'comprehensiveness of criteria in selection of KIIs' is a pre-requisite of methodologically sound KIIs.

### 2.4.1. Important Profiles of the Key Informants

Provided below is a comprehensive list of KIIs we may conduct in a town. The variety of profiles will enrich the content of TLBN, and hence, we should try to cover as many profiles as possible, and it is nevertheless to say, that we should update this profile list from our field experiences.

Followed by this list, we have also discussed the guideline questions and data points that can be discussed with each KI profile. In order to ensure the required flexibility for conducting KIIs, we have not provided detailed questionnaires; it is assumed that these questions and data-points would be used for structuring the interviews and for obtaining optimum insights on multiple aspects of the town.

#### (A) ULB Officials - Administrative

1. Chief Administrative Officer
2. Chief Officer / Commissioner

#### (B) ULB Officials - Technical

3. City Engineer
4. Engineer- Building and Constructions
5. Town Planner
6. Chief Accountant
7. Lawyer-appointed by Municipality
8. Consultants Appointed (for valuation, and other purposes)

#### (C) ULB staff Issues

9. Municipal Employees Union/s - Chairperson/Secretary
- 10.

#### (D) Others Working on Development Issues of the Town/Block/Region

11. Current/Ex-Presidents/Chairpersons of Regional Boards, Regional Bodies
12. Education Societies

#### (E) Economic Institutions, Industries, Professions and their associations

13. Agricultural Produce and Marketing Committees
14. Banking Sector representative,
15. Credit-Societies representatives
16. MIDC officer in charge
17. Association of Industries - Chairperson (Past and/or present)

18. Association of hoteliers - Chairperson (Past and/or present)

19. Associations of different types of trades - Chairpersons, secretaries

20. IMA / Doctors Associations

21. Architects Associations

22. Bar Association (Lawyers)

#### (E) Social Activists

23. Unions of unorganized workers -leaders

24. [Mathadi, waste-pickers or rag-picker, other laborers]

25. Awareness building - campaigners

26. Advocacy campaigners

27. Citizen's forums- representatives

28. Religious forums - leaders

#### (F) Journalists

29. Those who handle particular beats (ULB, crime, sports, industry)

30. Senior Journalists (having Overall vision, insights, information, understanding)

31. City/district representative of State and National level dailies as well as Electronic media (Channels)

32. Editors

#### (G) Politicians

33. Past and present Presidents/Vice presidents of the Municipal Council

34. MLA's/MPs

35. Active council members / Corporation members (Both: Oppositions and Ruling

## 2.4.2. Questions and Data Points for KII Profiles

### **ULB-Officials (Administrative)**

- (b) Respondents own analysis of the status and issues in basic services.  
*(Share the transect walk findings with respondent and ask questions on the basis of that)*
- (c) Current status/implications / possible impacts of Staffing Pattern
  - Would cadre solve the problems?
  - Accountability issues of the staff?
  - Interdepartmental dynamics
  - Influence of vested interests
  - Issues related compliance, adherence to procedures
- (d) Financial health and reforms in the financial sector - Feasibility check for ULB
  - Loans and plans to clear the debt
  - ULB fund issues allocations and effectiveness
  - New sources of revenue for the ULB - Explorations and directions
  - Private investments in municipal services - feasibility, and plausibility issues
- (e) Public-public partnerships - Challenges?
  - Would firms come forward? What are the dangers (E.g. Politician's stakes in the firms)
  - Municipal capacity?
  - Accountability of the firms and conflict resolution mechanism among the firms and ULBs
- (f) Reforms - priority, feasibility, and constraints
- (g) ULB capacity building issues
  - Is capacity building possible? What are the answers?
  - Is Re-recruitment of the staff the answer?

### **Questions for ULB-Officials (Technical)**

#### **(a) Common questions for technical officials**

- Respondents own analysis of the status and issues in basic services?  
*(Share the transect walk findings with respondent and ask questions on the basis of data)*
- ULB capacity building issues:
  - In implementing Reforms? (All types of technical - Engineering, accounts, town-planning, legal etc)
  - Is capacity building possible? What are the answers? Is Re-recruitment of the staff the answer?

#### **(b) Specific Questions considering the responsibility of the informant**

- **City Engineer /Engineer- Building and Constructions**
  - Status of permissions and contracts of development of Municipal Land
  - Status of License Fees ( with respect to utilizing municipal land)
  - Status of Execution of reservations
  - Current Projects (Budgets and designs) for example - UIDSSMT project, or other special schemes, or projects undertaken by ULB, PPP schemes. (Roads, Complexes, Housing, sewerage etc)
  - Coastal regulation Zone and issues within (If applicable)
- **Town Planner**
  - Development Plan and issues within (modifications, implementation status, financial and other constraints in implementing the DP)
  - Municipal limit extension need / proposals and issues within
  - Whether there are special infrastructure schemes (E.g. parking zones, development of open public spaces - gardens, development of ground) under the head of "town planning"
  - Whether town planner has been given the charge of any infrastructure scheme? Details of the same?

- Informants' own analysis of the development and growth pattern of the town, land-use and issues within, land-market.
- **Chief Accountant**
  - Budgets and its various components
  - Budget preparation process and issues within
  - Discussions in General Body and Standing Committee and its impact on the budget preparation
  - Audit reports, queries and
- **Government Lawyer (appointed by ULB)**
  - Average number of cases on and by ULB every year
  - Typology of cases (legal, criminal etc.)
  - Average ratio of resolved cases to pending cases
  - Observations and analysis about which cases remain pending, and which cases get easily resolved
  - Factors influencing Decision-making: Influence of politicians, other influential people/groups on decision-making
  - Analysis of ULB's Functioning: factors influencing ULB's efficiency in providing basic services and in executing pro-poor as well as town-development schemes
  - Legal Practice (private, independent of ULB) in the Town: scale, existence of malpractice, factors responsible for malpractice
- **Consultants Appointed (for valuation, and other purposes)**
  - Basic Information about the Consultant (qualification, experience, tenure of appointment in ULB)
  - Mandate/assigned responsibility in ULB
  - Current Status of concerned aspect (for example, double entry) at ULB level
  - Constraints in fulfilling mandate (technical, administrative, economic, political and policy-level)
  - Possible way forward

***Data Points for Municipal Employees Union - Chairperson/Secretary***

- a) History of Union
- b) Structure and Functioning
- c) Political Association
- d) Analysis of Key Issues on which the Union has been working
- e) Strategy to raise these issues at ULB-level, at block level and at state-level
- f) Capacity building needs of union-members
- g) Respondent's analysis of ULB's strengths and weaknesses

***Data Points for Representative of Regional Boards***

- a) History of the Board (when and how it started)
- b) Mandate and structure of the Board
- c) Relevance for the Region and Town
- d) Major Achievements of the Board with Reference to Issues in the Town
- e) Factors constraining the functioning of board (political, economic, policy-level)
- f) KI's own analysis of development issues in the town
- g) KI's own analysis of strengths and weaknesses of ULB

***Politicians***

[Past and present Presidents/Vice presidents of the Municipal Council/MLA's/Active council members / Corporation members (Both: Oppositions and Ruling)]

Discussion points for these groups could be more or less similar, hence, the data points given below pertain all these KI types:

- a) Provision of Basic Services: Status, Factors Responsible, Remedies, Financial Status of ULB: Trend about surplus and deficit, expenditure pattern with reference to basic services, status of accounting reform
- b) Implications of Reforms for service provision: issues involved in capacity building and monitoring
- c) Key Development Issues of the town, block/region
- d) Unexplored potential of development of the town
- e) Constraints in realizing the potential (technical, economic, political, policy-level)

### ***Informants representing Industries and trading***

In this sub-section, we have described data points pertaining to three KI types, viz., Representative of MIDC, Representative of any industry or trade association and representative of APMC. These KI-types are indicative, and data points illustrate what type of information needs to be obtained from such KI types.

#### ■ **MIDC officer in charge/Representative of MIDC**

##### a) **History of MIDC**

- When was it started, with whose support, at what cost (economic-social)
- Location and size of area,
- How many and what type of industries,
- Employment generated,
- Major shifts (for example, closing down or emerging of one or the other type of industry)
- Reasons responsible for the shifts (technical, economic, political, policies/policy of the then ULB/state government)

##### b) **Current Status of MIDC**

- Location (whether it's within municipal limits)
- Size of area,
- No. of industries, type, turnover,
- Resources available with the MIDC (water, electricity),
- Employment generated, locations in the town from where employees come to MIDC,
- Administrative structure of MIDC (whether there is executive committee) and its functioning (frequency of meetings and mandate),
- Availability or non-availability of political support,
- Existence of disputes within the current MIDC and their nature; disputes of MIDC with major external stakeholders in the town, their impact/implications on the growth of the MIDC,
- Availability of statistics on all these/any of these aspects,

##### c) **Opportunities and Challenges for Future Growth of MIDC**

- Emerging or potential economic activities in the MIDC,
- Conditions required for their full-fledged growth,
- Factors constraining such growth (technical, economic, political, policy-level)

##### d) **Expectations from ULB, State Government**

- Support that would remove above type of constraints,
- Possibilities of mobilizing such support

#### ■ **Representatives of Business/Industries' Association**

(These for example would include, Transporters' Association, Builders' Association, Association of Multiple Industries such as Chamber of Commerce)

Transporters' Association

##### b) **History of Activity**

- When and how did the activity start in the town,
  - Whether it replaced any previous activity,
  - Location/s in the town where the activity started,
  - Factors (economic, technical, political, policy-level) that led to growth of the activity,
  - Major stages of growth (period)
- Size and nature of the activity in the initial stage (how many trucks, tempos or other types of vehicles per day, which goods, what quantity, to and from which locations in the district)
  - Shifts in the course of the activity, if any: nature of these shifts (for example growth or reduction in size or scope) and factors responsible
- c) Current Status**
- Size of the Activity: which types of vehicles, daily transport, types and quantum of goods, no. of godowns of those goods in the town, places where goods are transported, daily/monthly turnover
  - Employment generated: direct and indirect (direct for example would be driving, loading and unloading material, pulling carts, running godowns, dealership in transport of particular goods; while indirect employment would be in the form of garages, petrol pumps, production and repairing and sale of spare parts,
  - providing labor, small scale hotel industry in the locations where the activity is located, sale of materials required for packing of goods and so on)
  - Details about Employees and Owners: Pockets in the town and population groups (caste-religion) who seek direct and indirect employment in the particular activity/set of activities), their number and financial returns/wages for variety of jobs; Owners: number, caste-religion representation, approximate financial returns from business/industry
- d) History and Current Status of Association**
- Year of formation and driving factors
  - Structure and functions in initial stage
  - Current structure, membership, functions
  - Political association
  - Prominent achievements in the sector during last three years
- e) Association with and Expectations from ULB**
- Status of provision of basic services from ULB
  - Tax/revenue payable to ULB and status of tax collection
  - Major expectations from ULB
  - Major demands of Association, history of efforts for getting those demands sanctioned (if any) and response from ULB
  - Possibility of engaging with ULB in future for specific projects on 'p-p-p' basis' and its feasibility on the part of sector as well as ULB
  - Respondent's own analysis about efficiency of ULB in mobilizing finance for the town, provision of basic services and execution of various schemes
- f) Opportunities and Challenges for Future**
- Opportunities: emerging activities, potential for increase in size and scope
  - Challenges in materializing this potential: technical, economic, political and policy-level

***Representative of APMC***

- a) History of APMC**
- (when, how did it start, what was the turnover during initial phase, what factors facilitated its growth)

**b) Current Status**

- Annual Turnover, Income, Surplus/Deficit,
- Physical Infrastructure,
- Human Resource employed
- Key Agricultural Products and villages/areas providing those products
- Other Economic Activities (for example, shops in the APMC premises)
- System for waste-management
- (Annual reports for last three years should be obtained, for obtaining statistics)

**c) Opportunities and Challenges for Growth**

- Proposed activities (if any)
- Possible areas for initiating joint projects with ULB
- Challenges involved in materializing these possibilities
- Support required (political, economic, technical)

**d) Respondent's own Analysis:**

- Economy of the town,
- Development issues in the town and
- Strengths and weaknesses of ULBs with respect to both these aspects

**Banking Sector representative, Credit-Societies representatives**

**a) History**

- Trajectory of growth of the sector
- Factors facilitating and restricting growth

**b) Current Status**

- No. of banks and credit societies in the town
- Major stakeholders in the town

- Scale of loans and investments by respective stakeholders
- Annual turnover (during last five years)

**c) Future Avenues**

- Expectations from ULB
- Analysis of ULB's strengths and weaknesses

**Informants from Associations of different Professions**

■ **IMA / Doctors Associations**

**a) Basic Information about the Sector**

- No of private practitioners
- No of clinics, hospitals,
- Frequency of specialized services (for example maternity homes are the highest in number)
- System for disposal of bio-medical waste (quantum generated should also be recorded)

**b) Trajectory of growth of the sector in the town**

- Major stages
- Factors facilitating growth/vi-se-versa (technical, political, economic)

**c) Observations about Health Issues in the town**

- Which are frequent?
- Which are critical?
- Causes (socio-economic, geographic, technical)

**d) Challenges**

- Issues related to unethical practice
- Facilities needed in the sector

**e) About Association**

- History of Association
- Structure and Functioning
- Major issues addressed by association

**Groups working on Social Issues: these would include:**

[Unions of unorganized workers –leaders, [Mathadi, waste-pickers or rag-picker, other labors, Awareness building – campaigners/Advocacy campaigners, Citizen's forums- representatives, and Religious forums – leaders]

■ **Citizen's forums- representatives**

[If there are civil society groups or individuals who are working for the cause of town-level issues, then it would be worth to interact with them and understand their analysis of the issues:]

- a) Pressing Issues in the Town
- b) Factors responsible
- c) Implications (direct, indirect)
- d) Measures by ULB: their efficacy
- e) Efforts initiated by the concerned group/individual and response of the community and ULB to those efforts
- f) Concrete demands of the group/person to the ULB and other government officials.

■ **Religious forums – leaders**

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>a) Size of concerned community in the town</li> <li>b) Membership of the forum (at town, block level)</li> <li>c) Issues of concern for the forum</li> </ol> | <ol style="list-style-type: none"> <li>d) Expectations from ULB with reference to those concerns</li> <li>e) Analysis of ULB's strengths and Weaknesses</li> </ol> |
|---|--|

**2.4.3. Journalists**

[Journalists are likely to have a broad understanding of various aspects of the town. Hence, given below is an indicative list of issues that may be explored in these KIIs. The best way could be to ask about the area of interest/experience of his/her beat and accordingly decide the focus of interview. ]

**a) Special Attributes of the Town**

- Is the town known for any specific activity/attribute? For example, flood-prone, drought-prone, riot-prone, large out/in-migration, tourist place, religious place and so on?
- Whether any data (quantitative and qualitative) is available on these attributes?
- What is the history of these attributes? Which factors contribute to these particular attribute/s?
- What role does the attribute play in shaping the geo-socio-economic-cultural scenario in the town? How is it linked with the pressing issues of the town?
- How do the ULB and the politicians view these special attributes of the town? Does the 'scheme on special attribute of the town' acknowledge these attributes in any way?
- What are the opportunities that need to be harnessed and challenges that need to be addressed in the specific context of these attributes?

**b) Economy of the Town**

- What are the components of economy of the town? Which activities/occupations?

- What is the scale of some of the key activities?
- Whether those activities have some specific history? What are the major steps in the evolution and growth/decay of particular activity/set of activities? What specific factors have contributed to growth or vice-versa of the activity?
- What are the current major activities contributing to the economy of the town? What is their scale? What makes them flourish in recent years?
- Which of these activities have any association with the politics in the town? What is the nature of these associations?

**c) Social Composition of the Town and Related Issues**

- Which are the minority caste/class groups?
- What is their proportion to the total population of the town?
- Whether their habitations are concentrated in particular area/s, if so, why they have chosen these very specific areas?
- What is the variety of economic and educational profiles in these groups?

- What is the status regarding their integration in the mainstream economy and politics?
- Do they have political representation at ULB/district level? Does it represent and negotiate the demands of these groups effectively?
- What are the so far met and unmet demands, critical requirements of these groups, which need to be taken into account in future?

**d) Politics in the Town**

- What is the political history of the town during the last decade?
- What has been the role of ruling party and opposition in the development of the town during the last decade?
- What are their key strengths that help them remain in the political sphere?
- What the role of current politics in the town with respect to issues related to basic amenities, and other development issues in the town?
- What are the factors that govern the politics in the town? What is the association of industry as well as crime in the town with the ULB-level politics?

**e) Crime in the Town**

- Types of crime (theft, robbery, homicide, illegal trade of addictive materials, sex-trade)
- Frequency, severity,
- Association with specific communities and locations,
- Factors Responsible (socio-economic),
- Associations with politics (town-level, district-level, state-level),
- Monopolies in particular sections and their associations with crime
- Remedial measures by ULB

**f) Environmental Issues**

- Pressing Issues in the town
- Financial aspect (scale of resources involved)
- Legal Aspect (violation of laws, loopholes in laws/legal provisions)
- Ecological Aspect (overall impact on the ecology of town)
- Implications for socio-economically disadvantaged sections, if any
- Efforts by civil society, their strengths, limitations
- Efforts by ULB: impact, limitations
- Unresolved Issues, association of politics with those issues

**2.5. Intermediate Formats for Collating Data from KIIs**

Prior to analyzing the data obtained from these multiple KIIs, it would be essential to collate the information, insights gained from each type of KII. Provided below are data points for some KI-types, which will help us record relevant data from the KIIs

Data Point	Information, Insights
<ul style="list-style-type: none"> <li>▪ Factors affecting efficiency of ULB in ensuring provision of basic services (technical, economic, administrative, policy-level)</li> <li>▪ Factors affecting ULB's efficiency in ensuring effective execution of pro-poor schemes</li> <li>▪ Factors affecting ULB's financial sustainability: technical, administrative, political, policy-level</li> <li>▪ Status of execution of reforms and implications for service delivery by ULB</li> <li>▪ Capacity-building needs of ULB-staff at various levels</li> <li>▪ Union's role in advocating and negotiating the case of employees</li> <li>▪ Legal issues involved in effective functioning of ULB</li> <li>▪ Factors affecting efficacy of Regional Boards as a support mechanism for ULB's</li> <li>▪ Policy-level issues that need to be advocated at state level</li> </ul>	

**Table 74 Collating data obtained from KIIs with ULB staff and other officials associated with ULB**

**Points for collating data obtained from KIIs with Social Groups**

- Neglected Development Issues
- Neglected socio-cultural issues
- Reasons for being neglected
- Strengths and Limitations of Civil Society Efforts for addressing these issues
- Social Groups’ analysis of factors affecting ULB’s efficiency

Data Points	Insights
<ul style="list-style-type: none"> <li>▪ Factors influencing geographical, socio-cultural, financial, and political composition of the town</li> <li>▪ Factors responsible for various development issues in the town</li> <li>▪ Neglected development issues in the town</li> <li>▪ Factors influencing ULB’s functioning (politics at town, district and state level, technical, administrative)</li> <li>▪ Strengths and weaknesses of major stakeholders in the town in the context of development issues of the town</li> <li>▪ Possible resolutions for addressing issues relating to basic services</li> </ul>	

**Table 75 Collating data obtained from KIIs with Social Groups**

Data Points	Insights, Information
<ul style="list-style-type: none"> <li>▪ Major Stakeholders in the Economy of the Town, scale of respective economic activities</li> <li>▪ Cost for development of these stakeholders paid by the Town (in terms of exploitation of resources, displacement)</li> <li>▪ Ownership of Resources with the stakeholders</li> <li>▪ Main strengths of the stakeholders (economic, technical)</li> <li>▪ Role of town/district/state-level politics in establishing/protecting the stakeholders</li> <li>▪ Role of the stakeholders in determining the scale and nature of growth of the town</li> <li>▪ Contribution of the Economic Activity to the Economy of the Town (in terms of assets, employment, fund-flow)</li> <li>▪ Contribution to the finance of the ULB (in term of tax, rent)</li> <li>▪ Accountability issues involved in the practice of multiple stakeholders</li> </ul>	

**Table 76 Collating data from KIIs with Representatives of Industries and Professions**

### 3. Analysis of Data Obtained from Primary and Secondary Sources

#### 3.1. Analysis of Data

The next logical step to data collection would be to analyze and interpret the data in the context of framework of TLBN. While some data needs elaborate processing, for example, budget reports, some data may need to be just reviewed for drawing appropriate inferences and insights from the collation of data, for example, data from resolutions of GB and SC, data obtained from town-walk, data obtained from some ULB-level and some non-ULB sources. We may need some more exercise, though not as elaborate as for budget reports, for drawing relevant insights from KIIs. In this section, we have provided formats for facilitating all these exercises. First, let us begin with formats for analysis of Budget – Reports.

#### (A) Budget Reports

We need to begin with insights gained from intermediate formats for obtaining data from budget reports (Section 2) This will help us identify the required data as well as decide the course of interpretation. Analysis of any Budget report is analysis of two basic components viz., income and expenditure:

#### (1) Income of the ULB

##### (a) Analyzing Sources of Income:

###### *Tabular Presentation*

List the main components and list year-wise figures of income (these should be actual figures, not estimates) in front of each component. Calculate sums for each component. This should provide following table:

Sr. No.	Years/ Income heads * <sup>46</sup>	Revenue Receipts	Capital Receipts	Receipts Related to Loans and Investments	Total Income from all the receipts
		a	b	c	(a+b+c)
1.	2001-02				
2.	2002-03				
3.	2003-04				
4.	2004-05				
5.	2005-06				
6.	2006-07				
7.	2007-08				
8.	2008-09				
9.	2009-10				
10.	2010-11				
11.	Total (Sum)	a1:a10	b1:b10	c1:c10	d1:d10

**Table 77 Income of ULB: Components**

#### **Graphical Presentation**

##### (i) Column/Line Chart of Total Incomes for All the Years (d1:d10):

*Main question for drawing insights from the graph:*

❖ What is the trend?

*Sub questions*

→ Which is the year that has the highest and lowest income? Does this reflect any development/ issue of concern in the ULB?

<sup>\*46</sup> Income heads (titles) may vary in various ULBs, so the list provided in this column should be treated as indicative. Broadly, each balance sheet is expected to have three sub-sections under both Income and expenditure heads: Revenue receipts/expenditure,

- Whether there is any sudden rise or decline in the income? Does this reflect any development/ issue of concern in the ULB?

(ii) Pie chart of Total Incomes for each component (a11: f11)

*Main question for drawing insights from the graph:*

- ❖ Which components have decisive influence on the income of ULB?

*Sub questions*

- Which component makes the largest contribution to the total income of the ULB? Which component makes the smallest contribution?
- Does this distribution have any implications for financial sustainability of the ULB?

**(b) Comparing Estimates with Actual Receipts:**

It is expected that every ULB budget has estimates for every anticipated source of income. Comparing the estimates with actual receipts would help us strengthen our understanding about financial sustainability of the ULBs. This could be done with the help of following tabularization:

*Tabulation*

Some preparation prior to tabulation:

- List the total estimated and actual incomes for all the years
- List the main components and their sub-components in each year, for which both estimates and actual receipts are available. In fact, instead of listing the estimates and actual figures for all the headings, it would be useful to list only significant sources (indicated below in (a), (b), (c) ) of income for the purpose of analysis:
  - Provision of basic amenities to citizens: these would include receipts from tax levied on citizens for water supply, sewerage and waste management
  - Provision of basic amenities to socio-economically disadvantaged groups: these would include subsidies from schemes such Dalit Vasti, SGSY, schemes such as toilet construction for individual beneficiaries and so on
  - Large-size grants: for example, MLA fund, 12th Finance Commission, Town-specific special scheme, UIDSSMT, and so on (Flow-chart of the structure of the report would help in locating all these receipts, and compile them together in the form of a list)

Once both these lists ((1) total estimates and actual figures for every year, and (2) figures for estimates and actual amounts of main components for every year) are ready, we can transform the figures into a number of tabular and graphical formations; these are discussed below (table no. 1.2 – 1.6):

Year	Total Estimated Income	Actual Total Income	Gap
	a	b	(a-b)
2001-02			
2002-03			
2003-04			
---			
---			

**Table 78 Gap between Total Estimated Annual Income and Actual Total Annual Income**

*Graphical Presentation*

(i) Line Chart for Column 'c'

*Main question for drawing insights from the graph and the table:*

- ❖ Do the table and the graph together show some trend about the gap?

*Sub questions*

- What is the nature of gap? Whether it is increase / decrease in the estimate?
- If there is no consistency in the nature of gap across years, what is the trend in last three years?
- What does this trend show about status of collection from various taxes?

- How does the system, i.e. concerned personnel from the ULB analyze this trend? (This question will provide us space to integrate the facts/insights gained from the KIIs with the ULB officials.

The next step after overview of situation regarding total estimates and actual collections would be to review the status with regard to major components of total income. For the purpose of analysis, let's consider three components, which define the size of the income of any ULB: (i) taxes, (ii) subsidies for various schemes, and (iii) grants from various sources

(i) Taxes

Taxes are one of the major sources of ULB's 'own' income; hence, percentage of tax collection is an important indicator to the financial sustainability of the ULB. This percentage along with the estimates and actual collection would be available with the 'Collection Section'. In case percentage is not available, it should not be difficult to calculate the percentages based on the estimates and actual collection for each type of tax. This would provide us with the following two tables:

No.	Year	Receipts from Water Tax		Receipts from Property Tax		Tax on Tree		Receipts from Taxes on Other Municipal Services	
		a		b		c		d	
		Est.	Act	Est.	Act	Est.	Act	Est.	Act
1.	2005-06								
2.	2006-07								
3.	2007-08								
4.	2008-09								
5.	2009-10								

**Table 79 Receipts from Taxes: Estimates and Actual Collection**

No.	Year	Water Tax	Property Tax	Tax on Trees	Other taxes (road, streetlight etc)
1.	2005-06				
2.	2006-07				
3.	2007-08				
4.	2008-09				
5.	2009-10				
6.	Average	=AVG(1:5)			

**Table 80 Percentage of Collection (Tax-wise)**

*Main Questions for Drawing Insights from Table no. 1.3 and 1.4*

- ❖ What is the overall trend of collection of taxes in the ULB, which is evident from the average figures of collection for past five years?
- ❖ Which tax plays a significant role in increasing or reducing the total size of collection?
- ❖ What factors are responsible for this trend?
- ❖ How does the system, i.e. concerned personnel from the ULB analyze this trend?

(ii) Subsidies for Schemes

Subsidies for schemes indicate the quantum of funds available for addressing development issues in the town. Let's focus on some standard schemes, such as Dalit Vasti Improvement, Swarna Jayanti Shahari Swayam Rojgar Yojana (SJSY), Toilets for Individual Beneficiaries, Special scheme for the town and UIDSSMT. Table no. 1.5 (pl see the next page) provides an overview of situation regarding availability of funds for each of these schemes and its proportion to estimates.

NO.	Year	Dalit Vasti Improvement		Toilets for Individual Beneficiaries		SGSY		Special Scheme		UIDSSMT	
		Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual
1.	2001-02										
2.	2002-03										

3.	2003-04										
4.	2004-05										
5.	2005-06										
6.	2006-07										
7.	2007-08										
8.	2008-09										
9.	2009-10										
10.	2010-11										
11.	Total										

**Table 81 Subsidies for Schemes: Comparing Estimates with Actual Receipts**

\*If data for all the ten years is not available, the same table can be formulated for last five or three years.

*Main Questions for Drawing Insights from Table no. 1.3 and 1.4*

- ❖ What is the overall trend regarding availability of funds for various schemes in the ULB?
- ❖ Which fund plays a significant role in increasing or reducing the total size of receipts for various schemes?
- ❖ What factors are responsible for this trend?
- ❖ How does the system, i.e. concerned personnel from the ULB analyze this trend?

(iii) Non-scheme Major Grants

Let's repeat the same exercise of formulating the tables and drawing insights from them needs to be repeated in case of major non-scheme grants.

(Pl see the next page for table no. 1.6)

No.	Year	12 Finance Commission		MLA Fund		MP fund		Fund for Regional Development* <sup>47</sup>		Municipal Fund	
		Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual	Est.	Actual
1.	2001-02										
2.	2002-03										
3.	2003-04										
4.	2004-05										
5.	2005-06										
6.	2006-07										
7.	2007-08										
8.	2008-09										
9.	2009-10										
10.	2010-11										
11.	Total										

**Table 82 (Non-Scheme) Grants: Comparing Estimates with Actual Receipts**

*Main Questions for Drawing Insights from Table no. 1.3 and 1.4*

- ❖ What is the overall trend regarding availability of funds from various sources?
- ❖ Which fund plays a significant role in increasing or reducing the total size of receipts from these funds?
- ❖ What are the implications of this trend for the financial sustainability of the ULB?
- ❖ What factors are responsible for this trend?
- ❖ How does the system, i.e. concerned personnel from the ULB analyze this trend?

Summarizing inferences and insights from table no. 1.2 – 1.6

<sup>47</sup> This heading will be applicable especially for backward regions like Vidarbha and Marathwada, who receive regular annual grants from Vaidhanik Vikas Mahamandal.

The final task in 'comparing estimates with actual receipts' would be to synthesize the inferences from individual tables and graphs. Provided below are a few pointers to facilitate this process:

- Which are the sustainable sources of income for the ULB, and which are the unsustainable ones?
- What implications does availability of sustainable sources of income have towards overall financial position of the ULB?
- Is this situation related to some policy issues? What is the system's analysis of these issues and what is the analysis of non-system experts?
- What is the current status regarding full-cost recovery, user charges, e-governance in the ULB? Does this have any implications for the financial sustainability of the ULB? Whether there would be any such implications in future, following change in the status of execution of reforms?

Exercise so far would help us draw some conclusions about financial stability and issues involved in it. However, this understanding won't be complete, until we analyze another vital aspect, viz., 'expenditure' of the ULB.

## (2) Expenditure of the ULB

### (a) Analyzing Items of Expenditure

The first step towards analyzing expenditure details would be to list the major components and sub-components of the ULB. We will just have to refer back to flow-chart of structure of the budget report for this purpose. The next task would be to list figures in front of each major component. This will give us the following table:

Sr. No.	Years/ *Expenditure Heads	General Admin.	Capital Expenditure	Repayment of Loan and Investment	Total Expenditure
		a	b	c	a+b+c
1.	2001-02				
2.	2002-03				
3.	2003-04				
4.	2004-05				
5.	2005-06				
6.	2006-07				
7.	2007-08				
8.	2008-09				
9.	2009-10				
10.	2010-11				
11.	Total (Sum)	= Sum (a1:a10)	= Sum (b1: b10)	=Sum(c1:c10)	Grand Total

**Table 83 Expenditure of ULB: Components**

\*Expenditure Heads may differ according to structure of ULBs. That is why it is necessary to refer to the initial flow-chart before formulating this table.

#### Graphical Presentation for table 2.1

Let's interpret the data from the above table with the help of three types of graphs:

(i) Column/line charts for each component across all the years (for row a1:a10 to g1:g10)

This would mean that there would be seven charts, each representing one expense head.

*Main question for drawing insights from the graphs:*

- ❖ What is the trend?

*Sub questions:*

- Whether there is a constant rise/decrease in the expenditure on a particular head?
- Whether there is a sudden rise or decline after a particular year?
- Which is the highest item of expenditure across years?

- Which is the lowest item of expenditure in across years?
- Which the expense head having decisive influence on the size of expenditure?
- How do system's representatives analyze these trends?

(ii) Column/Line Chart of Total Expenditures for All the Years (h1:h10)

*Main question for drawing insights from the graph:*

- ❖ What is the trend?

*Sub questions*

- Which is the year that has the highest and lowest total expenditure? Does this reflect any development/ issue of concern in the ULB?
- Whether there is any sudden rise or decline in the expenditure? Does this reflect any development/ issue of concern in the ULB?

(iii) Pie chart of Total Incomes for each component (a11: g11)

*Main question for drawing insights from the graph:*

- ❖ Which components have decisive influence on the expenditure of ULB?

*Sub questions*

- Which component makes the largest contribution to the total expenditure of the ULB? Which component makes the smallest contribution?
- Does this distribution have any implications for financial sustainability of the ULB?

**(b) Comparing Expenditure with Income**

Next step towards assessing financial stability of the ULB would be to compare expenditure with income. For this purpose, we need to list together the figures of total expenditure for all the years and put them in front of figures of total income for respective years. Subtracting total annual expenditure from total annual income would show the gap between the two. We need to formulate the following table for this exercise.

Sr. No.	Year	Total Annual Income	Total Annual Expenditure	Gap between Income and Expenditure
		a	b	c
1.	2001-02			
2.	2002-03			
3.	2003-04			
4.	2004-05			
5.	2005-06			
6.	2006-07			
7.	2007-08			
8.	2008-09			
9.	2009-10			
10.	2010-11			
11.	Total (Sum)			

**Table 84 Gap between Total Annual Income and Total Annual Expenditure**

**Graphical Presentation**

(i) Line Chart for Column 'c'

*Main question for drawing insights from the graph and the table:*

- ❖ Do the table and the graph together show some trend about the gap?

*Sub questions*

- What is the nature of gap? Whether expenditure exceeds the income or visa-a-versa?
- If there is no consistency in the nature of gap across years, what is the trend in last three years?
- What inference can be drawn about the financial status of the ULB?

- How does the system, i.e. concerned personnel from the ULB analyze this trend (consistent or sporadic surplus or deficit)?

While comparison between total annual incomes and expenditures would provide an overview of the overall financial status of the ULB, comparison between component wise incomes and expenditures would help us gain insights into ‘utilization of funds meant for specific purposes’. Let’s have a look at three types of components, viz., (i) Receipts from Taxes and Expenses on respective head, (ii) Subsidies for schemes and expenses from those very subsidies, and (iii) Non-scheme major Grants and expenses from those specific grants. These will result into a variety of tables, which are given below. For formulating these tables, we need to take actual figures from respective income heads, and actual figures from respective expenditure heads.

Assuming we may not get data for a long span of 10 years, the tables depict a span of only last five years, which is also a substantial time-span to understand ‘utilization of funds’.

(i) Receipts from Taxes and Expenses on Respective Head

Water is the most important service provided by the ULB. Hence, it would be worth to review the trend of expenditure on water supply as against collection from taxes.

No.	Year	Receipts from Tax	Expenditure
1.	2005-06		
2.	2006-07		
3.	2007-08		
4.	2008-09		
5.	2009-10		

**Table 85 Receipts from Tax and Expenditure**

*Main Questions for Interpreting the Tabular Data*

- ✘ What does expenditure on water supply during last five years show? Whether there is increase or decrease in the expenditure, or has it been consistent with more or less difference?
- ✘ Compared to expenditure, what is the trend regarding receipts from water tax? Does this trend reflect changes in tariff structure (if any)?
- ✘ What is the proposed tariff structure by the ULB? Whether this will have any implications for reducing the gap between receipts and expenses?

For the next two components, i.e., scheme-specific expenses and major grants, we are assessing the same aspect, viz., ‘utilization of the fund for the specific purpose’. Hence, graphical presentations and questions for analyzing the tabular/graphical data would be common for these components. Simultaneously, we would be comparing ‘income and expenditure’ and looking at the gap between the two, for each component; hence, the format given below pertains to all the schemes and grants. We have assumed that data on these components is available for a span of last five years, from 2006-07 to 2010.

No.	Year	Receipts	Expenditure	Gap
1.	2006-07			
2.	2007-08			
3.	2008-09			
4.	2009-10			
5.	2010-11			
6.	Total			

**Table 86 Scheme-wise Receipts, Expenditure and Gap between the Two**

*Main Questions for interpreting the data on Schemes and Grants*

As discussed earlier, we are going to use the same set of questions for all the tables, i.e. table on each scheme and grant. Let's first draw column graphs (for 'income and expenditure' columns) and line graphs (for 'gap' column) for each of these tables. Now we can draw insights from these graphs with the help of following questions:

- ✘ What is the trend regarding income and expenditure? Whether there is increase or decrease over the years? What is the proportion of income with expenditure?
- ✘ What does the proportion of expenditure to income reveal about utilization of funds available for the scheme?
- ✘ Whether there is particular year or time-span when there is increase or decrease in expenditure? Do we have data on works completed to draw further insight from this observation?
- ✘ Whether there are any observations and facts/insights from citizen survey and KIIs on the performance of the scheme? If there are, what are they and do they correspond with the inferences drawn with the help of graphs?

*Common questions for consolidating these observations:*

- ✘ Which are the largest three funds among the above?
- ✘ Which are the schemes having highest utilization of funds? Which are the ones with low or minimal utilization?
- ✘ What do insights/observations from field-work reveal about execution of these schemes?
- ✘ What are the implications of effective execution of these schemes for provision of basic services to the community, specifically the disadvantaged groups, and overall development of the town?

With this discussion, we would have a comprehensive picture of:

- ✘ Components of expenditure of ULB
- ✘ Components and sub-components that show consistently high and consistently low expenditure
- ✘ Components which consistently show nil expenditure

We need to match the data from transact and KIIs with these inferences. Whether the expenditure of ULB is consistent with the development issues of the town would be evident from this exercise.

### **(3) Reviewing Liabilities of the ULB**

The next task after reviewing income and expenditure would be to review the loan liability of the ULB against status of repayments. This should be captured in the table below.

Year	Loan Liability	Repayment	
		Estimate	Actual

**Table 87 Status of Loan liability and Repayment**

This Table will help us gain insight into the trend regarding loan liability and status of repayment of the ULB. We should ask the following questions in order to gain insights from this trend:

- ✘ What is the trend regarding loan liability: increasing or decreasing?

- ✘ What is the trend regarding status of repayments? Whether the gap between estimate and actual is on the rise or decline?
- ✘ Whether the ULB is in a position to repay these loans? What do figures for annual surplus or deficit suggest?

Finally, we should conclude the analysis of budget reports by highlighting: (a) key weaknesses (b) contradictions and (c) policy issues that emerge in the context of financial position of the ULB.

### (B) Resolutions of GB and SC

We have already collated the data regarding frequency and subject-matter of GB and SC resolutions in the intermediate templates (Section 2). The final task is to draw inferences from this collation. The format below provides simple framework for this purpose:

No.	Analysis Point	Inference, Analysis
1	a. Frequency of SC and GB meetings in a year	
2	b. Proportion of number of decisions made with number of meetings in a year	
3	c. Most discussed topics	
	d. Least Discussed topics	
	e. Factors influencing decision making in GB and SC	

**Table 88 Analysis of GB and SC Resolutions**

### 3.2. Transforming Data into TLBN Content

The final task of TLBN is matching the analyzed data with the content-heads of TLBN. For this purpose, we need to match the availability of analyzed data with the content and sub-content heads of TLBN. The table below is aimed at facilitating this exercise. It is expected that we mark the column of concerned document in front of the concerned Section and sub-content head. We have given this table only for ULB-level references, however, we need to develop a similar table for non-ULB references and KIIs.

TLBN Section	Reference Types	ULB – Level					
	Sub-content	Maps	Budget	Scheme-Specific Data	D.P.	Akruti Bandha	Resolutions
(1) Basic Information about the Town	Geographical and Environmental Attributes	+++			++		
	Political History						
	Economic History				+++		
	Changes in Demographic Composition and current status				+++		
(2) Development and Current Status of the ULB	Development of the ULB						
	Current Financial Status (Health), Administration, Functions, etc.						
(3) Past Projects Implemented by the ULB	Projects Sanctioned or Implemented under the JNNURM Regime						
	Structural and Administrative Reforms						

**Table 89 Matching the Availability of Analyzed Data with Content of TLBN**

Once these tables are ready, we just need to put in the analyzed/collated data from respective sources under the respective heads. In order to facilitate this exercise we have provided the extended guideline of TLBN, which provides guidelines about those sections as well as sub-content heads of those Sections.

## 4. Extended Outline of TLBN

### A) Basic Information about the Town

#### 1. Geographical and Environmental Attributes of the Town

*What is this section about?*

This section should help us locate the town in its geographical and environmental context. This context should help us understand the opportunities and constraints posed by the geographical and environmental context. For example, proximity to or remoteness from highway, availability or paucity of natural resources such as water-sources, forest, minerals, environmental attributes such as presence of 'ecologically sensitive' areas are bound to have implications for the economic activities in the town, as well as economic and population growth of the town. Climate of the town plays a role in shaping the agricultural activity in and around the town; in addition, it influences the possibilities of growth of the town. Therefore, we need to describe the following aspects of geographical and environmental attributes:

*Contents of the section*

- 1.1. Geographical location of the town (proximity to block/district level offices)
- 1.2. Administrative position
- 1.3. Natural resources (in and around the town)
- 1.4. Climate
- 1.5. Any other environmental attributes of the town

#### 2. History of the Town

It is known that history helps us link the past with the present. It is precisely with this perspective that we need to look at the history of the town. We need to understand whether some of the town's current socio-economic attributes can be traced back in the past. For this purpose, we may need to review the major political and economic transitions in the history of the town. Thus, purpose is not to describe historical developments, but trace the relation of historical developments with current socio-economic composition of the town. Therefore we need to focus on following aspects:

- 2.1. Major developments in the political history of the town, which have played a decisive role in shaping the socio-political stature of the town (focus should be on British period, pre-independence period and post-independence period, i.e. up to 1980s)
- 2.2. Major developments in economic history of the town: focus could be on developments in four phases, viz., (i) British period, (ii) pre –independence period, (iii) post-independence period, (iv) last two decades.
- 2.3. It could be relevant to discuss the following aspects in order to understand nature and impact economic transitions:
- 2.4. Variety of economic activities, and caste-class association
- 2.5. Their scale and their contribution to the economy of the town
- 2.6. Linkage of geographical location and historical standing with economic history
- 2.7. Changes and reasons for changes in these activities over period of time (closing down/emergence of new activities and factors responsible for this change)
- 2.8. Current economic activities, their nature and scale, caste-class association, how roots of these activities can be traced in eco-political history

#### 3. Socio-cultural Composition of the Town

Review of history gives us insights into the current socio-economic attributes of the town. We need to articulate these insights in this section. At a later stage in TLBN, we are going to discuss issues related to access and quality of basic civil services. It is known that caste, class and religion are among the important variables that influence access and quality to various resources and civil services. This section will provide the necessary background to identify this very linkage. In order to gain this background, we need to describe the following aspects:

- 3.1. Existence of variety of social (caste/religion) groups in the town, and historical references (since when are they residing in the town)
- 3.2. Majority and minority groups, their percentage to the total population
- 3.3. Association of caste-religion-gender with education and economic class
- 3.4. Association of political and economic history with the social composition (if any)

#### **4. Geographic, Demographic Composition and Growth of the Town**

The next step towards understanding the composition of a town could be to understand the demographic and geographic aspects of composition. As discussed above in section 3, these would also help us identify whether there is any association between access and quality issues and these aspects. In addition, this description will also prepare background for understanding issues related to Development Plan (D.P.), which defines the future course of land-use in the town. Therefore, it will be useful to elaborate the following aspects with the help of review of literature and field-work:

- 4.1. Changes in size of population during post-independence period
- 4.2. Reasons for these changes (growth/decline), whether there is linkage with economic history,
- 4.3. whether there is some association with in/out migration, if so, what's the trend during last five years and what has been the scale?
- 4.2 Current composition of the town: no. of wards and their population, densely/less populated
- 4.4. Parts, industrial area, market area, caste/class/religion specific pockets, newly developing areas and factors promoting new habitations in these
- 4.5. Specific areas
- 4.6. Avenues and constraints for the growth of the town

With this section, we would have basic essential background information about the town. It would be relevant to review the key development issues in the town against the backdrop of section 1 to 4. Let's utilize the next section for this purpose.

#### **5. Key Development Issues in the Town**

As discussed above, this section should provide an overview of key development issues in the town. These could include sector-specific issues, such as water-supply, solid waste management, sewage and housing, as well broader development issues such as town-planning or any other pressing issues in the town. We may not discuss the nuances of these issues, as the purpose is to provide overview. Hence, the focus could be on scale, intensity of the respective issues along with issues related to access and quality. As discussed earlier, this section provides us the space to identify association of socio-economic and geo-demographic aspects with development issues in the town. This discussion is also expected to prepare context for reviewing the performance of ULB in the forthcoming sections. Therefore, we need to cover the following aspects in this section.

- 5.1. Status and quality of basic provision to citizens (water, solid waste management and sewerage)
- 5.2. Scale/Intensity of issues related quality, access and affordability
- 5.3. Factors influencing these issues (technical, geographical, political, religious, economic)
- 5.4. Other key political, economic and social issues in the town (those having serious implications towards development of the town)

## B) Development of ULB and Current Status

### 1. History and Current Structure of the ULB

Sections 1- 5 provide us background information of the town, as well as an overview of major development issues in the town. Consequently, the next step is to understand how the ULB perceives and addresses these issues. However, prior to understanding ULB's role and concerns in addressing these issues, we need to have some background information of the ULB. The background information could consist of the following variables:

- 1.1. History of Establishment (year, whose initiative), in
- 1.2. Political composition of the ULB and caste- religion representation during last two decades (trend, if any)
- 1.3. Major achievements in post –independence period – up to 70s
- 1.4. Current Structure of the ULB (section/department-wise availability of human resource and vacancies during last three years)
- 1.5. Status of reforms in staffing pattern (which are known as 'Akruti Bandha in the ULBs)
- 1.6. Current number of corporators and political-party-wise strength
- 1.7. Representation of minority/majority groups among the corporators
- 1.8. Political composition of the ULB and caste- religion representation during recent years and last two decades (trend, if any)

### 2. Decision-making in the ULB

General Body (GB) and Standing Committee (SC) are the official mechanisms of making decisions in the ULB. As we may be aware, these are called 'resolutions'. These resolutions help us understand how and what decisions have been made in the ULB over a particular span of years. Decisions by the ULB are the most authentic tool to review how ULB addresses various issues in the town. That is why we have incorporated a separate template for analyzing ULBs' resolutions. With the help of this template, we should be able to discuss the following aspects of decision-making in the ULB:

- 2.1. Frequency of GB and SC meetings during last three years, proportion of number of decisions to number of meetings, and factors responsible for this frequency
- 2.2. Categorization of decisions made during last 3 to 5 years: topics handled
- 2.3. High-priority issues and low-priority issues over past 3/5 years
- 2.4. Association of power dynamics with decision-making (on the basis of KII with ULB-staff)
- 2.5. Financial implications of decisions (even if statistics is not available, we may note down the possible implications and if possible, substantiate it with KIIs with the ULB staff)

In some ULBs, we may not be able to access the actual resolutions due to various reasons. Even in these cases, it would be relevant to note down insights/observations about 7.1, 7.4 and 7.5, which will help in gaining insight into issues involved in decision-making by the ULBs.

### **3. Financial Status of the ULB**

Now that we have background information about the ULB, the next step would be to review its performance with reference to: (a) provision of various basic services and (b) broader development of the town. Review of financial resources and financial performance of the ULB is an important tool to take review of both these components. Observations and insights about financial aspect are to be based on the basis of analysis of budgets/balance sheets of last 10 years. (template for this exercise is discussed at a later stage in this note) We need to capture the following aspects in this analysis:

- 3.1. Sources of Income and their respective contributions
- 3.2. Sources of Expenditure and their respective share
- 3.3. Issues related to financial sustainability of the ULB
- 3.4. Trend of receipts and expenditure on provision of basic amenities to citizens
- 3.5. Performance in terms of various schemes: (a) schemes for town planning (b) schemes aimed at special issues in the town (such as disaster management) (c) schemes specially designed for the town, (e) schemes meant for socio-economically disadvantaged groups (d) scheme/s under UIDSSMT (If possible, we should also take into account the perceptions of the ULB staff about the performance of these schemes, which would provide us space to integrate the insights from the KIIs and citizen survey into financial analysis)
- 3.6. Status of financial reforms and their current and future possible impact

### **4. Development Plan: History, Status and Concerns**

Discussion of concerns and challenges involved in the functioning of the ULB would not be complete without taking note of status of the Development Plan (D.P.) as it defines the future course of land-use in the town.

- 4.1. History
- 4.2. Current Status
- 4.3. Status of execution of Development Plan
- 4.4. Key development issues in the town as per the Development Plan
- 4.5. Status of land reservations
- 4.6. Proposed land use and its financial scale
- 4.7. Implications of D.P. for town planning and future land use: along with KIIs and citizen survey, discussion in section no. 4 (geo-demo of the town)
- 4.8. Policy issues involved in D.P. (if any)
- 4.9. With section 10, we would have a comprehensive picture of the town, the ULB and key sector-specific as well broad development issues in the town. Hence, the next logical step would be to discuss the future development of the town, and conclude the entire discussion with a summary of opportunities and concerns that could be taken into account while charting out the future course of development of the town.

## (C) Staus of Reforms and Other Development Projects

### 1. Status and Possible Implications of Reforms

We are concluding discussion on financial aspect with 'status of financial reforms', and hence, it the next logical step would be to review the status and implications of other reforms on the functioning of the ULB and thereby on various citizen groups. In section no. 6, we have already reviewed status of administrative reforms with specific reference to staffing pattern. Hence, we would be reviewing implications of these two (financial and Akruti Bandha) and for other reforms introduced with the commencement of JNNURM, we would be reviewing both status and implications. While documents would provide us with status, KIIs with the ULB staff would help us gain insights into implications of reforms. Therefore we suggest the following content-line fro this section:

- 1.1. Status of other reforms, viz., e-governance, user-charges, p-p-p and other optional reforms, and recent Nagarothan Karyakram (if these reforms have not been initiated as yet, then timelines committed by the ULB to the UD should be referred to for understanding the status
- 1.2. Perceptions of the ULB staff about the constraints in introducing reforms, factors responsible for gap between 'reported status and actual status'
- 1.3. Perceptions of the ULB staff about the possible implications of committed reforms
- 1.4. Possible challenges and Opportunities due to execution of reforms in the context of key developments in the town and performance of the ULB: aspect could be discussed with the help of KIIs with the ULB as well as non-ULB people, and observations obtained from citizen survey

### Concluding TLBN

- 1.5. Key Development Issues (geographic, social, financial, technical aspects)
- 1.6. Main Stakeholders in the Town (these may include main financial institutions, local academic institutions, CSOs or citizen-groups and ULB)
- 1.7. Strengths and Weaknesses of Stakeholders in the context of development issues (11.1)

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