To
All the Municipal Commissioners
MA & UD Department
Govt. of A.P.

77(2)/SAC/COO(S)2016, dt.13.3.2017

Sir/Madam,

Sub:SAC-Communication of CT & PT guidelines to all the Commissioners-Reg.

Ref:Mail received from GIZ on 15.12.16

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Your immediate attention is invited to the subject and reference cited.

I am herewith enclosing a copy of CT & PT guidelines management manual and it is requested to follow the guidelines which was developed in coordination with the GIZ, Germany and is useful both in construction and maintenance of CTs & PTs.

Yours faithfully,
D MURALIDHAR REDDY,IAS

MANAGING DIRECTOR

Encl: A copy of Booklet.

Copy to:
The Project Director, SNUSP-II, GIZ, New Delhi for information.

Signature valid
Digitally signed by MURALIDHAR REDDY DEREDDY
Date: 2017.03.13 18:12:59 IST
Reason: Approved

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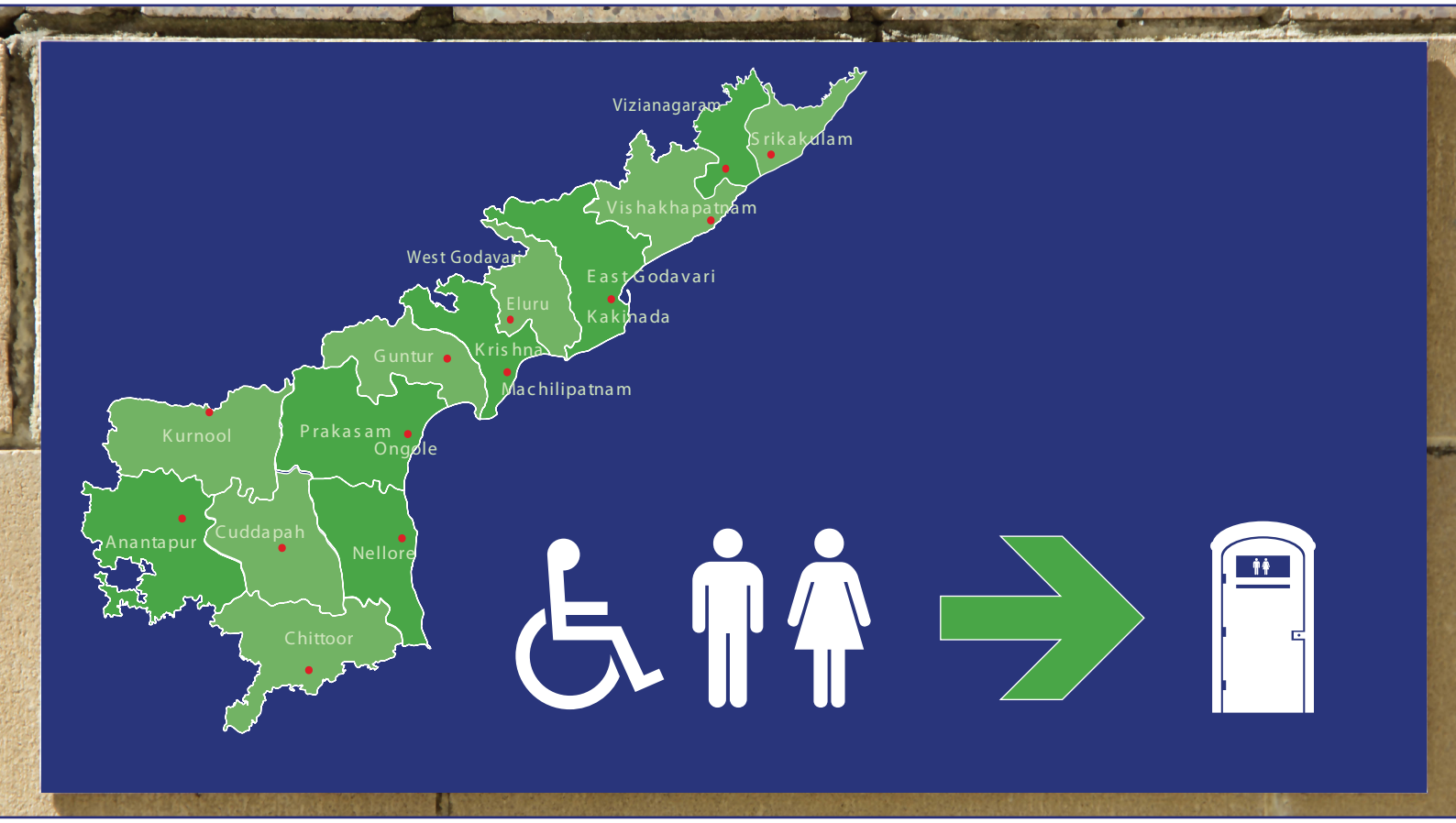

GUIDELINES FOR PUBLIC AND COMMUNITY TOILETS MANAGEMENT

BY CITIES IN ANDHRA PRADESH

December 2016

GUIDELINES FOR PUBLIC AND COMMUNITY TOILETS MANAGEMENT BY CITIES FOR ANDHRA PRADESH
Developed by
Swachha Andhra Corporation (SAC), Government of Andhra Pradesh

In technical collaboration with
GIZ India
Support to National Urban Sanitation Policy (SNUSP) – II

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Not for Sale

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Abbreviations

ABR	Anaerobic Baffle Reactor
BIS	Bureau of Indian Standards
BOO	Build-Own-Operate
BOD	Biological Oxygen Demand
BOOT	Build-Own-Operate-Transfer
BOT	Build-Operate-Transfer
BSUP	Basic Services to the Urban Poor
CBO	Community-Based Organization
COD	Chemical Oxygen Demand
CSP	City Sanitation Plan
CSR	Corporate Social Responsibility
CSTF	City Sanitation Task Force
CTB	Community Toilet Block
DBOT	Design Build Operate Transfer
DUAC	Delhi Urban Art Commission
FOP	Financial Operating Plan
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
IHSDP	Integrated Housing and Slum Development Program
ILCS	Integrated Low Cost Sanitation Scheme
IRR	Internal Rate of Return
LED	Light emitting diode
MNRE	Ministry of New and Renewable Energy
NPV	Net Present Value
NUSP	National Urban Sanitation Mission
O&M	Operation and Maintenance
PPP	Public Private Partnership
RCC	Reinforced Cement Concrete
ROT	Rehabilitate-Operate-Transfer
SBM	Swachha Bharat Mission
SDMC	South Delhi Municipal Corporation
SLF	Slum Level Federation
SLSSC	State Level Scheme Sanctioning Committee
SSNA	State Sanitation Nodal Agency
SUSM	State Urban Sanitation Mission
SUSSC	State Urban Sanitation Steering Committee
SWOT	Strength Weakness Opportunities Threats
TLF	Town Level Federation
TMC	Toilet Management Committee
TMC	Tirupati Municipal Corporation
UIDSSMT	Urban infrastructure Development Scheme for Small & Medium Towns
ULB	Urban Local Body
VGF	Viability Gap Funding
WC	Water Closet (flush toilet)

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FAQ

Frequently Asked Questions

Q1. What is the fundamental difference between the Community Toilets and Public Toilets?

A community toilet block is a shared facility provided for a defined group of residents or an entire settlement/community. It is normally located in or near the community area and used by almost defined users of the community whereas public toilets are provided for the floating population / general public in places such as markets, train stations or other public areas and used by mostly undefined users.

Q2. How different is the user pattern in these toilets?

Pattern of use of a community toilet slightly differs with that of public toilet. Community toilets are used mostly by the concerned community members. Most of the working males and females members use toilets between 5 AM to 10 AM. During noon, females use toilets and for washing clothes. Fewer people use community toilets during evening and night. In case of public toilets, use pattern vary considerably depending on the location of such toilets. A public toilet located at railway station is used almost throughout the day till late evening. Likewise, such toilets located at interstate busy bus terminals operates almost 24 hours a day. Whereas a public toilet located in a park / zoo, operates during the official time of operation of such institutions.

Q3. What is the average cost of constructing a toilet seat/ urinal?

Average cost of per WC in a community / public toilet varies considerably depending on local schedule of rates, market rates, specifications, treatment technology for wastes and site condition. However, as per the guidelines of Swachh Bharat Mission (Urban) tentative basic cost for community toilets is Rs. 65,000/- per seat and public toilets is Rs. 75,000/- per seat. The same has currently been revised to Rs. 98,000/- per seat (VGF / Grant of Rs. 39,200/- per seat) for toilets and additionally Rs. 32,000/- per urinal unit (VGF / Grant of Rs. 12,800/- per seat). Accordingly, the State share has accordingly increased to 60% of the unit cost (Rs. 58,000/- for community and public toilet seat and Rs. 19,200/- for urinal seat).

Q4. What are the essential factors to be monitored carefully in ensuring robust construction of a toilet block?

For having robust construction of a community / public toilet, the most important part is to follow strictly the design and construction procedure. Regular visits from the personnel from Quality Control Department of the State Government/ Local Body and collection of samples of construction materials for analysis and verification is very important. Such sampling should be frequent and at all stages of construction. There should be provision of appropriate penalty in the agreement with the contractor in case of sub-standard materials are found to be used. There should be also a provision of demolishing the parts of the toilet block having defective quality of construction.

In case of community / public toilet financially supported by Local Body, there should be a provision of Bank Guarantee to be withdrawn after 2-3 years of successful operation of the toilet block. Such amount should be placed under Fixed Deposit with the Bank. With this provision, agency will be protected from probable financial loss.

Q5. How can the toilets be made suitable to women, physically challenged people?

It is essential to have separate blocks for males and females. Number of WCs should be as per the guidelines of SBM (U). There should be adequate number of enclosed baths. It is recommended that for community toilets, there should be a provision for safe disposal of used sanitary napkins for female block. Proper lighting arrangement inside as well as outside the toilet block is a prerequisite.

All public / community toilets must have at least one unit for physically challenged person in each block- male and female. Such toilet should be located near the entry gate of toilet block to minimize the travel distance by such persons. Design of such toilet should be as per the standards.

Q6. How can the operator connect to the public for awareness as well as for getting feedback on the service provided or for seeking their suggestions?

Providing awareness to community should be the integral part of operation and maintenance of community toilets. It will increase income of operators in terms of pay for use, in addition to increased awareness for health and sanitation to community members.

Each community / public toilet needs to maintain a feedback register placed at the counter of toilets, easily available to users of toilet blocks. Operators of toilet block should make request to users for providing comments on the kind of service they received in the toilet and any suggestion for improvement. There should be a fortnightly meeting by the senior authority to review the comments received from users and to take appropriate action to rectify them.

Q7. What facilities are crucial for a public toilet and a community toilet respectively?

For a community / public toilet availability of adequate water, adequate lighting and proper cleaning are the crucial facilities over and above to the adequate number of WCs, bathing and urinal units. For community toilet facility area for washing clothes is equally important.

Q8. What qualities are essential for the managerial staff of public toilets?

Managerial staff should have basic degree in any subject with experience to work on social and health aspects. The person should have experience in construction, operation and maintenance of community/ public toilets. Caretakers should be at least matriculate. Cleaning staff should be skilled persons.

Q9. What is the estimated average cost on manpower for a toilet seat per day?

Cost on manpower depends on size and location of public toilets. In a public toilet/ community toilet there should be at least one caretaker and one male cleaning staff for male block and another female cleaning staff for female block. In case of public toilet located at railway stations or busy bus terminals operated 24 hours a day, there should be 3caretakers and accordingly total 6 cleaning staff. Besides, there should be one in- charge to manage more than 3 public toilets. In-charge will be over all responsible for maintenance of public toilets.

Cleaning staff and caretaker should get at least minimum wages as per the rule of concerned state government. Besides, proper uniform, health check-up facility should also be provided by the employer.

Q10. In BOT/BOOT model, when can the break-even be achieved?

Break -even point depends on the site of toilet block. However, for a public toilet on BOOT/ BOT basis, break- even point is between 3-5 years.

Q11. What level of cost recovery should be targeted in first five years of implementation?

100% recovery should be targeted for annual operation and maintenance cost. for capital cost recovery, depending on the leverage of additional revenue income from sources such as advertisement revenue, commercial revenue etc, the cost recovery percentage needs to be estimated.

Q12. What are the effective ways of monitoring the maintenance of toilet blocks?

Regular monitoring of toilet block lies with the agency responsible for it. Such monitoring should be random but in a week or so. Monitoring should include aspects such as cleanliness, availability of adequate water, status of electric power points, status of minor repairs, major repairs, waste disposal system, behavior of staff with users of toilets, level of maintenance of building etc. Monthly monitoring should be conducted by the local authority that provided land and financial support for the toilet block.

Apart from physical monitoring of the toilet block there should be monitoring of feedbacks from the users. There should be one questionnaire containing different aspects of operation and maintenance of toilet block and users should be requested to evaluate the performance within a range of 1-10 (1 being the minimum and 10 the maximum). A point of 7 or less should be considered serious lapse by the agency and action should be taken to upgrade it.

Toilet blocks located at crowded sites used throughout the day should have CCTV installed at important points. CCTV will help in security aspects as well as in identification of lapses by the agency in maintenance of the toilet.

PART 1

City Level Planning and Sustainable Management

1. Section A: Why the guidelines

The section introduces the objectives and the central ideas of the guidelines and presents the flow of the document.

1.1 Introduction

The Government of India has launched flagship program the Swachh Bharat Mission (SBM), a joint mission of the Ministry of Urban Development (MoUD) and the Ministry of Drinking Water and Sanitation (MDWSS). The vision set forth is to realize the dream of Mahatma Gandhi that all cities, towns and villages should become clean, as tribute on his 150th Birth Anniversary to be celebrated on 2nd October 2019. Government of Andhra Pradesh has launched the Swachh Andhra Mission with a goal of achieving "Open Defecation Free Cities" by 2019 in line with the above vision.

Elimination of open defecation is one of the key components of the Swachh Andhra Mission. In order to achieve open defecation free towns, ensuring adequacy through construction of toilets –individual, community and public toilets and effective operations and maintenance is the strategic approach which the scheme emphasizes. Individual Household Toilet (IHHT) is a major component of the SBM. The aspect of public or community sanitation also assumes greater importance because, in some cases, an IHHT may not be feasible (for example, lack of space for toilet construction), or in situations with a high percentage of floating population (for example, at markets, temples or seasonal fairs).

The provision of providing sanitation facilities through community and public toilet complexes is the most suitable option for those who cannot afford individual toilets for monetary reasons or due to lack of space and go for open defecation.

The Swachh Bharat Mission recognizes community toilets as one of the options to reduce open defecation and has provision of a maximum unit cost of 65000 per seat for construction of community toilets with a 40% VGF from central government and remaining from the state/ULB share.

While the Swachha Bharat Mission directs the ULBs to ensure that the city has sufficient number of public toilets, it does not envisage central incentive support for the construction of public toilets. ULBs are to identify land for public toilets and encourage private sector investment. Funding support from sources apart from GoI grants may be used for the same.

The guidelines have been drafted to facilitate the administrators in city wide planning for public and community toilets and effective service delivery. The purpose of these guidelines is to assist in the planning, design, implementation, operation and maintenance of public and community toilets in a step by step manner and through proactive engagement of all relevant stakeholders. They address multiple aspects of public and community toilets including physical planning, design considerations, construction techniques, social dimensions, management and financial considerations.

Using the data from assessment of existing stock / conditions and future demand, a set of key directives have been developed. It is envisaged that these guidelines will not only allow city administrators to achieve efficiencies while making provision for new and / or upgraded amenities, but also achieve effectiveness of services for the users. These guidelines are intended to facilitate proper planning to meet the toilet demand by first assessing the existing stock and then planning for new construction and / or up-gradation.

1.2 Guiding principles of toilet management

Government of India's SBM talks about critical interventions required not only to increase access to toilets but also to eradicate practices of open defecation and manual scavenging; adoption of scientific waste management methods; facilitating appropriate behavioral changes; capacity augmentation of service providers; and creating enabling environment for private sector's involvement. These guidelines have been drafted in line with these objectives in order to achieve standards of service levels.

There exists a close relationship between design and management. Innovative design components can not only ensure ease of management but also reduce operation and maintenance costs. Besides catering to the apparent need for a toilet facility, design choices should be such that they allow for easy cleaning and management, have high resistance to vandalism, and have low maintenance requirements. Design and material choices need to ensure that the life requirement of the structure can be realized. This document seeks to guide the design of new toilet facilities, and the refurbishing process of existing toilets.

The toilet design must allow for universal access and ease of use. The design must adequately address the different sanitation needs of special population groups including women, children, old, infirm and the differently abled.

1.3 Focus on gender

Since the sanitation needs of women are significantly different from those of men there is a need to integrate a gender dimension while planning and designing public and community toilet blocks as well as while developing institutional arrangements for their operation and maintenance. Recognizing this, gender has been adopted as a central theme for these guidelines.

Research has highlighted that of the various population groups, women and adolescent girls are the most adversely affected by lack of clean and accessible toilets. Poor location, inappropriate design and inadequate maintenance are the main deterrents for women (and adolescent girls) to use public / community toilet blocks. Additionally, they also face numerous challenges and risks while using public and community toilets.

In areas that lack toilet facilities or where the provision (in terms of number of seats) is inadequate, women often reduce their food and water intake and control their bladder and bowel movements which makes them vulnerable to infections and diseases. They wait till the dark to defecate in the open, where darkness offers a modicum of privacy. Harassment and sexual assault are very real safety threats for women defecating in the open as well as for those that have to walk long distances to access toilet blocks.

Provision of facilities such as water and electricity are very crucial for ensuring that women use public / community toilets. Women usually avoid using toilets at night if the block does not have electricity for fear of sexual assault. The provision of continuous water supply is crucial for ensuring that women use toilets and for enabling them to maintain personal hygiene.

As most toilet blocks are poorly maintained it is commonplace to find broken doors and missing latches. For women and adolescent girls this is violation of their right to dignity and a threat to their safety. Presently, most public and community toilets lack any provisions for menstrual hygiene management.

A gender sensitive toilet can be defined as one which is easily accessible for women; has the provision of basic facilities such as water and electricity; is clean and adequately maintained; the design elements ensure privacy and dignity for women; it is safe for women to use the facility at all times (with lighting and adequate security provisions in terms of caretakers etc.); and has provision

for child care and menstrual hygiene management. Integrating menstrual hygiene needs of women is a key element for ensuring that toilet facilities are gender sensitive. The design considerations for a gender sensitive toilet facility are detailed out in Section 3.1.

From a gender perspective, the operation and maintenance plan must include elements that would ensure safety of women using the facility. Section 4.2 and its sub sections dwell on these aspects.

Women's can also play a key role in monitoring of service levels and their involvement can go a long way in improving service efficiencies and in making O&M agencies more accountable. These aspects have been detailed out in Section 5.4.1.

Any awareness generation or Behavior Change Communication (BCC) program on sanitation must have women as a key target audience. Section 5.6 and 5.7 present how women can be integrated in the awareness generation and user education initiatives.

A gender needs checklist for public toilets developed from the perspective of the user are enclosed in Section 6.4.

1.4 Existing guidelines

Government of India had published guidelines on community toilets in 1995. Currently, there are several state Governments such as Government of Odisha, Government of Andhra Pradesh that have established state level guidelines for community and public toilets. There are also several norms such as Bureau of Indian Standards that exist and provide direction on various aspects of toilets management.

With increasing need of having a systematic approach towards toilets management in a step by step manner and by using the data management technology for accurate planning and decision making, a need was recognized to draft national level guidelines for decision makers covering all the aspects of toilets management. The present guidelines thus aim at providing comprehensive roadmap for decision makers and detailing various aspects including planning, construction, operations, financing, institutional setting and most importantly the data management.

1.5 Structure of guidelines

The guidelines broadly follow a five section structure in accordance with the typical stages of a project cycle beginning from city-wide planning, followed by construction or up-gradation of the facilities, operations and maintenance and sustainable management.

Section A Background to the guidelines, their objectives and guiding principles.

Section B 'City wide planning of public and community toilets' outlines the visioning exercise to be conducted to improve the state of toilets at the city level; categorization of toilets and planning approach; data gathering and baseline analysis and service provision at the city level. Norms for public and community toilets, financing and institutional arrangements are also outlined in this chapter.

Section C 'Construction/ up-gradation of toilets' dwells on internal and external design considerations like site conditions, lighting, accessibility, norms for facilities etc. The specific design considerations for special population groups including women, children, old / infirm and differently abled are also outlined here. Construction techniques and options for sewage disposal are also discussed here.

Section D 'Operations and maintenance of toilets' talks about maintaining the toilet standards and performance monitoring. Regular maintenance of the facility like cleaning schedules, safety standards, staffing etc. are elaborated upon.

Section E 'Sustainable management and future planning' talks about monitoring and reporting of service levels and important legal considerations. Emphasis has been placed on awareness creation and user education.

2. Section B: City wide planning of public and community toilets

This section details out the city wide planning process for public and community toilet service provision including visioning, categorization of toilets and planning approach, data gathering and analysis, city level decision making, financing and institutional arrangements. It is envisaged that the step by step decision making process chart will help administrators take decisions in a variety of situations with clarity.

2.1 Definition

Public Toilets are toilets which are provided for the floating population/ general public in places such as markets, train stations, tourist places, near office complexes, or other public areas where there are considerable number of people passing by. Public toilets are to be accessible to one and all and well-connected to important areas and pedestrian junctions (Swachha Bharat Mission Guidelines).

Community Toilets are the shared facilities provided by and for a group of residents or an entire settlement. Community toilet blocks are used primarily in low-income and/or informal settlements / slums, where space and/or land are constraints in providing a household toilet. These are for a more or less a fixed user group (Swachha Bharat Mission Guidelines).

The upcoming sections provide directives applicable to both public and community toilets with certain sections providing separate details for either category.

2.2 Step by step process to be followed

Wards have been considered as the primary unit of planning for administrative ease. It is essential to differentiate micro and macro level planning hence, ward level planning and city level planning have been differentiated based on various parameters. The decisions that need to be taken at city and ward level may follow the steps given below.

Step by Step:
Planning to Implementation

City level planning

Demand assessment
(Refer to section 2.5)

- Conduct surveys to gauge demand for toilets. Conduct sample surveys of approximately 5% of the potential users along with focused group discussions
- Identify the type of toilets to be provided and the potential locations

ULB technical capacity assessment
(Refer to section 2.5)

- Assess the technical capacity of the ULB to undertake construction and maintenance of the toilet blocks

ULB adminsitrative capacity assessment
(Refer to section 2.5)

- Assess the administrative capacity of the ULB in terms of the manpower required

ULB financial capacity assessment
(Refer to section 2.5)

- Assess the capacityof the ULB to bear capital and maintenence costs of the toilet blocks
- Assess the need for private player in toilet provision

Site level planning

Facility needs assessment
(Refer to section 2.5)

- Prepare a comprehensive ward level list of existing toilet facilities
- Conduct survey to find out which facilities can be retrofitted vs need for new facilities

Site assessment
(Refer to section 3.1.2.2 and 3.1.2.3)

- Once the location is decided upon, analyze the site of potential blocks in terms of the following:
- Soil strata
- Water logging/ flooding issues
- Ground water levels

Design and cost assessment
(Refer to section 3.1.3 and 3.1.4)

- Gauge the design requirements, including facilities to be provided in the toilets and the costs of the same

Revenue potential assessment
(Refer to section 2.8)

- Based on the demand assessment, calculate the approximate user fee revenue
- Additionally, assess revenue from alternate sources like advertisement revenue by means of market surveys

Institutional framework assessment
(Refer to section 2.9)

- Guage the involvement of the private sector in capital works and O&M or only O&M
- Finalize the institutional structure of the toilet blocks and zero in on one of the following models: BOT, BOOT, DBFOT, CBO managed, management contract etc
- In case revenue from individual facilities are not sufficient to meet O&M expenses, clusters of facilities can be formed to cross-subsidize operations

2.3 Visioning exercise

The vision for improvement in toilet facilities in a city should relate to the profile assessment and the unique challenges being faced by that city related to provision of toilets. Though all the basic service standards outlined in SBM are to be achieved, a city may decide to focus on a particular issue while planning for toilet facilities, such as eradication of open defecation, water conservation, environment friendly green toilets, awareness creation, safety concerns, etc. The vision developed by a city would provide a specific direction to overall approach of meeting the service standards. Hence, one of the first tasks as part of the city wide planning process is to develop a suitable vision with a specific focus on tackling issues like open defecation or the lack of public/ community toilets in the city.

For visioning to be a meaningful exercise, a SWOT analysis needs to be undertaken which would allow the city to capture its aspirations and goals with respect to toilet provision along with identifying the risks that need to be taken care of. Based on SWOT, specific priority areas would be identified and a vision formed. A typical format which can be used for SWOT analysis is provided below.

The vision statement, thus, in essence, should capture the overall aspirations and goals for the city and should identify the key metrics. The objectives of the SBM provide the primary metrics that could be considered for building a specific vision for a city.

A typical vision statement could be along the lines of the vision for Shimla- "Increase service levels in a homogenous way in all public toilets in Shimla". The above vision statement shows a focused approach to improve service levels in all public toilets in the city.

GoAP intends to deliver better services for its citizens and attempts to provide toilets at a norms higher than minimally mandated by SBM. The same is explained in the respective sections for community and public toilets. In addition, GoAP also aims to move towards a city-wide common service standards for O&M of both public and community toilets alike. The mode of implementation desired is typically controlled by local needs and considerations, but aligned within the overall city wide management strategy and framework.

2.4 Categorization of toilets and approach for planning

The norms according to SBM state that public toilets should be provisioned at the rate of 1 unit per 100 male users and 1 unit per 50 female users and community toilets at the rate of 1 per 35 male users and 1 per 25 female users. These norms indicate the total footfall that a toilet unit will get, however, they do not account for peak loading factor. Peak loading factor i.e., the number of users using a toilet at peak periods in a day will have significant impact on the services and hence, toilets need to be designed for peak hour demand (to handle maximum load at a time). For example, public toilets at railway stations have continuous demand throughout the day whereas users usually use community toilets at specific periods in a day for example, between 8 am- 10 am and 6 pm- 8 pm. Waiting period of more than 5 minutes is to be avoided as it would lead to queuing outside the block. (The time given i.e. 5 minutes is indicative and based on user perception as there are no norms or guidelines for the same.)

Toilets can be categorized on the basis of locations, user types, revenue potential, hours of operations and the facilities provided. The toilets have been categorized primarily into 5 types based on the location of the facility. Further, the user types have been defined for each along with the potential hours of operations, typical user charges and revenue potential. The type of facilities provided for each have also been gauged including toilets for disabled, transgender, caretaker, storage, waiting/ circulation space and washing area.

CATEGORIZATION OF TOILETS

Type 1	Toilets at transit hubs like railway stations, airports etc.
Type 2	Toilets at busy institutional areas like market places, religious areas etc.
Type 3	Toilets at open grounds, recreational spaces (public areas) etc.
Type 4	Toilets for a specific group of users like community toilets.
Type 5	Toilets at functions, fairs and exhibitions

TABLE 1: TYPE AND CHARACTERISTICS

Type of toilet/ nomenclature	Typical local conditions	Typical users / catchment	Typical hours of operation	Typical User charges	Typical revenue potential	Reference
Type 1 Transit Area toilets	Bus stands Railway stations Airports	Tourists, travelers and locals	24 hours	Per use	Profit making	Refer to sections 2.5.1, 3.1.3, 4.1.3 and 6.1.2 Refer to Sl. No. 1 and 3 in reference documents reports
Type 2 Institutional Area toilets	Markets Hospitals, Religious places, Government offices Malls	Office goers, shoppers, tourists, travelers and locals	12 hours (toilets at offices and governments may be open 24 hours depending on the operational hours of the institution)	Per use or free usage (depending on the location)	Profit making	Refer to sections 3.2.2, 4.1.3 and 6.1.2 Refer to Sl. No. 8 and 14 in reference documents-guidelines
Type 3 Public Space toilets	Parks Playgrounds Recreational areas Bus stops Parking areas	Children, parents and locals	8- 10 hours	Per use	Revenue deficit	Refer to section 3.1.3 Refer to Sl. No. 8 and 14 in reference documents-guidelines
Type 4 Community toilets	Slums Low income areas Residential areas	Families with children	24 hours	Monthly pass	Cover O&M	Refer to entire guidelines esp. sections 2.5.1, 2.7.2, 2.8, 2.9, 3.1.3 & 6.1.1 Refer to Sl. No. 2, 11 and 13 in reference documents-guidelines
Type 5 Event linked toilets	Functions Fairs Exhibitions	Organizers, visitors and participants	8 hours (or depending on the duration of the event)	Free usage	Not applicable	Refer 2.7.1 and also relevant sections on siting and accessibility, and maintenance.

TABLE 2: FACILITIES REQUIRED IN VARIOUS TYPOLOGIES OF TOILETS

Type of toilet /Nomencla-ture	Typical local conditions	Male (please add child friendly seat + urinal)					Female (please add child friendly seat + urinal, changing room/ child care room)					Differently abled unit (Please refer to footnote)	Transgender unit (Please refer to footnote)	Caretaker / storage room	Waiting circu-lating space	Washing area
		WC (Indian)	WC (Western)	Urinal	Hand-wash + Mirror	Shower	WC (Indian)	WC (Western)	Hand-wash + Mirror	Child care / changing room	Shower					
Type 1 Transit Area toilets	Bus stands Railway stations Airports	Mandatory	Mandatory	Mandatory	Mandatory	Recommended	Mandatory	Mandatory	Mandatory	Recommended	Recommended	Mandatory	Optional	Mandatory	Recommended	
Type 2 Institutional Area toilets	Markets Hospitals, Religious places, Government offices Malls	Mandatory	Mandatory	Mandatory	Mandatory	Optional	Mandatory	Mandatory	Mandatory	Optional	Optional	Mandatory	Optional	Mandatory	Optional	
Type 3 Public Space toilets	Parks Playgrounds Recreational areas Bus stops Parking areas	Recommended	Mandatory	Mandatory	Mandatory	Optional	Recommended	Mandatory	Mandatory	Optional	Optional	Mandatory	Optional	Mandatory	Optional	
Type 4 Community toilets	Slums Low income areas Residential areas	Mandatory	Mandatory	Optional	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Optional	Mandatory	Recommended	Recommended	Recommended	Optional	Mandatory
Type 5 Event linked toilets	Functions Fairs Exhibitions	Optional	Mandatory	Mandatory	Mandatory	Optional	Optional	Mandatory	Mandatory	Optional	Optional	Recommended	Recommended	Optional	Optional	

Foot note:

1. Mandatory- Defined as per norms and guidelines already available
2. Recommended- As per our understanding to be provided based on demand & space availability, but guidelines are not available
3. Optional- To be provided based on local conditions / demand for such facilities/infrastructure
4. Blank cells- Facility or service not required
5. Differently abled unit- Unisex / separate for men or women as per local conditions. Whether integrated into the main toilet unit design or separately provided to be decided based on local conditions and space availability.
6. Transgender unit- Subject to local conditions and demand. It is to be provided independently or included as part of the women's block.
7. Single toilet units (like E-toilets) are covered under Type 3 toilets above. Suitable guidelines / norms to be adapted if this is the preferred option over a toilet block.
8. Urinal blocks as an option is covered under Type 2, 3, 5 toilets above. Suitable guidelines / norms to be adapted if this is the preferred option over a toilet block.

Other infrastructure & services mandatory irrespective of toilet type shall be referred to in sections 3.1.3 and 3.1.4 of these guidelines.

2.5 Norms for toilets

This section introduces norms for the number of WCs, urinals, bathrooms and areas for washing and standard sizes of bathrooms, urinals and washing area.

2.5.1 Norms for public toilets

As per Bureau of Indian Standards, the following is the number of WCs for males and females and urinals for males required for public toilets according to their location.

TABLE 3: INDIAN STANDARD CODE FOR WATER CLOSETS FOR PUBLIC TOILETS, BIS 1993 (PLANNING NORMS)

Sl. No	Locations of public toilet	WC for Males	WC for Females	Urinals for Males Only
1	Railway station, bus station or bus terminal and seaports	3 for first 1 000 persons and 1 for every additional 1000 persons or part thereof	4 for first 1 000 persons and 1 for every additional 1000 persons	4 for every 1000 persons and 1 for every additional 1000 persons.
2	Terminal stations and bus terminals	4 for first 1000 persons and 1 for every subsequent 1000 persons or part thereof.	5 for first 1000 persons and 1 for every subsequent 2000 persons or part thereof.	6 for first 1000 persons and 1 for every subsequent 1000 persons or part thereof.
3	Fruits and vegetable markets	Not less than 2 and an additional one for every 50 persons	Adequate provision of water-closets shall be made	Not less than 2 for every 50 persons.
4	Office Buildings	1 for every 25 persons or part thereof	1 for every 15 persons or part thereof	1 for 7 to 20 persons. 2 for 21 to 45 persons. 3 for 46 to 70 persons. 4 for 71 to 100 persons. From 101 to 200 persons add at the rate of 3 percent. For over 200 persons, add at the rate of 2.5 percent.
5	Factories	1 for 1 to 15 persons 2 for 16 to 35 persons 3 for 36 to 65 persons 4 for 66 to 100 persons	1 for 1 to 12 persons 2 for 13 to 25persons 3 for 26 to 40persons 4 for 41 to 57persons	1 for 7 to 20 persons. 2 for 21 to 45 persons. 3 for 46 to 70 persons. 4 for 71 to 100 persons.
6	Art Galleries, Libraries and Museums	1 per 200 persons up to 400 persons; and for over 400 persons, add at the rate of 1 per 250 persons or part thereof	1 per 100 persons up to 200 persons, and for over 200 persons, add at the rate of 1 per 150 persons or part thereof	1 per 50 persons.
7	Restaurants	1 for 50 seats up to 200 seats; and for over 200 seats, add at the rate of 1 per 100 seats or part thereof.	1 for 50 seats up to 200 seats; and for over 200 seats, add at the rate of 1 per 100 seats or part thereof.	1 per 50 persons.

Guidelines for community toilets, 1995 however provide more stringent standards for number of seats for a public toilet. Given below are the standards provided in the guidelines of 1995.

TABLE 4: NORMS FOR NUMBER OF SEATS, URINALS, BATH-ROOMS AND AREA FOR WASHING

Public toilet	Toilet seats	Bath units	Urinal units	Clothes washing area
Near railway stations (may be used at all hours)	One seat per 100 users	One unit per 50 users	One unit per 200 – 300 users	4 to 5 sq. meters per 10 toilet seats; Min. 1.5 m x 1.2 m area.
Near market place / offices (will mostly be used during working hours).	One seat per 100 users	One unit per 50 users	One unit per 200 – 300 users	4 to 5 sq. meters per 10 toilet seats; Min. 1.5 m x 1.2 m area.

The guidelines also provide for the standards minimum sizes for various facilities. These are as below.

TABLE 5: NORMS FOR STANDARD SIZES

Description	Optimum (mm)	Minimum* (mm)
Toilet cubicles	900 x 1200	750 x 900
Bath rooms	1050 x 1200	900 x 1050
Urinals(divided into units by partition walls)	575 x 675	500 x 600
Washing area	1750 x 1500	1200 x 1500

**In case of space constraint the minimum sizes may be adopted*

2.5.2 Norms for community toilets

The following norms from the Manual on Sewerage and Sewage Treatment Systems, (CPHEEO, 2013) Part A suggests the number of toilet seats and the recommended sizes of septic tanks to be provisioned for community toilets.

TABLE 6: NORMS FOR PLANNING OF COMMUNITY TOILET

Toilet Seats	Bath units	Urinal units	Clothes washing Area
One seat for 35 men; One seat for25 women	One unit per 50 users	One unit per 200 – 300 users	4 to 5 sq. meters per 10 toilet seats; Min. 1.5 m x 1.2 m

TABLE 7: RECOMMENDED SIZES OF SEPTIC TANKS FOR COMMUNITY TOILETS

No. of users of community toilets of Users	Length (m)	Breadth (m)	Cleaning interval of septic tanks depth	
			2 years	3 years
50	5.0	2.00	1.00	1.24
100	7.5	2.65	1.00	1.24
150	10.0	3.00	1.00	1.24
200	12.0	3.30	1.00	1.24
300	15.0	4.00	1.00	1.24

A community toilet should have all the facilities like bathing cubicle, washing clothes, Toilet for children and disposal for used sanitary napkins as mentioned under the section for Public toilet. However, in community toilet a small child care / baby feeding room is not required.

2.6 Success factors / drivers for sustainable public toilet management

Study of various cases studied highlight the following key drivers or success factors for sustainable public toilet management practices. These have been explained against the various stages of project cycle for the ease of city administrators.

2.6.1 City wide planning

Demand-based approach

The project reports prepared by local bodies often follow a supply or target-driven approach and do not normally reflect users' preferences and willingness to participate or pay for capital or operation and maintenance costs. The non-involvement of users in project preparation discourages a sense of ownership among users and results in dissatisfaction and sub-optimal use of facilities. On the other hand, some of the projects prepared by CBOs or NGOs or consultants based on users' preferences and willingness to participate, have proved to be sustainable in the long run.

Hence a prior user survey to understand the magnitude of the demand, locations, types of facilities, and also the potential of cost recovery before starting the implementation work becomes important.

Bundling of commercially viable and unviable facilities key to successful city-wide effective service delivery

Income from user charges and advertisement revenue potential depends on its location and type of users. This is a necessary condition for user charges recovery. But not sufficient always. The facility also needs to be well serviced to attract users and generate advertisement revenues. But not all locations even if well-serviced and maintained will be generate adequate revenues to meet operating costs. It has been the experience in various cities not so attractive locations often are under-serviced and neglected. A successful model demands bundling of commercially viable and unviable facilities city-wide service level expectations are to be met. A strict supervision of these bundling of facilities is required to ensure same level of good services prevail in the viable and unviable locations.

The approach helps in ensuring adequate service levels across all the toilet blocks in the city. A note on various criteria for bundling of individual toilet projects has been provided in Section 6.12.

2.6.2 Construction and up-gradation

Appointment of an external agency overcomes limitations imposed by lack of institutional incentives and resources

Sanitation is considered as one of the basic services to be provided by local bodies, free of cost. Consequently, public toilets in most cities were traditionally built, operated and maintained by the respective local bodies. However, due to inadequate financial and human resources, and inappropriate institutional incentives, most of the public toilets are very poorly maintained and abandoned by users within a few years of construction. To overcome these limitations, several local bodies have started assigning the O&.M responsibilities to an external agency (contractor or NGO). The agency operates on a 'pay-and-use' basis to ensure good quality conditions defined in a contract with the local body.

The cities need to identify their requirements of involving external agencies in technical capacities or management capacities.

2.6.3 Operation and maintenance

Strict supervision and monitoring of performance become critical in outsourced arrangements.

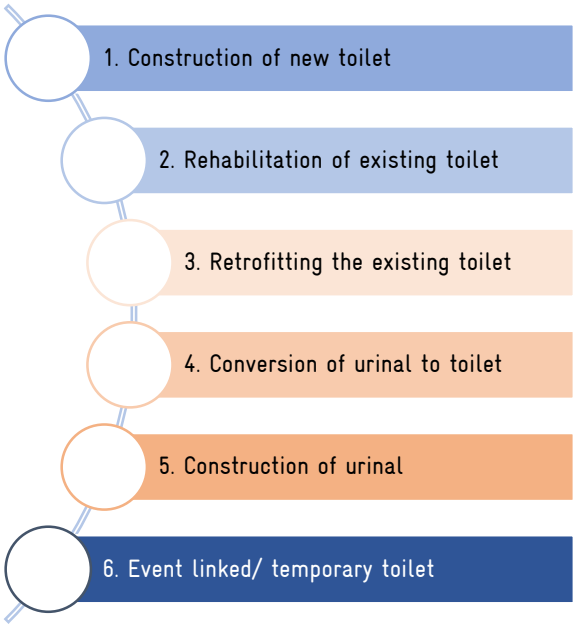
In outsourced arrangements, the local body is free from day to day operations. But its roles becomes supervisory in nature. In the absence of strict supervision and monitoring by the local body, the contractor is normally under no to pressure as per the terms of the contract. For ensuring compliance with the contract conditions, the local body needs to periodically monitor the contract performance as per pre-determined and agreed performance parameters. As the users are expected to pay for services, they are likely to develop a sense of ownership and will seek to complain if services offered are not up to the mark. A simple and effective complaints reporting mechanism can provide good feedback to the local body and cause it act against the contractor to remedy the situation.

2.7 City level planning

Public toilet planning should be an integral part of urban spatial planning. After the data gathering and analysis, once the city has a clear idea of the technical gaps which need to be filled, the local body needs to take several decisions for conceptualizing a plan and ensuring that an effective implementation strategy is in place.

2.7.1 Approaches for planning

The approach to the planning is to be based on the SWOT analysis of the city's situation. Based on the SWOT, a particular focus should be provided for planning process. The approach to be considered and the steps to be undertaken for toilet provision are detailed in section 2.2.



There could be different approached of project development depending upon the requirements.

Depending upon the type of demand, the projects may be considered into different categories. The project may be of type 1 or type 5 where the requirement is of creating entirely new construction either for toilets or for urinals or for a block with combination of toilets, urinals and other facilities. Here the requirements of finding new site, estimating most realistic requirements of facilities and planning for the alignment of toilets block will be critical.

There could be other category where existing toilet is de-funct and cannot be utilized without reconstruction, however in this case the site is already chosen and requirements of facilitites are likely to have been established by the existing or past users. The emphasis will hence be on constructing a suitable toilet including major construction components and hence the projects will be capital intensive. There may also be a case where the toilet block is constructed and standing proper but the facilities provided are either inadequate or not functional. In this case, the investment required will be minimal and major focus will be on adding the required equipment and facilities to the existing toilet block. Here the demand estimation may not be of great importance but the services requirements need to be captured well.

There may also be other cases where a particular facility needs to be converted into other type of facilitites such as converting a urinal block into toilet block or vice-versa depending upon the demand.

Another category is when the demand is for a particular period. In such cases mobile toilets can be brought to the site and then withdrawn post the event has occurred. For events only Mobile toilet vans (MTV) are used. Temporary toilet for a few days not a viable option.

In many cities MTVs are available on daily payment basis. Such toilets are also installed by many local bodies for slum areas where adequate space for implementing community toilets are not available.

MTV has 5-10 WCs mounted on wheels. There is one sludge tank of required volume below the WCs and and on chassis of the van. It has water storage and wash hand facilities also. Such MTV is installed at requires site. After the sludge tank is filled or about to fill, it is removed by tractor to the site where sludge is disposed. Normally sludge is removed at manhole of nearby sewer network. After removing sludge is it put again at the site.

For cleaning purpose, one attendant is attached with the system with cleaning materials. The system is more suitable for short gathering and functions.

2.7.2 Project identification and scoping, DPR preparation

Identification of the project sites is a pre requisite for provision of public/ community toilets. In case of community toilets, such need can be identified by undertaking a survey of the area keeping in view the sanitation coverage of households and reasons for not having individual household toilets. In case of slums and other resettlement colonies, most of the people don't have sufficient land space to have their own toilets. In such a case, community toilet is the only option for them.

In case of public toilets, potential areas need to be identified in a town. Such areas may be market places, bus stands, railway stations, court compounds, parks etc. Availability of public toilets and daily floating population is such areas need to be assessed. Even in some areas if public toilets are available, its adequacy needs to be assessed. For detail assessment for potential new sites section 2.8.2. may be referred to.

The DPR of a community / public toilet should basically include all components and their numbers as mentioned in the section 6.9. Further it needs to include proper waste management systems from such toilets. The purpose of a community/ public toilet will be severely defeated when proper waste management is not taken into consideration for the improvement of community health and environment.

DPR should also include proper and sustainable operations and maintenance of the system. For such a system, income generation from different ways need to be highlighted in the DPR. However, there is not much scope for income generation from community toilets located in slums. In such case, only option is pay and use system. In case of public toilets located at public places or road sides, there is substantial income from advertisement and pay for use. The DPR should be packaged with both toilets for slums and public places. In such a case, all the public toilets of the package/ aggregation will be sustainable. Typical contents of a Detailed Project Report along with the explanatory notes have been provided in Section 6.9.

2.8 Step by step process to be followed- Public Toilets

This section talks about the action plan for planning of public toilets. This section also highlights the role of each organisation involved at each stage.

2.8.1 Needs assessment and identification of stakeholders

Public toilets shall be constructed based on the need assessment of the proposed area. The following activities have to be undertaken as part of need identification.

a. For public toilets, locations such as tourists' places, public gathering places, railway stations, bus stands, markets etc. need to be identified by the ULBs through spatial analysis.

b. Demand side assessment needs to be conducted in the locations identified above for understanding the following.
   - Number of potential users/ peopleassembling
   - Duration and timing of assembling
   - Gender ratio
   - Willingness to pay
   - Type of toilet preferred

c. In-case of an existing facility, the following supply side data needs to be mapped.
   - Number of persons using the toilets in a day
   - Number of persons gender-wise and age-wise
   - Timing of toilet usage
   - Facility utilized (urinal, WC, bathing facility etc.)
   - Waiting time to use the toilet facility
   - User fees paid
   - Type of toilet preferred
   - Condition of toilet

d. Ideal site for the location of the public toilet needs to be mapped based on the above assessment keeping in mind the convenience of the users. Ideal distance norms for location of public toilets are within a walkable distance of 1000 metres (as per SBM guidelines) to various catchments. Nevertheless, if land requirements are met with for providing new facilities or integration with existing facilities, higher norms can be attempted, form a city-wide saturation principle. The financial viability metrics suggested in the subsequent sections and chapters shall govern such decisions.

e. Alternately/ additionally, the existing facilities may be retrofitted based on the condition of the existing facilities. The redistribution of footfall in this case, shall follow norms applicable for construction of new toilets units / blocks as applicable. The computations shall be in line with the category of the toilet as indicated in Table 1 in this chapter.

2.8.2 Selection of public toilet design

a. Based on the above assessment, the ULB needs to decide on the type of toilet to be provided. Various models shall be considered based on the number of users/ demand and the location where the toilet needs to be constructed. The following types of toilets may be considered based on the location.
   - Railway stations, bus depots, stations etc. (High load/ extended peak hours)
   - Market areas (Low load/ extended peak hours)
   - Educational institutions (High load/ limited users)
   - Miscellaneous locations (Low load/ limited peak hours)

b. Finalize toilet model based on mapping the following information.
   - No. of toilets to be constructed
   - No. of seats/ urinals of each toilet
   - Category of facilities to be provided, for e.g. Toilet and urinal only/ toilet and urinal with washing facility etc.
   - SBM provides for a minimum norm of one seat each for 100 to 400 men and 100 to 200 women, including an incremental increase in seats based on footfall. Nevertheless, Andhra Pradesh State intends to move towards an aspirational higher provision norms, subject to meeting conditions on land availability and other requirements outlined in subsequent sections of this chapter. It is hence required to explore higher standards of seat to person ratio be explored, while complying with the distance norms.

2.8.3 Preparation of proposals

a. Conduct site investigation and field visits to gauge feasibility (technical, financial and economic) of the proposed sites for construction.

b. Assess the availability of services for toilet provision (water, electricity and sewage disposal and treatment facilities) in the proposed site.

c. Prepare comprehensive proposal including technical plans, provision of facilities, estimates and funding patterns along with approvals for construction

2.8.4 Construction of public toilets

a. The ULB shall ensure that the construction of the facility is carried out as per the ongoing practice for civil works as per existing rules.

b. The decision to hire private player for construction and/ or O&M to be decided based on the model followed.

c. The ULB shall follow due process in terms of finalization of contractor, supervision, payment and handing over of work shall be followed.

2.8.5 Operations and maintenance

a. Work out the financial plan for operations and maintenance of the facility.

b. The ULB shall fix the user charges.

c. The ULB shall enter into an agreement with the private contractor for operations and maintenance of the public toilet facility with the terms, conditions and penalties in case of non- compliance explicitly mentioned.

2.8.6 Monitoring and follow-up

The ULB shall monitor the usage, provision of services and cleanliness of the facility at regular intervals. The following aspects should be considered while monitoring the toilet block.

- Cleanliness of toilet block, individual cells, drains and surrounding space
- Provision of services like water supply, lighting etc.
- Provision and functionality of doors, handles etc.
- Provision of supplies and tools
- Management and operating schedule
- Site safety and security

2.9 Step by step process to be followed- Community Toilets

This section talks about the action plans in place for provision of community toilets. This sections also highlights the role of each organisation involved at each stage.

2.9.1 Needs assessment and identification of stakeholders

Construction of a community toilet shall only be taken up based on the need assessment in a proposed area, the following activities have to be undertaken as a part of need identification.

a. An assessment of slums/pockets/localities shall be made in the ULBs where open defecation practice is going, irrespective of the reason whether due to constraint of space for IHTs or due poor financial status of the community.The inventory should be made capturing all the details provided in 6.2. Certain best practices for asset inventory have been provided in the Section 6.3. More information on the best practices can also be viewed on:

b. For Tirupati: http://tgiz.akara.co.in/index.php?p=home

c. For Shimla: http://shimla.akara.co.in/index.php?p=login
Username: demouser1
Password: dem0user

d. Field survey for identification of such households in those slums/localities /pockets and list out such families. This shall include households who could not be provided with individual household toilets, as per SBM Sanitation Plan advisory.

e. The community shall be sensitized on the need and importance of use of toilets and the beneficiaries shall be grouped together and 'User Groups' from the community shall be formed.

f. List out the number of households (beneficiaries) with in their respective slums/localities /pockets and arrive at the number people for which Community toilets to be provided.

g. Ideal sites available for construction of the community toilets within a walkable distance of 200-350 metres (maximum distance allowed up to 500 metres as per SBM guidelines) to such slums/localities /pockets.

h. Finally, assessment shall be done for the following:

- Name of the slums/localities /pockets
- Number of people for which community toilets needed
- Location of probable sites for construction of community toilets

2.9.2 Capacity building and empowerment of community

a. Community awareness programmes on community toilets shall be conducted for all the identified households involving local public representatives.

b. Special awareness programmes for women, children and physically challenged on need and usage of community toilets may be conducted.

c. 'User Groups' shall be formed for further planning, designing, implementation and O&M of Community toilets.

d. In case Slum Level Federations (SLF) are available, they shall be involved in the overall process, and if possible the overall O&M of CTs be explored with them before identifying other implementation modes. In case incentives are needed, the same be explored at the planning stage and capacity building requirements clearly identified. In case the Town Level Federations (TLFs) and Swachha Andhra Committees (slum and town level) are available, their interest and involvement shall be clearly identified and planned for.

e. Capacity building programmes for the community on operation and maintenance of community toilets shall be conducted.

f. Community consultations shall be done on O&M arrangements with all stockholders

2.9.3 Initiation

a. Users Groups shall request in writing to the ULB for providing community toilets at the respective slums/ pockets/localities.

b. ULB shall conduct filed visit of the concerned slums/ pockets/localities and identify the suitable site for the construction of the community toilet for the targeted beneficiaries as per the norms within.

2.9.4 Selection of community toilet design

a. Various models for the Community toilets shall be developed based on the number of users and extent of site in a particular slum/pocket/locality Community toilets considering the following aspects.

- No of toilets to be constructed with location
- No of seats / urinals per each toilet men / female / disabled /children required (SBM provides for minimum norm of one seat each for 35 men and 25 women, including bathing facilities). Nevertheless, it is aspirational to move towards higher provision norms, subject to land availability. It is hence required to explore higher standards of seat to person ratio of 1 seat for 15 men & for 10 women or higher be explored, while complying with the distance norms.
- Number of services possible given the land availability, Viz. Toilet & urinal / toilet & urinal along with bathing facility / toilet & urinal along with bathing and washing facility. In case, public toilets are available in the vicinity, the possibility of accommodating seats for exclusive use of identified households can be explored, along with their cross-subsidization requirements.

b. Toilet model (s) shall be finalized in consultation with the user groups' slums/pockets/localities.

2.9.5 Preparation of proposals

a. Field visit and site investigation shall be carried out for social, technical and legal feasibility of the proposed site for the construction of toilet.

b. Survey to be carried out for water, electricity, sewage disposal and treatment facilities available to the proposed site(s) and treatment.

c. O&M plan shall also be included in the proposals. This shall include who will manage the whole toilet block / unit.

d. Water, electricity, sewage disposal and treatment facilities, if not available, shall also be estimated and included in the estimate.

e. In case, refurbishment of an existing toilet block is considered, the rectification works shall be clearly documented and accordingly, the municipality and operators be engaged.

f. Any subsidies which can be availed for construction and complete O&M shall also be considered and documented in the proposal. Local groups (individual / user groups/SLFs/etc.) are given the primary choice of for O&M responsibility. In case outsourcing of O&M to a private party is a preferred model, empaneled agencies and procurement processes detailed subsequently shall be followed. Irrespective of the O&M model, service mandates (which are equivalent to all public toilets in the city) indicated shall be followed. The costs for O&M shall be completely borne by the concerned Municipality and to that extent this expenditure municipalities may adopt user charges (Ref. Lr. No. SAC/CE/F No. 06/D. No. 70/2015) dated 27.01,2016) and subsequent variations to this order form time to time.

g. Proposal shall be prepared along with plans, estimates and funding pattern for all the proposed toilets and obtain necessary approvals for construction, both administrative and technical.

2.9.6 Construction of community toilets

a. Construction and payment shall be carried out as per the ongoing practice for the civil work as per the applicable Government rules – calling and finalization of tender, Supervision / Recording /Payment of work and handing over of work.

b. While the costs to construction / rehabilitation to some extent is supported through GoI & GoAP incentives, the balance costs can either be borne by the municipality or suitable bank linkages for loans for SLFs / user groups may be facilitated.

c. Community / identified representative user groups shall be involved in supervision and monitoring of the work and quality of construction.

d. Irrespective of the responsibility of the construction, the overall asset shall be owned by the municipality. The community identified as users shall at all points have only usage rights of the toilet facility, as commonly agreed within the community.

2.9.7 Operation and maintenance

a. Work out the modalities for the O&M of Community toilets including fixing user charges. The fixing of user charges is a critical step to be decided and will impact the amount of subsidies obtained from the municipality as well as the selection of the operator. This decision step shall at all times possible be aligned towards a uniform city level strategy applicable for all community toilets.

b. Financial plan for the VGF

c. MoU shall be entered into between the user group/ operator as the case maybe and the ULB on operation and maintenance of community toilet. For selection of operators, the prevailing procurement procedure in vogue shall be followed in choosing the lowest quoted agency among empaneled list of agencies or those interested in rendering services.

d. Caretakers must be selected in consultation with user group.

2.9.8 Monitoring and follow-up

ULB shall monitor the functionality, usage and cleanliness of the toilet blocks at regular intervals. The following aspects should be considered during monitoring by ULB.

a. Sufficient supply of water to toilet;

b. Lighting to Toilet;

c. Functionality of the septic tanks, soak well;

d. Cleanliness of the toilet chambers, drains and surrounding;

e. Status of the roof, doors and overall repair & maintenance;

f. Performance of caretakers/ leases;

2.10 Financing arrangements for Public & Community Toilets

There are three types of costs included in public and community toilets management, the land cost, construction cost and operations and maintenance cost. For the benefit of administrators, typical cost heads for capital works as well as the O&M works have been provided in Section 6.10.

However, the business model may not be profitable if the land costs are included. Hence, the general trend is that the land is provided by the public agency for constructing a public toilet, thus negating the cost attached to it in the business model. A financial operating plan (FOP) needs to be prepared for assessing the life cycle costs. The principle while preparing the FOP should be that the user charges should aim to recover at least the operations

and maintenance cost of both the community and public toilets.

2.10.1 Capital costs

Local bodies will have to use a mix of centrally sponsored schemes, state government support, internal revenues and funds mobilized through CSR activities. Swachha Bharat Abhiyaan can partly fund the creation of public toilet facilities in urban areas. The funding for water supply distribution and sewerage infrastructure for servicing the public toilets can be availed under AMRUT. For financing the capital costs, various innovative mechanisms should also be explored. These may include the following:

- Grant subsidies from Government, donor agencies
- Grant/ loans from micro-financing institutions,
- A fund by the local body by levying a 'Cess' towards financing capital costs of public toilets for general users only (specific to public toilets only)
- Creating a commercial area attached to the toilet block and the revenues generated to be used for financing the capital costs (specific to public toilets only)
- Subsidies provided from time to time or increases in incentives offered under SBM

2.10.2 Operations and management costs

Operations and maintenance costs includes recurring costs for electric supply, supplies like soap, hand wash, toilet paper, sewage disposal (depending on the method adopted), staff costs and miscellaneous supplies. These costs are generally met by a combination of user fees and advertisement revenue by the private operator. In addition to the above, a small scale commercial complex can also be constructed, the revenues of which may be used to offset a part of the maintenance costs.

In case, municipalities or GoAP desires to cross-subsidize some or whole of the construction costs and or O&M costs for community toilets, the directions shall apply and take precedence prior to devising user charges for ensuring full cost recovery.

2.10.3 Financial operating plan

The inputs to the financial operating plan would include the following:

- The life-cycle costs of the project and their timing. These include the estimated capital costs and operating and maintenance (O&M) costs identified in the cost assessment and a depreciation schedule for physical assets
- Revenue options and the associated forecast revenue stream. This will include tariffs (where user-charges are possible), and secondary revenue sources from the project like advertisement revenues
- Forecast demand including scenario ranges from the feasibility study
- Assumed capital structure (debt - equity mix) of private sector investment vehicle
- Debt and repayment schedule
- Project specifications (investment timing, lifetime etc.)
- Sensitivity ranges on assumptions, designed to encourage a careful consideration of probable outcomes and reduce optimism bias

The outputs of the model would include:

- Expected returns from the project in terms of NPV and IRR
- An assessment of subsidy or viability gap funding requirements where there is a viability gap between the revenue requirement and the revenues that can be raised from users
- Summary financial information including ratio analysis

Together these outputs will provide a quantitative assessment of the financial viability of the project.

It is important that the financial viability exercise be taken up, as it has significant bearing on the type of outsourcing mechanism proposed for the toilets.

A typical format of FOP has been provided in Section 6.11.

2.10.4 Business model formulation

The business model to be followed for the toilet provision needs to be based on the cost recovery principles. For creating a sustainable business model, a detailed assessment of costs, and revenue potential at each location needs to be carried out. In cases where the user community is not in a position to pay user charges, the municipalities shall bear the burden of supporting at least the O&M costs. Such a scenario is most likely to be observed in community toilets, where the primary intent

shall be to ensure a good service rather than generating a profitable venture.

When such cases are high, cross subsidization becomes important since the user charges need to be also cater to people with an equitable approach, thus putting restrictions on increase in the rates.

Cross-subsidizing certain operations by certain profit making operations could be one way of having a financially sustainable business model. Combining revenues from commercial spaces to cover costs of toilet management could be another way of making the model financially sustainable.

2.10.5 User charges and tariffs

The charges for use of a toilet facility are determined in such a way that the expected revenue would keep the facility in good condition and also recover the cost of creating the facility from the users over a certain period of time – application of user pays approach. The charges for use of community toilets for slum dwellers need to be affixed with elements of both – user pays and ability to pay approaches. In many cases, local conditions and agreements to pay shall decide user charges. In certain cases, there will opportunities for users themselves to maintain these toilets (individually / or as a group), which shall be considered, before deciding on the user charges.

2.10.6 Revenue options

User charges will need to be levied for all kinds of public toilets. However, seldom will the user charges alone will be able to recover the O&M costs and construction costs. The rights to allow advertisement revenues to accrue to the O&M operator will increase the financial feasibility of the project. The user charges should at least cover the O&M costs of the toilet facility.

2.10.7 Aggregation and clustering

Ironically facilities which attract higher footfalls will also have a tendency to generate higher revenues from advertisements. Facilities with lower footfalls will provide not so attractive advertisement revenues to cover costs and generate a revenue surplus. Bundling few commercially attractive options with unviable ones will increase the overall attractiveness of the package thereby making O&M by external agency financially feasible. Again, the key would be enforcement to prevent the operator from 'cherry picking sites': maintaining the profitable ones while neglecting the rest. This makes monitoring of service levels across toilet locations all the more a critical function.

2.11 Institutional and contracting arrangements

It is the responsibility of the local body for planning, construction, operation and maintenance of public toilets. An appropriate project preparation requires multi-disciplinary skills such as technical, social, financial and contracting. If such skill sets are not available in-house, the local body is well advised to seek external help from NGOs/CBOs and consultants including subject matter experts.

To understand the extent of private sector participation in the provision of public toilets, the following steps are undertaken. The user's willingness to pay is gauged and then the adequacy of the user charges is determined. Further, the user charges are checked to see if they are optimal. In case they are not, the potential to increase the charges is explored. Potential for alternate revenue is explored and sufficiency of alternate revenue sources is determined. The technical and administrative capacity of the ULB is determined in parallel.

In case alternate revenue sources are not available and ULB does not have sufficient capacity, private sector participation is encouraged with operational subsidy from the ULBs. In case alternate sources of revenue are available and the ULB has sufficient capacity, the ULB handles the provision and operations. In case alternate sources of revenue are sufficient but ULB does not have sufficient capacity, private sector participation is encouraged and the operations are offset by the advertisement/ other revenue.

2.11.1 Management options - construction and O&M of toilet units / blocks

Typically, the construction contract is awarded to a contractor or NGO by the local body. The local body assumes the responsibility to supervise the quality of construction. Lack of adequate supervision resulting in poor quality of construction is often a common issue. The splitting of responsibility of construction by one agency and O&M by another is sometimes another reason for poor quality of construction. In such cases, the O&M agency does not take responsibility for routine civil maintenance and repairs and awaits intervention by local bodies which often do not come in time. The resultant poor maintenance causes user dissatisfaction and non-use

of facilities. It is thus better to have the construction and O&M contract awarded to a single agency.

Local bodies should evaluate alternative construction arrangements and choose the most appropriate option that will ensure good quality of construction and proper use of facilities constructed. Two possible arrangements emerge:

1. Construction by CBO/NGO: In this case local body will need to provide technical guidance to the CBO/ NGO
2. Construction by private contractor: In this model, the private contractor constructs the toilet for the local body

Initially, public toilets were owned and maintained by local bodies. Usually, no charge was levied on users. Also, there was no dedicated or sufficient staff assigned for the upkeep of the toilets. As a result cleanliness and maintenance are generally poor and the toilet blocks go into disrepair. This results in sub-optimum usage or potential users shunning use of such facilities leading open defecation and other related ills. In the view of the above, it is suggested that O&M be based on full-cost recovery and assign adequate staff, consumables, tool, etc. for proper upkeep of the toilet facilities.

2.11.2 Roles and responsibilities – public toilets

As per section 112 of the Andhra Pradesh Municipal Corporations Act 1994, the ULB is mandated to provide and maintain public toilets and allied services. The health section of the public sanitation department within the ULB is generally responsible for all sanitation work within the limits of the ULB.

The other bodies/ agencies involved at various stages ranging from provision, operations, maintenance, monitoring etc. are Department of Municipal Administration and Urban Development (DMAUD), Swachha Andhra Corporation, private agencies etc.

a. Urban Local Body

The town planning wing, municipal engineer and health officer shall be mainly responsible for activities related to public toilets. A few indicative activities are listed below.

Health officer (Sanitation department)

- The health officer of the ULB shall identify the locations where open defecation practice takes place.
- The health officer shall be responsible for carrying out the needs assessment study in order to arrive at the number of potential users and locations.
- They shall develop various models in co-ordination with the municipal commissioner and engineer.
- They shall be responsible for maintenance and monitoring of the facility.

Town Planning Department

- The town planning department shall look into the reservation of sites for provision of public toilets.
- They shall finalize the sites for construction of the units.

Municipal Engineer

- They shall be responsible for provisionof services like water supply, electricity, sewage disposal and treatment (septic tank or sewer lines) facilities to the toilets.
- They shall be responsible for obtaining the necessary approvals from SAC and other technical sanctions.

b. Department of Municipal Administration and Urban Development (MAUD)

- They shall assist local governments in planning matters related to sanitation.
- They shall co-ordinate with the various departments like health department involved in the provision of public toilets.
- They shall offer technical recommendations to municipal and local governments in matters related to public toilets.

c. Swachha Andhra Corporation

- They shall handhold ULBs to enable activities in order to achieve the objective of elimination of open defecation, eradication of manual scavenging, modern and scientific municipal solid management, to effect behavioral change regarding healthy sanitation practices, generate awareness about sanitation etc.

d. Private organization/ agency

- ULB may contract out certain services like construction, operations and/ or maintenance of public toilets to a private operator or an NGO.

2.11.3 Contracting types- public toilets

There are various business models and contract types that have been in practice for public toilets management. These are explained below.

BOT/ BOOT/ ROMT

Investments on the asset creation are borne by the private operator. He is also responsible for repairs, maintenance works, re-investments and daily operations. These are generally long term contracts to allow the operator to recover the investment. At the end of their term, the contract is reviewed and extended or the facilities are handed over to the government. This model can also be modified to be applied to retrofitting options. Here instead of build, it will be retrofit as the responsibility.

Service/ management contracts

The facilities/ assets are given out to a private company to manage in lieu of a management fee (short term up to 5 years).The local body retains the ownership of the facilities and is responsible for investments as well as repairs and maintenance of the facilities. The performance parameters are specified for these contracts. The obligations of the service provider are clearly defined and the rewards are based on a fixed plus variable component (or deduction for lack of performance). The revenue risk of this model lies with the government.

Profit sharing

This is similar to the above model, however the contractor is awarded a share in the revenues of profits. The revenue risks are borne by the government and the contractor jointly.

Concession agreements

These are usually long term contracts related to the life of the assets. The ownership of the facility remains with the government, however the risks and rewards are borne by the contractor. Generally, repairs and maintenance works are borne by the contractor. Rules need to clearly mention the transfer of the assets at the end of the contracting period.

A detailed note on various factors to be considered to decide upon the suitable contracting structure has been provided in Section 6.10.

Also for reference, typical contents of a contract document have been provided in Section 6.14.

2.11.4 Roles and responsibilities- community toilets

The roles of various bodies/ organisations like the ULB, MEPMA and community in the provision and maintenance of community toilets are outlined in this section.

a. Urban Local Body

- The Town Level Swachha Andhra Committee (TLSC) in the ULB shall initiate the Community Toilet Programme.
- The Health officer of the ULB shall identify the Slums/Pockets/Localities where open defecation practice is going on and he shall submit the list of such Slums/Pockets/Localities to the commissioner.
- The Commissioner shall entrust the task of preparing the User Group in such Slums/Pockets/ Localities to the selected COs from UCD wing through TPRO.
- The Head of the Town planning wing shall finalize the sites for the construction of Community toilets in such Slums/Pockets/ Localities.
- The Municipal Engineer shall develop various models based on the no of users given by the COs /UCD wing and extent of sites given Town planning wing.
- The Town Level Swachha Andhra Committee (TLSC) shall finalize the models suitable to such Slums/Pockets/Localities in consultation with the community.
- The Municipal Engineer shall prepare the proposal in coordination with head of the UCD wing / TPR and submit the proposal to the Commissioner.
- The Commissioner shall obtain the approvals from SAC and Municipal Engineer shall obtain / give the necessary Technical sanction.
- The Commissioner is responsible for completion of the work through the Municipal Engineer.
- ULB shall take the following responsibilities for success of the programme.

- Financial contribution for their share for the construction of community Toilets.
- Providing sufficient Water, Electricity, Sewage disposal and treatment (Septic Tank or Sewer lines) facilities to the Toilets.
- Identification of other sources or other approaches to meet the financial gaps for the construction of Toilets like PPP/CSR etc.
- Providing supervision and monitoring of the construction work.
- Facilitate the User Group Committee in fixing user charges through TLSC in consultation with the community.
- MoU with user groups on maintenance of the toilets.
- Financial support for maintenance of toilets in case of shortfall of revenues to meet the expenditure (VGF).
- Installation and maintenance of streetlights in the approach roads to toilets, maintenance of the approach roads to the toilet.

b. MEPMA(COs/PRPs)

- Facilitate the ULBs in identification of Slums/ Pockets /Localities and in listing out the number of users through COs/PRPs.
- Motivate the community; conduct all awareness and capacity building programmes on need and usage of Community Toilets.
- Facilitate in arranging stack holder meetings in finalization of Toilet Model and in finalizing modalities of operation and maintenance of the Community Toilets.
- Form the SLF construction committee for monitoring of the construction work with active and willing members from the nearby SLF to the site of work.
- Form the 3member User Group Committees through COs and facilitate then in appointing caretaker.
- User Group Committee of each Community toilet shall be given training on the following aspects through the sanitation PRPs :
  - Book keeping – financial management and maintenance of minutes of proceedings of community meetings.
  - Operation and maintenance issues.
  - Collection of user charges, payment to caretaker – maintenance of records.
  - Hygiene communication and motivation.

c. Community (user groups) / SLFs / TLFs / Local Level Swachha Andhra Committees

- Shall participate in all activities of this programme from planning stage, construction stage and in utilization,
- Shall participate in motivation, awareness and capacity building programmes on need, usage and maintenance of community toilets.
- Shall facilitate the authority in identification of details of families requires community toilets and nearby available sites.
- Shall participate in fixing of monthly/fortnightly/ weekly/daily user charges per household based on consensus and other modalities in maintenance of toilets.
- Identification and appointment of a caretaker and providing in remuneration.
- Collection of user charges and maintenance of accounts.
- Ensure proper upkeep and maintaining the toilet neat and clean regularly.
- Ensure the usage of toilet by all kind of community.
- Timely repairs and attending to complaints.

2.11.5 Contracting types- community toilets

Part or all of investments and management are handled by the community based organisations (CBOs), co-operatives, NGOs or community groups. The model helps in better management as the community itself is involved in the operations and thus there is a feeling of belonging. Also, households can obtain monthly passes for the entire family thus reducing their financial burden. This ensures that services are provided equitably across various economic backgrounds.

Maintenance by users themselves

In such cases, the number of users for a particular toilet shall be clearly identified and maintenance responsibility be administered by the group themselves. The operations and cleaning will be a joint effort by all households and a suitable cleaning schedules be agreed prior to following this model. The SLF / Local Committees shall help the

users in arriving at the common agreements, in addition to ensuring overall cleanliness of the toilets, surrounding area and local redressal. At all points, the asset will be in the ownership of the municipality and only usage rights provided to the users. The costs towards the O&M shall be completely managed among the users themselves and cannot avail subsidies from the municipality. This mode of maintenance is best suited when the number of families is up to 2 or 3 per seat.

Employment Agreement

Given the footfall is repetitive and local in such toilets, the community or user groups shall identify personnel (men / women, most likely a resident of the area) to maintain the toilets. The costs towards O&M would broadly be the salaries which the users can commonly collect and pay directly to maintenance personnel. The costs towards consumables, minor repairs, water supply & electricity charges shall be reimbursed from the municipality. The SLF / Local Committee shall take the lead in administering and ensuring the overall O&M activities are done as per schedule. It is important to clearly decide the cleaning cycles and adherence to the service charter that is universally applicable, penalties for non-performance shall be waived off. This mode of maintenance is best suited when the number of families is up to 5 per seat.

Service contracts

The facilities/ assets are given out to a private agency to manage in lieu of a service fee (revised annually and typically up to 5 years). The local user groups can choose to undertake direct contracts with a service provider, but this option is subject to the capacities of the group and least preferred. Alternately, the user groups request the municipality to undertake the O&M of units. This is mostly preferred when there at multiple community toilets within the same user catchment.

The local body retains the ownership of the facilities and is responsible for investments as well as repairs and maintenance of the facilities. The performance parameters are specified for these contracts, similar to public toilets. The obligations of the service provider are clearly defined and the rewards are based on a fixed plus variable component (or deduction for lack of performance). In such toilets, penalties for non-performance is less stringent, given local NGOs/non-profits could take up such jobs from a service perspective.

2.11.6 Risk framework

The framework provided below gives a snapshot of the various risks borne by the private operator and the local body in service provision. Based on the local body's ability to take risks, one of the following models could be adopted.

Risk	BOT	BOOT	Concession Agreements	Service Contracts
Design and construction risk	Con-tractor	Contrac-tor	Urban Local body/ Contractor	Urban Local body
Financial risk	Con-tractor	Contrac-tor	Urban Local body/ Contractor	Urban Local body
Performance risk	Con-tractor	Contrac-tor	Contractor	Contrac-tor
User charges collection risk	Con-tractor	Contrac-tor	Contractor	Urban Local body
Force majeure risk	Urban Local body	Urban Local body	Urban Local body	Urban Local body

2.12 List of case-studies

MCGM – Slum sanitation program:

- This case study focuses on city wide planning, including institutional structures that may be followed.

New Delhi Municipal Council (NDMC) and the Municipal Corporation of Delhi (MCD) – BOT model:

- This case study gives an insight into construction, maintenance and operation of public toilets under Build-Operate and Transfer (BOT) agreements.
- Municipal Corporation of Tiruchirapalli and Gramalaya- Community Toilet
- This case study attempts to delineate the role of self-help groups in the operations and maintenance of community toilets. Emphasis on multi-stakeholder involvement and community ownership of the assets contribute to the success of this model.

PART 2

Toilet Block / Unit Scale Operations

3. Section C: Up-gradation / construction / installation of public & community toilets

Construction of new public and community toilets and up-gradation of existing dilapidated ones must be based on designs which take into cognizance the varied sanitation needs of different population groups including women, children, aged, differently abled etc. This is crucial for ensuring that these facilities are used and their operation and maintenance is sustainable. It will also ensure that cities are able to leverage the health and environmental benefits of improved sanitation infrastructure. Section 3.1 talks about the key design considerations for constructing new toilets and retrofitting existing ones.

3.1 Design considerations

This section outlines the design considerations to be taken into account while planning new public / community toilet blocks and for retrofitting existing ones. The key design considerations are accessibility, external structure, internal design, supporting infrastructure services and technology for sewage disposal. In order to ensure that the toilet facility is utilized and managed sustainably, It is mandatory to address the design considerations mentioned below. However, there exists scope for prioritizing some aspects depending on the sites and user preferences.

3.1.1 Gender specific requirements

As women and girls face greater problems they are more motivated for sanitation improvements than men. Two key considerations are size of the toilet block (i.e. number of seats) and its location. Surveys conducted by the central government show that people, especially women and the aged, are unlikely to use the facility if it is provided beyond half a kilometer distance. Design aspects like safety, locations should be given due consideration.

3.1.2 Movement and privacy considerations

Location is of utmost importance in ensuring that toilet blocks are accessible and thereby utilized by the people. Public toilet blocks should be located within reasonable walking distance of the 'activity generating' areas such as transport hubs, commercial areas, retail spaces, playgrounds and picnic facilities. Previous research shows that unless toilet blocks are provided within half a kilometer distance, people are unlikely to use it.

An example of: Location close to catchment

3.1.3 Toilet blocks/ units choices

Depending upon the magnitude and the type of demand, it is to be decided whether a toilet block, i.e. combination of various facilities serving a large gathering of people or individual toilet units need to be built. Other considerations affecting this decision are land availability, and infrastructure availability.

3.1.4 Materials used for toilet blocks and units

Normally bricks, cement and RCC are used for construction of toilet blocks and units, as such the materials are available almost everywhere and structure is durable. In such case, RCC structure is preferred with walls of the toilet units are made up bricks, sand and cement. Floor of the toilet block has stone tiles (most commonly kota tiles). For maintenance purpose such tiles are very easy and durable. Toilet units are made with cement flooring. Inner walls (three sides) of toilet unit should have tiles up to at least 3 ft. Wall tiles in bathroom should be up to roof height. It helps avoid seepage from water used during cleaning / bathing.

An example of: E toilet

In some areas where stones are available at affordable prices, people use it for construction of toilet block and units as well. Such superstructures are used areas where stones are cheaper than bricks. However, labour cost with stones is higher than the bricks and cement structure. In this case also, roof is always made with RCC structure for public / community toilets. Fitting with tiles in toilet unit, bath and floors remains same as per the brick structure mentioned above.

An example of: Anti skid flooring

In some areas where laterite stones are easily available people use it for construction of toilet blocks and units. In this case also wall tiles for toilet cubicles and bath and floor tiles for circulation areas are used. Such tiles are low cost. However, transportation of tiles may cost more depending on the site location. Durability of such materials is quite good.

Fiber Reinforced Plastic (FRP) is another material used for construction of toilet bocks and units. It costs comparatively cheaper and such toilet block can be erected in lesser time than with other materials. However, it has been observed that during high sun temperature such material deforms and bulges out. It can't sustain higher temperature for longer period. Overhead tank can't be placed over FRP roof. Local government needs to take into account all the advantages and disadvantages of different materials while deciding materials for construction of toilets.

Doors with any of the materials used for construction should be either wooden, plastic of Galvanised Iron sheet. In case of wooden structure there is a chance of decay of door due to water contact. To avoid it about 2 ft of the door from bottom should be superimposed with aluminium sheet. It increases life of wooden door. Like-wise there is a chance of corrosion with iron sheet door also. Such aluminium sheet should be fitted on the bottom part of the door to increase its life.

3.2 Access to infrastructure

Accessibility is a key attribute for ensuring that toilet facilities are used by all. Accessibility has been defined in terms of location and visibility of the toilet block. Additionally, this section also discusses how signage can be used to enhance the visibility of the toilet block and for guiding users about its location.

3.2.1 Location and visibility

Toilet block should be located close to areas with heavy footfall to enable women, children, aged and infirm to be able to access them easily. While choosing a location for community toilets care must be taken to ensure that the facility is located within a reasonable walking distance of the settlement so that women can easily access it. Toilet blocks should not be located close to unsafe places for women such as liquor shops, areas without street lighting etc.

Adequate consideration should be given to providing a clearly defined, accessible and safe pedestrian path to the toilet block. The path must be well lit to ensure that the user's personal safety is not compromised, this is extremely crucial for ensuring the safety of women and adolescent girls.

The toilet blocks must be located in highly visible places to ensure that it can be seen from a distance. In order to maximize the visibility of the facility the following steps have been suggested:

- The toilet block must be located near walkways, footpaths, vehicle parking lots, roads and bustling streets with the entrance door facing the busiest areas and visible from most angles.
- Bright facades must be used to enhance visibility. Ensure that the surrounding vegetation (shrubs or trees) do not cover the facility thereby reducing its visibility.

3.2.2 Signage

Appropriate signage can ensure that users are aware of the location of the toilet blocks. Signage, indicating the location of the toilet block and the type of facilities (including WCs for women, differently abled, child care room, etc.) available in the block, should be displayed prominently at main junctions and passageways. The signage must use suitably sized fonts in dark colors against a contrasting light color background so that it can be easily seen. Fancy fonts/ colors which are difficult to comprehend should be avoided. The universal signage of a man, woman and person in a wheelchair should be used.

Within the compound of the toilet complex display boards indicating the type of facilities available in the toilet block must be put up. These should be fitted with a light and the font color should be red with a background of light yellow or green so that it can be easily seen in the night also. The board must also display the telephone numbers of maintenance agencies so that users can report on maintenance issues. Messages indicating how to properly use toilets along with pertinent health messages may also be displayed within the facilities.

3.2.3 Aesthetic appearance

The external façade of the toilet block should be aesthetic and pleasing to the eye. The local art, cultural and heritage elements should be incorporated, wherever possible. This is likely to result in a greater acceptance among users.

An example of entrance

An example of traditional toilet with lightinng

The entrance to the toilet block must be designed such that it allows easy access for people who are currently excluded due to inappropriate toilet design such as women, small children, aged, infirm and differently abled. Through simple design elements such as ramps, lower elevation and plinth heights as well as convenient height of steps, toilet blocks can be made accessible for these population groups.

Public toilets must be properly gated with a secure locking arrangement for security purposes. The walls of the public toilets can be used for displaying public awareness messages on safe sanitation and hygiene practices and their linkages to health and environment. This should preferably be in the form of images, an example is shared below:

An example of public awareness messaging

3.3 External conditions

Design considerations pertaining to the external conditions are essentially focused on ensuring that the toilet block is designed such that it is easily accessible for all users. These design considerations along with adequate maintenance would result in increased usage of the facility by all population groups.

3.3.1 Soil

The nature of the soil should be taken into account while constructing toilets. Toilets on marshy or land filled areas or sandy soil must be built with suitable foundation as per the standards of Building Code of NBCC, Government of India. Improper design of foundation may lead to an unstable building structure.

3.3.2 Water table

While water table levels do not have much bearing on the external design consideration, they are an important consideration for treatment/ disposal of human waste. In water logged areas, plinth levels should be sufficiently raised to avoid entry of water into toilet seats.

3.3.3 Terrain and topography

The topography of the region impacts the construction of the toilets to a great extent. Soil conditions and water table levels are to be considered before commencing construction as location of certain sites below the road level or sewer invert level would pose an issue with regards to water drainage.

3.3.4 Separate entrance for men and women

The toilet blocks must have separate entrances for men and women which lead them to their respective blocks in the facility. This design component is essential to ensure privacy and safety for women. The design must also include a waiting area for women where they can queue up in case the WCs / bathing areas are occupied.

3.4 Internal structure- facilities

The internal design considerations are the most crucial for ensuring social acceptability and universal access / usage. The design consideration must take into cognizance the varied sanitation needs of different population groups, including women, children, aged and infirm, differently abled and transgender persons.

3.4.1 Toilets for men, women and children

Each toilet block must have separate blocks for males and females. Provision of separate block for women is essential for protecting their privacy and ensuring that they feel safe and comfortable while using the facility. The number of WCs provided would depend upon the location of

the block and the number of users and the amount of land available. (Refer Section 3.5 for norms for public / community toilets)

Small children find it difficult to use WCs, thus, there should be a provision of squatting pans for children. Since most children are accompanied by their mothers to the toilet, their squatting pans should be located within the women's section of the toilet block. There should be at least two small WCs / squatting pans for children in the ladies block. The door fixtures must be located at half the height of the normal doors. Half height door help mother to open the door from outside, if need be.

3.4.2 Toilets for special needs- differently abled and transgender

There should be at least one WC for differently abled males and females in their respective blocks. Physically differently abled using a wheel chair need sufficient space to move their wheel chairs inside the toilet. A grab bar is needed to provide support to such persons to use the toilet. Taking all these factors in consideration following are the elements that a public toilet for physically differently abled persons must incorporate;

- One special WC should be provided for the use of physically differently abled men and women with a wash basin near the entrance.
- Normal toilets are to have an average height of around 32-40cms while toilets for the physically differently abled should not be less than 38 cm and not more than 45 cm (CPWD, 2014). The minimum size of a toilet cubicle should be 1500mm x 1750 mm.
- Minimum clear opening of the door shall be 900 mm and the door is to swing outwards.
- Suitable arrangement of vertical/horizontal handrails (with 50 mm clearance from the wall) shall be made inside the toilet.
- Toilet floor should have a non-slippery surface.
- Guiding block near the entry should have a textural difference.
- Additional options for toilets for the physically differently abled include adding a handicap bidet.

There should be at least one WC in each block catering to transgender persons. This should be located near the entrance of the women's toilet block. This facility should be mandatory for public toilets located at crowded places like railway stations, bus stands. However, for community toilets, this may be taken as optional, depending on the presence of such cases in the area.

An example of differently abled access

3.4.3 Urinals

Urinals must be provided in the men's block of every public / community toilet. All urinals shall be fitted with a flush valve. Individually wall-hung urinal units shall be at least 300mm wide and the lip of the collection area shall project from the wall by at least 300mm. A urinal should not be set closer than 450mm from its center to any side wall, partition, vanity or other obstruction, or closer than 900mm center-to-center between adjacent fixtures. There should be at least a 900mm clearance in front of the urinal to any wall, fixture or door. Urinals should be separated by modesty boards of not less than 300mm x 1800mm (Height) to act as a visual barrier between urinals. The modesty boards should be high enough to block the view of other users. However, it should not extend right down to the floor as this makes cleaning considerably harder. The presence of modesty boards will prevent shy users from using the WCs. Full-length urinals should be installed to cater for children's use. If 2 or more non-full length urinals are installed, one urinal should be installed at child's height. As a further enhancement to keep the urinal areas dry, scupper drains or stainless steel grating over the drainage could be installed below the urinal bowls.

Recently water less urinals are being used in offices and public toilets. While it looks very much like a conventional urinal in terms of design, it doesn't need water for flushing and thus helps conserve water. While conventional urinals use water to control odor, waterless urinals use odor trap mechanisms such as sealant liquid, microbial control, membrane and curtain valve. Waterless urinals require regular cleaning routines similar to conventional urinals however; these can be cleaned using a moist sponge or brush without the use of water. Handrails

or grab bars should be provided for at least one urinal to cater to differently abled users.

3.4.4 Bathing facility

Bathing facilities should be provided in whichever toilet typology it is applicable especially in community toilets as per the sizes mentioned in the norms.

3.4.5 Washing

Washing areas should be provided in both in male and female blocks as per the sizes mentioned in the norms.

3.4.6 Waiting / circulating area

A waiting/ circulation space must be provided for persons waiting for their turn to use the toilet/ bath. Adequate space for waiting must be provided in women's blocks as women usually experience sexual harassment / assault while waiting around toilets. Usually it is 2-3 m wide depending on the area available (Guidelines 1995, MoUAE). Circulation space must be kept open to the sky for good ventilation and light. In case of areas with snowfall or heavy rains, open circulation space must be avoided.

An example of changing space for women

3.4.7 Child care room

There should be a small room for child feeding/ child care in a public toilet. In the absence of such a facility, it becomes very difficult for a mother having a small child to use the toilet. The room must be able to accommodate a small berth fitted with holding belts. Such room may be of minimum 7 ft. length and 5 ft. width.

3.4.8 Staff / caretaker's room

Provision of a staff room for the operating staff / caretaker of the toilet complex is essential. It is even more significant in case of public toilets located at railway stations, bus stands and other areas which are open round the clock. If there are woman and male caretakers a separate room must be provided for the female caretaker.

3.4.9 Store room

One small room for storing cleaning material / equipment is essential in all toilet complexes but is very crucial in case of public toilets. Its size can be decided depending on volume of such items that need to be stored.

3.5 Internal structure-infrastructure

Internal infrastructure, including water and electricity, are required to ensure that toilet blocks (a toilet block can be defined as a room/ booth that contains an apparatus/ device used for defecation or urination) have efficient operation and maintenance; are safe to use at all times of the day and night; and help in maintaining good personal hygiene for the users. The following are the mandatory facilities to be provided in a toilet unit for ease of the users.

3.5.1 Doors and windows

The doors and windows and other fixtures are to be provided as per standard design and suitable to the specific users, considering climatology aspects and frequency of usage.

An example of door opening

3.5.2 Tube well and pump house

Wherever uninterrupted supply of water cannot be provided by the municipal water supply system, a tube well should be constructed exclusively to meet the requirements of toilet block. It should have standby pumping unit. There should be proper arrangement to keep the pump covered to save it from dust and water. A pump house may also be provided where required (MoUAE 1995).

3.5.3 Water supply

Availability of sufficient water in a public toilet is essential for its efficient operations and maintenance. It is also essential to ensure that users practice good personal hygiene. In case where there is a lack of public water supply system, the toilet must have its own bore well water supply. In case public water supply is available, provision should be made for storage of water in an underground water tank. Water requirement for each use of the toilet facility including washing hands and floors, is 7 liters. The requirement for bathing is about 15 liters per user, for flushing urinals 0.20 liter and for washing about 20 liters. If water is to be drawn from the municipal supply, an underground reservoir of half a day's capacity an overhead tank of similar capacity and pumping arrangements with a standby pump will have to be provided (MoUAE, 1995).

3.5.4 Fixtures- sanitary and water supply

Sanitary and water supply fixtures like hand wash basins, toilet pans and traps and foot rests are to be provided as per standard designs. Wash basins with mirror should be provided both in male and female blocks. Pans should be of standard design and made of ceramic. 20 mm traps with water seal should be used, which require only 2 liters of water to flush excreta (CPHEEO 2013). Traps of over 50 mm with water seals must be avoided to avoid loss of water during flushing.

An example of hand washing

3.5.5 Electric supply

Availability of electricity is an important component of any public toilet. Adequate lighting at all times and especially during the night hours is crucial for ensuring that women and adolescent girls can use the toilet facilities 24X7. Adequate lighting should be provided both in the interiors and exterior of the block. Toilet cubicles must be lit well. The gate of the toilet block must also be provided with adequate lighting. Local electricity board will be responsible for providing required electric supply for the toilet block. However, the agency for the operation and maintenance of toilet block will be responsible for proper electric wire fittings, installing meters and making payment against the meter reading.

3.5.6 Lighting

Internal lighting considerations are crucial components of public / community toilet design. Women are more likely to use toilet blocks which are well lit, especially at night. Ensuring suitable lighting requirements will ensure that women feel safe while using the facility. It will also deter anti-social people from loitering around the blocks. Wherever possible the design should incorporate natural lighting or alternatively encourage use CFL or LED bulbs instead of conventional bulbs and fluorescent tube lights, which consume higher electrical energy. An

efficient lighting system in toilet blocks would ensure increased use, enhanced safety for users and also savings on energy costs. The specific lighting requirements will vary depending on the site conditions. The lighting needs of a 24 hour facility will be different from those of a toilet that is not operational at night. In addition, the following considerations must be factored in:

- Light fixtures must be vandal resistant and energy efficient.
- Warm colors for down- lights above the wash basin/ mirror.
- The maintenance plan must make provisions for periodic replacement of fixtures.

3.5.7 Sewage disposal

Human waste from public toilets needs to be properly managed to maintain sanitary conditions, to ensure that there are no adverse consequences on health and the environment. The following technologies may be adopted for safe treatment / disposal of waste water. Appropriate technology must be selected based on site condition, hydro geological condition of soil etc.

Connection with sewer

The toilet block must be connected to a sewer line if it is available within a distance of one kilometer (Guidelines MoUAE 1995) and it is feasible to connect the toilet block to it. In doing so, the costs associated with wastewater treatment and disposal are minimized. The wastewater should be collected and conveyed by laying pipes or constructing a covered brick drain (for short distances) as per the standard (CPHEEO 2013). The brick drain is advantageous as any blockage can be easily taken care of through the cover.

On-site Interventions

On-site disposal techniques need to be considered in absence of connectivity to sewer lines. Several technologies may be used for on-site disposal of human wastes including leach pit, septic tanks, biogas plants, anaerobic baffle reactor, anaerobic filter, contact aeration system, unplanted filter beds, planted filter beds etc. These have been explained below.

Leach pit technology

Leach pit technology is the most common method of disposal of human waste. However, the technology is not suitable for public toilets that are used by large number of users per day due to the following reasons:

- Higher hydraulic load from public toilet results in frequent filling of pits. It causes soil saturation adjacent to the pit, thus lowering the percolation rate.
- Ground water may be polluted due to pathogens/ microorganisms present in the waste water. This is a serious issue in areas where the water tables are high.
- Percolation of nitrite in soil from leach pit causes chemical contamination of ground water in areas where the water tables are high.

Conventional Septic Tank

A septic tank is a combined sedimentation and digestion tank where the retention time of sewage is one to two days. During this period, settle-able solids settle down to the bottom. This is accompanied by anaerobic digestion of settled solids (sludge) and liquid, resulting in reasonable reduction in the volume of sludge, reduction in biodegradable organic matter and release of gases like carbon dioxide, methane and hydrogen sulfide. The effluent although clarified to a large extent, will still contain appreciable amount of dissolved and suspended putrescible organic solids and pathogens.

It is important that only the toilet and urinal wastes should be connected to the septic tank. In no case should wastewater from the bathroom and washing area be taken into the septic tank because of the problems associated with the subsequent disposal of large quantities of effluent from the septic tank through soakage pits or a dispersion clean.

Septic tanks need to be cleaned every 1-2 years depending on its size and the number of people using toilet. Safe disposal of septage needs to be assured. There are some technologies like the improved septic tanks with some modifications which provide for better treatment of black water with least generation of septage.

Biogas technology

Generation and utilization of biogas from public toilet is a sustainable option. In this case, biogas is produced through anaerobic digestion of human wastes in a bio digester. Biogas constitutes mainly methane (around 65 %) that is used for cooking, lighting and electricity generation. Outline of the design is as follows:

- The digester is designed for a retention time of 30 days. The rate of production of biogas is one cubic foot per person per day use of toilet.
- 500 cft (30 cum) biogas is produced per day assuming that 500 persons use the toilet per day.
- Effluent from the biogas plant can be used for agriculture or disposed of in a covered drain leading to the main sewer or further.

Anaerobic baffle reactor

An anaerobic baffled reactor (ABR) is an improved septic tank, which uses a primary settling chamber and a series of baffles to force wastewater to flow under and over the baffles as it passes from the inlet to the outlet. ABRs are robust and can treat different types of waste water. Through ABR, removal of biological oxygen demand (BOD) and organic matter is much more efficient than a conventional septic tank. Biogas is produced through ABR. But due to much lower retention time, the biogas produced is too less for any economical use. The vent pipe is used for the exit of gases.

Anaerobic filter

The anaerobic filter is an improved version of the ABR. In the case of ABR, bacterial mass is flushed out with the effluent, resulting in lower degradation of organic matter. In case of the anaerobic filter, suitable media is provided in chambers for the growth and retention of microbes in chambers. This results in higher bacterial mass resulting in higher degradation of organic matter and thus lower BOD in the final effluent. The majority of solids are removed in the sedimentation chambers of the anaerobic filter. Suspended and dissolved organic matters are reduced by bacterial degradation in subsequent chambers. Bacterial growth media help increase bacterial population in the system. Due to lower hydraulic retention time, the system requires lesser space than ABR and septic tank system. The system does not require electricity to operate. Final effluent is suitable for use in agriculture purposes.

Settling contact aeration system

This is a simple system based on aeration and bacterial growth media. There are only 2 chambers with a total retention time of 2 days. The 1st chamber is a settling chamber with only half a day of retention time. 2nd chamber has one and half day retention time. Aeration at lower air flow rate of 60-100 liters per minute is provided in the 2nd chamber. These pumps operate only on 50-70 watt electricity. For the bacterial growth, plastic media can be used. Local media like coir ropes, plastic bottles are also used. The final effluent has BOD levels less than 10 mg/l. It can be used in a variety of ways except for potable use. This system needs almost a continuous supply of electricity. Therefore, it is suitable for public toilets where availability of electricity is not an issue or where a biogas plant has been installed for the generation of electricity.

Septage management

There should be a system for proper management of septage generated from on-site sanitation system. A centralized septage treatment system for the treatment of septage generated from public toilets should be made available at the city/ town level. The following systems can be adopted for septage management.

Unplanted filter beds

Through unplanted drying beds, free water is removed through percolation and bound water through evaporation. Unplanted sludge drying beds are shallow filters filled with sand and gravel with an under-drain at the bottom to collect leachate. Sludge is discharged onto the surface of bed for dewatering. Drying takes place by drainage of liquid through the sand and gravel to the bottom of the bed, and evaporation of water from the surface of the sludge to the air.

Planted filter beds

Planted drying beds (PDBs), also sometimes referred to as planted dewatering beds, vertical-flow constructed wetlands and sludge drying reed beds are beds of porous media (e.g. sand and gravel) that are planted with emergent macrophytes. Through this filter bed, water is lost through percolation as well as evapo- transpiration.

3.5.8 Women specific infrastructure- safe disposal of used sanitary napkins

Provision of covered bins for proper disposal of sanitary napkins must be made in each cubicle in the women's toilet block. The operation and maintenance plan must include a mechanism for the proper disposal of the sanitary napkins. A tie up with FMCG companies or women's groups making sanitary pads can also be worked out to facilitate sale of sanitary pads in the toilet block.

There should be provision for storage and disposal of used sanitary napkins in the women's block. For safe disposal, there should be provision of an incinerator or simple

chimney within each toilet block for females. Such wastes can be burned by using fire. In case of unavailability of such facility there should be provision of proper burying of such wastes. However, such system will required for collection, transportation and space in addition to extra labor.

3.5.9 Operating equipment

Only recommended equipment and disinfectants must be used for cleaning sanitary wares and fixtures. Maintenance staff should have access to sufficient number of cleaning tools to aid their cleaning activities. It should be mentioned that in case of Community / Public toilet, mechanically operated vacuum based cleaning devices not useful as such devices are only suitable for dry conditions. In such toilets, floors are mostly in wet condition. Therefore cleaning through viper is effective. Other devices used for such toilets are mentioned in section 4.1.2.1.

3.5.10 Other consumables

Other consumables like hand towels, toilet paper, sanitary napkins etc. to be provided by the caretakers as required.

3.6 List of case studies

MCGM – Slum sanitation program

The construction and services provision of this toilet could be inferred from this case study. This case gives a classic example of good construction under space constraints.

Delhi Urban Art Commission (DUAC) - Smart Public Toilet

A unique construction technique combined with innovative materials. This case provides a guide to construct prefabricated and modular structures.

An example of prefabricated toile

Sulabh Pit Latrine- Sulabh International

This case gives an example of homegrown, low cost technologies which may benefit toilets in remote locations and where access to sophisticated technology may be limited.

Namma Toilet Model, Tamil Nadu

This case study gives an example of environmentally friendly design which may be made energy efficient with the help of solar technology.

4. Section D: Operations & maintenance of public/ community toilet facilities

This section talks about various activities that need to be carried out on a regular basis to ensure efficient operation of toilet blocks.

The operations and maintenance activities can be sub divided into two parts, regular and occasional maintenance with the latter including repairs.

Operation and maintenance of public / community toilet are closely linked. Maintenance of a toilet block includes several activities:

- Cleaning, undertaking repairs, replacement or rehabilitation of toilet facilities ;
- Provision of consumable items;
- Safety issues in the toilet block
- Staffing in the facility

4.1 Operations related aspects

Regular maintenance includes the activities related to cleaning, ensuring safety, opening and closing of the toilet block and staffing. It is crucial to set service level standards for each of these activities.

4.1.1 Opening and closing

Opening and closing hours depend on the location of the toilet and should be arrived at after consultation with the relevant stakeholders / user groups. The consultations must involve women as most often they are forced to change their body clocks as the toilets are overcrowded during the morning hours. The opening hours must be adjusted to suit the needs of the users and must be appropriate to local demand and activity patterns.

Toilets near railway stations, bus depots, fruit and vegetable stock market / mandi may be kept open for 24 hours as there will be a constant influx of people and the demand for the facility throughout the day. However, toilets located near markets may be operational from 8 am to 10 pm. Shifts may be incorporated to keep the toilet facility open without any interruptions.

An example of information disclosure

4.1.2 Cleaning charter

The term “cleaning” refers to all activities related to the provision of adequate cleaning equipment and materials and implementation of a predefined cleaning schedule by the cleaning staff, which ensures that the toilet block is clean and hygienic at all times. A clean facility will encourage repeated use by people. Women, who are more susceptible to urinary tract infections while using poorly maintained WCs, would rather defecate in the open than use an unclean WC.

An example of clean toilet seat

Equipment and materials

Only recommended equipment and disinfectants must be used for cleaning sanitary wares and fixtures. Maintenance staff should have access to sufficient number of cleaning tools to aid their cleaning activities. A few essential supplies are mentioned below.

- Pre-mixed glass/ ceramic cleaner with spray bottle
- Pre-mixed disinfectant cleaner
- Scouring powder
- Stainless steel cleaner
- Toilet bowl swab and container
- Broom
- Dust pan corner brush
- Mop/ bucket/ wringer
- Signage such as 'wet floor' and 'closed for cleaning'.
- Dusters
- Paper towels/ toilet paper
- Soap/ cleansing agent
- Gloves
- Bin liners
- Covered disposal bins

4.1.3 Cleaning schedules

The operator shall ensure that the interior of the toilet is kept clean by having cleaning cycles as often as necessary but at least three times every day. The toilet blocks should be cleaned periodically once a week or on a fortnightly basis with special attention to fittings, wares and surfaces. Periodic, scheduled cleaning may be done during off peak hours so that the users are not inconvenienced.

Cleaning frequency would depend on the number of users (a toilet located in a busy shopping area will require more frequent cleaning cycles than a toilet in a remote location), maintenance standards outlined by the management and / users and the funds available for the same. In any case, the interval between cleaning cycles should not exceed 8 hours. The ideal cleaning frequency schedule has been provided below.

- 1 cleaning cycle for every 8 toilet uses (both men and women) per unit
- 1 cleaning cycle for every 50 urinal uses (men) in each unit

During the cleaning cycle, the entire toilet/urinal should be properly cleaned with disinfectants and water, litter should be collected and stains must be removed to make it ready for the next usage. Details of schedules of O&M requirements, the performance standards and the typical structure of penalties have been provided in Section 6.7.

4.1.4 Staffing

Each toilet block must have a caretaker and two attendants, one male and one female for their respective blocks. Presence of a women attendant would ensure that the women feel comfortable and safe while using the facility.

Caretaker will be responsible for

- Overall O&M and upkeep of the facilities
- Regulate the use of a "first come first serve basis"
- Receipt and issue of cleaning materials and equipment
- Collection of user charges
- Maintaining the complaint register

The attendants / cleaners will be responsible for keeping the public toilet clean by carrying out the day-to-day cleaning activities. Since users of public and community toilet blocks may be prone to incidents of sexual harassment and assault, women attendants should be

enabled by the managing company/ ULB to handle such incidents and ensure their safety while using the facility.

In addition, there should be an in-charge / finance office who will be responsible for more than one public toilet located within the same geographical area. The in-charge will be responsible for overall maintenance of the system and also for keeping accounts, maintaining financial records, receiving user fees from the collectors and preparing periodic financial statements for review.

For the benefit of the administrators, a table explaining the manpower requirement based on the toilet categories and approximate footfall has been provided in Section 6.8.

4.1.5 Occupational health and safety

The authorities need to ensure that manual scavengers are not employed for the disposal of sewage and that they will strictly monitor the enforcement of the legal provisions as per the 'Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013'.

4.1.6 Safety of structure

The following aspects need to be considered to ensure that the safety of the users, especially women and children, is not compromised in public / community toilet blocks.

Lighting

The lighting in the toilets should be bright enough so that all cubicle spaces, exits, entrances and washing areas are well illuminated at all times. Lighting is also a key safety feature for old and infirm persons who may fall and hurt themselves if the toilet block is not well illuminated.

Concealed spaces

Trees and plants should be planted in such a manner that they do not create concealed spaces. Walls, ledges, partitions and other elements should be designed so that the toilet block remains open and easy to access.

Graffiti

Graffiti resistant material should be used on all external and internal surfaces including sanitary wares, vanity tops, partitions, ledges etc. Graffiti if found within or outside the toilet block must be immediately removed.

Durable materials

All sanitary fixtures, surfaces and accessories should be made of durable materials so as to withstand possible abuse, extra weight and heavy usage.

Pipes

All internal drainage and water supply pipes that are connected to WCs and basins must be concealed to avoid public contact. They should be secured with hangers, supports and fasteners. Exposed pipe should be constructed with durable materials which are resistant to human impact. Sharp or abrasive surfaces under wash basins and sinks must be avoided in order to prevent accidents and injuries.

Theft prevention

Higher partitions must be installed between cubicles to safeguard user's belongings. Ledges and foldable shelves installed in cubicles must not be out of view of the user so that personal items are not stolen.

Security

The toilet entrances and windows must be fastened and secured by shutters, bolts or locks during non-operational hours to prevent theft and vandalism.

WOMEN SPECIFIC CONSIDERATIONS

Safety, security and access needs to be looked into so as to prevent anti-social elements lurking around and thus posing a risk to the women and adolescent girls using the facility. Special attention should be given to areas prone to vandalism. Lights must be operational especially during night time to ensure that women and adolescent girls aren't at a risk of sexual assault while using the facility.

4.2 Maintenance of structure

Occasional maintenance mainly includes repair activities.

4.2.1 Internal aspects

These include replacement of latches, refurbishing broken doors, replacement of fused/ damaged electric bulbs and other lighting fixtures, repair of broken roofing sheets,

electrical re-wiring, plumbing and other similar repairs that may be required in a toilet from time to time.

4.2.2 External aspects

Maintenance of external elements like entrance to the toilets, septic tanks etc. on a timely basis is required. The toilet entrance needs to be kept clean and visible so that accessibility is not an issue, especially for the old and the women. The septic tanks need to be emptied every 1 or 2 months depending on the frequency and footfall.

4.2.3 Repairs- minor

These repairs should be undertaken on a priority basis without the need for approval from the management. Such repairs would also not require the facility to be shut down. Preferably, these repairs are to be undertaken during non- operational hours. The costs for the same may be charged to the routine monthly operations and maintenance expenses.

4.2.4 Repair- major

This may include up gradation of the facility, rehabilitation, structural repairs, replacement of roof, tanks, soak pits etc. which would entail closure of the facility to allow for repairs. These repairs may be contracted out to the private sector either to a contractor or a franchisee or undertaken by the maintenance contractor depending on the nature of the contract.

4.2.5 Cost of operation and maintenance

Cost of operation and maintenance can be grouped into the following four heads:

1. Daily and occasional maintenance costs: Such costs include the cost of cleaning equipment and materials.
2. Minor repair: It includes repair/ replacement of building of toilet block including painting and fixtures, motor pumps, lighting system etc.
3. Major repair: It includes major repair of building and disposal of septage from septic tank or other system installed for wastewater disposal from the toilet complex.
4. Monthly payment of electricity and water bills and working staff

Such monthly bills may vary widely depending on the size and layout of the building, location, its age, no. of WCs, hour of operation per day, availability and quantity of water supply, number of working staff etc.

In case of public toilets maintained on pay and use basis (as is in most of the cases), such cost can be easily recovered from per day users' charge. There is always significant surplus amount left as income for the operators of such public toilets. There are several NGOs/ companies and others involved in operation and maintenance of public toilets on pay and use basis in different states in India. All most all of them are working in a sustainable way. In fact many of them pay competitive annual fees to the local government against such business. Such amount varies considerably depending on number of WCs and locations.

Depending on location and agreement with the local body, there is another source of income from public toilet. It is in the form of provision of space for advertisements. Such advertisement right is normally given for the toilets based on BOT. In such case advertisement right is normally given to help recover capital cost. Income from advertisement varies widely depending on location of sites and area.

Some public toilets built by local government are handed over to operators for maintenance without any charge to public. In such case, local government pays monthly total cost of operation to the operator, as per the agreement. Minor and major repair costs and bills of water and electricity are also borne by the funding agency.

4.3 List of case studies

MCGM – Slum sanitation program

This case study elaborates on the role of the CBOs or small local business enterprises (SLBEs) that were held responsible for the operation and maintenance (O&M) of the blocks.

Namma Toilet Model, Tamil Nadu

This gives an example of a public toilet operated free of cost with the local body responsible for construction and O&M.

5. Section E: Sustainable management and future planning

This section talks about the monitoring and reporting of service levels including service monitoring, awareness creation, user education and important legal considerations.

5.1 Monitoring and reporting of service levels

Evaluation and monitoring of public toilet facilities is essential to improve services. Regular monitoring as per the contract is essential and this should be ensured by undertaking unannounced inspections in the middle and towards the end of the contracting period. The management may conduct routine monitoring checks of the following items with the recommended frequency:

- As and when required: Effluent discharge arrangements, sludge levels and de-sludging.
- Daily: Toilet block exterior and interior cleanliness, availability of utilities, health and safety hazards, other nuisance factors.
- Weekly: Site safety and security.
- Monthly: Provision of supplies and tools, public health awareness, management, operating schedule.
- Quarterly: Repairs, structural integrity, rate of usage and user satisfaction.

The contractor would allow the management/ staff of the management to access the toilet blocks at any time of the day for routine checks and monitoring of the work carried out as per the agreement and to inspect relevant documents and records related to the same. The contractor would attend all quarterly and annual meetings called for by the management to discuss service levels and maintenance of the toilet block/s and the records maintained by the contractor.

5.2 Strengthening performance reporting

In addition to service monitoring by the urban local body, supplementary methods like introducing citizens' report cards, citizens' monitoring committees etc. can be introduced to increase monitoring efficiency. Third party agencies- NGO and CBOs may be involved extensively in reporting.

5.3 GIS based monitoring

A database could be created in GIS that will integrate various data with the toilet database to provide analytical inputs related to adequacy of number of toilets, suitability of toilets location, adequacy of facilities against the population density, travel distances etc.

This data can be utilized in an innovative manner by connecting it to mobiles and other handheld devices for the users to identify location of toilets, timings etc.

5.4 Approaches to managing future service requirements

While managing the existing operations, by using the MIS provided in the guidelines, data will need to be generated regularly, which will highlight requirement for expansion of services. Based on the analysis, then the appropriate approach of either expanding existing toilet block or constructing new structure needs to be worked out.

5.5 Legal considerations

The 'Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013' puts strict restrictions on:

- Constructing an insanitary latrine;
- Engaging or employing, either directly or indirectly, a manual scavenger
- Engaging or employing, either directly or indirectly, any person for hazardous cleaning of a sewer or a septic tank

The authorities need to establish processes that will strictly monitor the enforcement of these provisions. Apart from this, there are several pollution norms established by the state level pollution control boards on the discharge of effluent in water bodies and/ or in land. These norms are to be strictly followed as well.

5.6 Awareness creation

Awareness programs need to be conducted in the community on the ill effects of open defection and to encourage the use of public toilets. The programs should focus on the relationship between open defecation and faecal-oral transmission and associated diseases. The program must also demystify the technical aspects of sanitation.

There is a general lack of awareness about hygienic water conservation and sanitation practices among communities. People need to be motivated to follow the right practices and appreciate the benefits accruing from right practices. An effective communication drive is the only means to get this information across. The program has to focus on the need to overcome the user's socio- economic traditions and beliefs. The main objectives to be achieved by a well-structured, targeted and executed public education programme are:

- Deepening user knowledge of the facility
- Changing attitudes and practices
- Improvements in individual hygiene practices

5.7 User Education

Awareness programs need to be conducted in the community on the ill effects of open defection and to encourage the use of public toilets. The programs should focus on the relationship between open defecation and faecal-oral transmission and associated diseases. The program must also demystify the technical aspects of sanitation.

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- Deepening user knowledge of the facility
- Changing attitudes and practices
- Improvements in individual hygiene practices

5.7.1 Outside the structure

Posters showing awareness messages and other visuals could be used on the external walls of the structure to increase user awareness and education. General messages on good practices and knowledge of the facility should be used on the external walls.

5.7.2 Inside the structure

Public education messages with appealing content either in pictorial form or a tagline format, especially good practices on individual hygiene practices should be displayed inside the toilet facility for better ease of usage.

5.7.3 User education campaigns

The following elements need to be incorporated for having an effective user education campaign.

Persuading users to do their part

Having public education messages in the toilets can help persuade users to do their part in keeping toilets clean. In order to be effective in persuading people to do their part, a message has to be

- attended to
- assimilated
- remembered (for future action)

Message Design

People readily attend to visuals. This makes the use of visuals an important part of the design of the message. Generally, visuals should be:

- Simple and uncluttered
- Attractive
- Eye-catching

The language of public education has to be kept simple. This helps ensure that the message reaches all regardless of their educational level. It also ensures that the message is attended to, understood and remembered for future action.

Slogans can be very effective because they are short, catchy and easy to remember. Subtle humour can be used to deal with the personal and sensitive issues surrounding toilet use. Humour can be successfully tapped through cartoon characterisations of toilet fixtures such as wash basin, toilet bowl and litter bin. An additional benefit of cartoon characters is that they can be used with minimal text, reducing the need for translation to other languages.

Message Placement

The usual means of message placement in public toilets are posters and stickers. To maximise the effectiveness of the message, the right medium and manner of displace should be selected. Generally, stickers should be used. The messaging needs to be subtle. For display, stickers should be made of vinyl material, rather than paper and made with adhesive than can be peeled off without leaving unsightly marks. Posters can be used to convey generic messages such as “Help Keep This Toilet Clean and Nice”. Posters should only be used when displayed in a way that makes them repellent to water.

5.8 List of case studies

MCGM – Slum sanitation program

This case study gives an example of financing and managing toilets while contracting NGOs to undertake a range of activities according to specified standards of performance related to cleanliness and access to facilities.

Pit Latrine- Sulabh International

This case study elaborates on the methods of service monitoring and reporting followed by the service providers to the urban local body for efficient services.

PART 3

Toolbox to Support City & Toilet Management

6. Annexures

6.1 Good practices of toilet management

The following case studies illustrate good practices of toilet management from around the country across the entire life-cycle.

6.1.1 City wide planning

The slum sanitation program of MCGM and the toilets provision models of MCT and NDMC have been chosen as good practices for city wide planning as they clearly mention the role of the ULB in toilet provision and the approach adopted. For e.g., a demand based approach was adopted by MCGM after a not so successful attempt at supply driven approach. NDMC model delineates the roles of the ULB and the private contractor under BOT agreements while the role of an NGO is highlighted in the MCT model.

MCGM – Slum sanitation program

Prior to the Slum Sanitation Project (SSP), sanitation improvement schemes for the slum dwellers were implemented by the Municipal Corporation of Greater Mumbai (MCGM) through a supply driven approach. However, 80% of publicly constructed toilet blocks were subsequently found to be non- functional, and thus, incapable of meeting the demand. Hence, a demand driven approach was adopted and a number of toilet blocks comprising of bathing cubicles, urinals and squatting platforms for defecation were envisaged to meet the sanitation requirement of the slum dwellers in specific locations.

New Delhi Municipal Council (NDMC)

In the 1990s, the New Delhi Municipal Council (NDMC) and the Municipal Corporation of Delhi (MCD) issued tenders inviting local companies to construct, maintain and operate public toilets under Build-Operate and Transfer (BOT) agreements. Under the terms of the agreement, the contractor was required to build and operate the amenity for 5-7 years, after which the ownership of the public toilet was transferred to the municipality. The municipal authority was obliged to provide the land, water and sewage facilities and electricity connections while the contractor was responsible for operations and maintenance.

Municipal Corporation of Tiruchirapalli

This model attempted to involve self- help groups to operate and maintain community toilets. Emphasis on multi-stakeholder involvement and community ownership of the assets contributed to the success of this model. Gramalaya, an NGO was a partner in this initiative for improved and sustained access to sanitation in the slums of Tiruchirapalli. There is a combination of public toilets which are provided in commercial areas and community toilets used by the slum communities. Some are pay and use while others are free to use. They also conducted training programs on hygiene and sanitation. One the key achievements of this approach was that 179 of 186 slums in the Corporation area were declared open defecation free within two years of the partnership.

Key Lessons: Different approaches are adopted by the cities based on their specific requirements and the capacity of the ULB. The above models places emphasis on the role of ULBs and other agencies likes private contractors and NGOs for specific tasks like maintenance of the toilets and conducting training programs.

6.1.2 Construction/ up-gradation of toilets

The slum sanitation program of MCGM, DUAC Smart toilets, Sulabh pit latrine and Namma toilets have been selected as good practices for this section due to their versatility of design and modular structure. The Sulabh and Namma models can be adopted in any city with minimal changes to their design. This section talks about the specific technologies used by the different models.

MCGM – Slum sanitation program

The toilets under this program were designed to have an average of 16-20 seats, which were separated for men, women and children. Where space was limited, the blocks were built on two floors with a men's section on the ground floor and a women/children's section on the first

floor. Above this, a space was made for a water tank and a couple of small rooms to accommodate the caretaker of the facility. In addition, the community blocks provided two essential services: 24 hour water and electricity supply. In order to guarantee safe disposal of sewage, the blocks were connected to the municipal sewerage network. If this was not possible because of accessibility problems to the network system, it was provided ensuring that maintenance of the system was possible.

Delhi Urban Art Commission (DUAC) - Smart Public Toilet

DUAC's smart toilets are constructed of GI (galvanized iron), which make them more durable than the fibre-enforced plastic toilet blocks. The surface of the structure is coated with polyurethane and rock wool has been used to insulate the toilets and ensure that the interiors remain cool in spite of the temperature outside. The interiors are made of SS (stainless steel) to make them easy to maintain and clean, unlike ceramic sanitary ware. WCs are also constructed of SS to prevent cracks. The toilet blocks are pre-fabricated and need to only be assembled on site. Due to its modular structure, it can be installed in any location within a limited period of time. Solar panels can also be fixed to the ceiling which makes it energy efficient. Provision has been made for overhead water tanks. Waste water from the toilets can be reused for flushing. In case sewer connections are not available, a bio-digester tank with a maximum capacity of 5000 litres can also be installed. This enables the structure to be installed in an area with no sewer connections/ remote areas.

Sulabh Pit Latrine

The Sulabh pour flush toilets are either single pit or a twin pit latrine. The twin pit latrine is preferred as when one pit becomes full, the toilet waste is routed to the other. The first pit usually takes about three years to completely dry. The water that seeps through the pit walls is naturally filtered and does not pollute the drinking water source. The solid waste dries up and forms lumps like large pieces of coal. This enables easy emptying of the waste. Due to its water seal property, it does not emit a foul smell. A single pit latrine would have to be cleaned using a vacuum cleaner as the waste would still be wet. The twin pit latrine would be preferred in locations with heavy footfalls like market, bus stands etc.

Namma Toilet Model

The toilet is made with FRP (fibre reinforced polymer) material which can be installed at any location. This toilet can be constructed within 2 months, as against 6 months for other models. Hence, it is ideal to install it in an area with immediate demand. Provisions can be made for an overhead tank (2000 L) and a flush cistern (9 L). Sensor based solar powered automated LED lights (3 W) can also be provided. This enables it to be environmentally sustainable compared to traditional toilets. These toilet stalls can either be standalone units or can be assembled together to form a row of toilets or even an entire toilet compound with minimum masonry work. The modules are easy to maintain as they are made of composite material. This makes it ideal for use in areas with high loads and large footfalls as they will not require frequent maintenance.

Key Lessons: The above models can be adapted for use in different locations based on their specific requirements, for example a low cost single pit latrine would be more suitable in areas with a lower revenue base. The twin pit latrine can be used in busy areas like market places, stations etc. where heavy usage would require additional capacity. Ease of installation and maintenance along with vandalism/ graffiti and scratch resistant material makes it ideal to be used in urban settings with heavy footfalls where regular monitoring is an issue. Blocks can be designed with a combination of individual modules to best fit the requirements of the site selected. Also, congested areas facing water shortage can benefit from the Namma model as it would lead to significant savings over the years.

6.1.3 Operations and maintenance

The operations and maintenance of the toilets may be undertaken by the ULB itself or outsourced to an external agency. The case studies below show some of the options.

MCGM – Slum sanitation program

MOUs between MCGM and each of the CBOs or small local business enterprises (SLBEs) ensured that CBOs/ SLBEs were held responsible for the operation and maintenance (O&M) of the blocks, while the MCGM retained the right to evaluate the performance of these entities over time, and if need be, cancel the contract and offer to a different CBO/SLBE in case of unsatisfactory performance.

Namma Toilet Model

The toilets under this model are operated free of cost. A private firm may be roped in for operations and maintenance of the toilets, which is paid for by the municipalities, self-help groups/ CSR funds. Stringent monitoring is carried out by the ULB with penalties on non-conformity to standards.

Key Lessons: The toilets may be operated and maintained either free of cost or by levying a user fee depending on the location and requirements. Fund from municipalities, self-help groups and CSR funds may be appropriated for the same. Like MCGM, MoUs may be signed between the ULB and CBOs may enable ease of maintenance and monitoring. Periodic monitoring of the performance of the private agencies are essential to ensure compliance with the contract conditions.

6.1.4 Sustainable management- institutional arrangement

These case studies below outline the roles and responsibilities of the ULB and the private entities like DUAC in Delhi/ Sulabh which is responsible for the construction and maintenance of the facility on municipal land.

MCGM – Slum sanitation program

MCGM was responsible for financing and managing the toilets while contracting NGOs to undertake a range of activities according to specified standards of performance related to cleanliness and access to facilities.

Delhi Urban Art Commission (DUAC) - Smart Public Toilet

DUAC is responsible for constructing the toilet under BOT model in areas where there is high scope for advertisement revenue.

Pit Latrine- Sulabh

They build toilets on the municipality's land using their money and retains 10-20 percent of the contract value as the contractor's fee. The existing model has been expanded to include private companies, religious institutions, government buildings, Indian railways and others. Sulabh has a 30 year maintenance contract with the local bodies in most cases. Sulabh's pay-per-use facilities includes additional services such as bathing, laundry and more.

WSUP, Bangalore

WSUP has supported rehabilitation of two existing pay-per-use public toilets serving small communities and new construction of a larger pay-per-use public toilet connected to a local wastewater unit. Ownership of all the toilets has been handed over to the municipality, but management is by a users' association.

SPARC Toilets

The SPARC model is implemented in Pune and Mumbai as a collaboration between three Indian NGOs (SPARC, the National Slum Dwellers Federation NSDF, and the women's organisation Mahila Milan). Under the SPARC model, communal toilets (each seat serving about 50 people) are constructed and managed by NGOs under contract from the municipality, with close community involvement.

Key Lessons: Institutional arrangements with respect to the construction, O&M of the toilets may vary depending on the requirements, however, the role of the ULB, NGOs, CBOs and private entities in the entire life cycle needs to be outlined and a sustainable model worked out.

6.1.5 Sustainable management- capital investment and cost recovery

The capital investment of toilets provision and cost recovery mechanisms in various cities/ model are discussed with the help of the case studies below. The costs vary depending on the technology used and the financing available.

MCGM – Slum sanitation program

The total capital investment cost was borne by MCGM under a loan from the World Bank, which covered 60% of the costs. Prior to the construction of toilet blocks, the residents paid an upfront contribution between Rs. 100 -Rs .500. The cost recovery policy was applied through monthly payment of Rs. 30 per family, whereas people without monthly passes (visitors) pay Rs. 1 per usage.

Delhi Urban Art Commission (DUAC) - Smart Public Toilet

The price per composite unit, excluding taxes, comes to about Rs. 12.28 lakh. This can be used to offset the capital and O&M costs of constructing toilets in areas with lesser advertisement revenue potential.

Pit Latrine- Sulabh

A public toilet facility run by Sulabh in Delhi has 20 toilets (i.e. 20 seats), 6 showers and urinals. Users are charged Rs. 2 per visit for toilet or shower use while the urinals are free. An average of 700 people use the facility per day generating an annual revenue of Rs. 5,04,000, versus O&M costs of Rs. 4,00,000. The revenue from high footfall areas such as these can be used to compensate for the revenue from low footfall areas.

WSUP, Bangalore

The user's association has committed to a collection of a per-use fee of Re. 1 and employment of an attendant on a monthly wage of about Rs. 1000–1500. Since these toilets are receiving about 100 users per day (mostly defecation uses), gross revenue is currently about Rs. 3000, sufficient to cover the attendant wage and routine operation and maintenance costs.

New Delhi Municipal Council

The private contractors were permitted to recover their costs from advertising on the walls on the toilet and by charging nominal user fees. These toilets were constructed mainly in crowded areas that had advertising potential. This management model may be extended to low-income areas by cross-subsidising the costs, which will make it commercially viable.

Key Lessons: The ULB of any city is the agency generally responsible for the financing the construction of the public toilet. Different sources of financing may be used like the loan used by MCGM from the World Bank. Advertisement revenues in areas of high footfall maybe used to fund the operations and maintenance of the facilities in case user charges are not sufficient. However, as in the case of WUSP, Bangalore, user charges may be more than sufficient to cover O&M costs.

6.2 GIS enabled management information system for toilets inventory

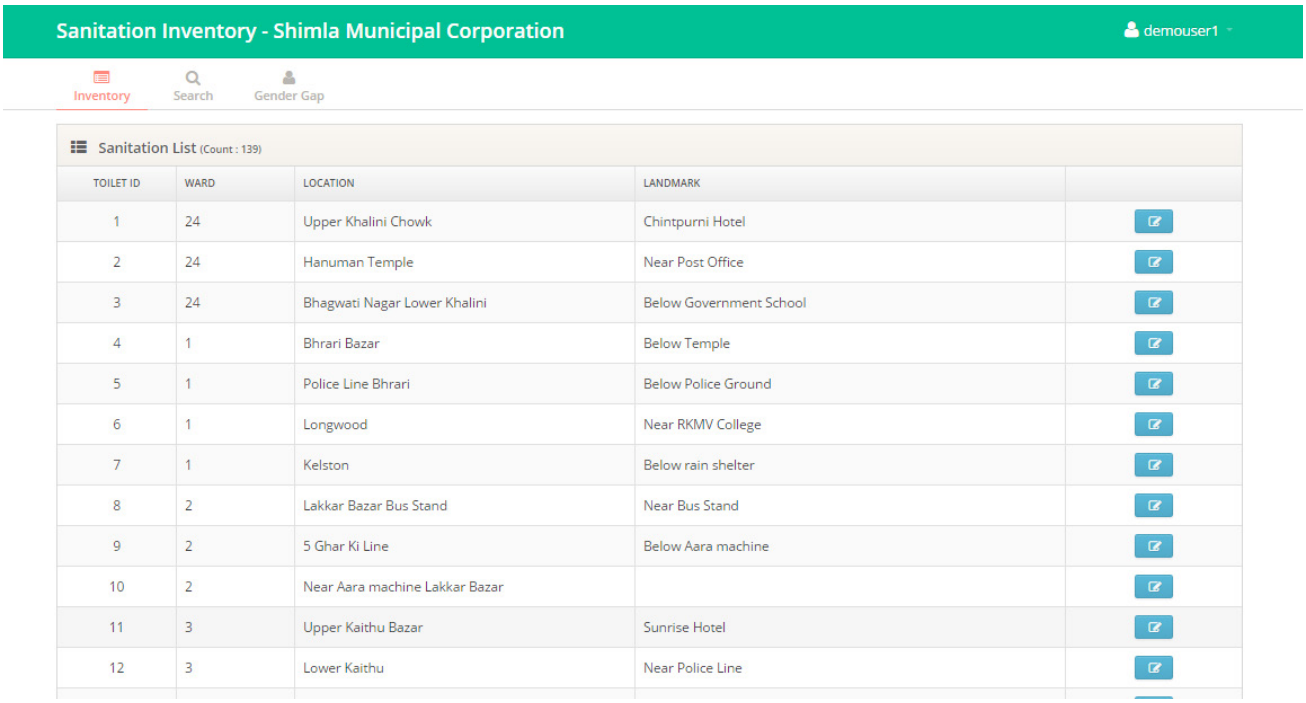
The table below shows the parameters for management information system for toilets inventory. GIS enabled MIS data at city level will help to establish the locations and spatial dimension of public/ community toilets and also to improve the coverage and provision of the same.

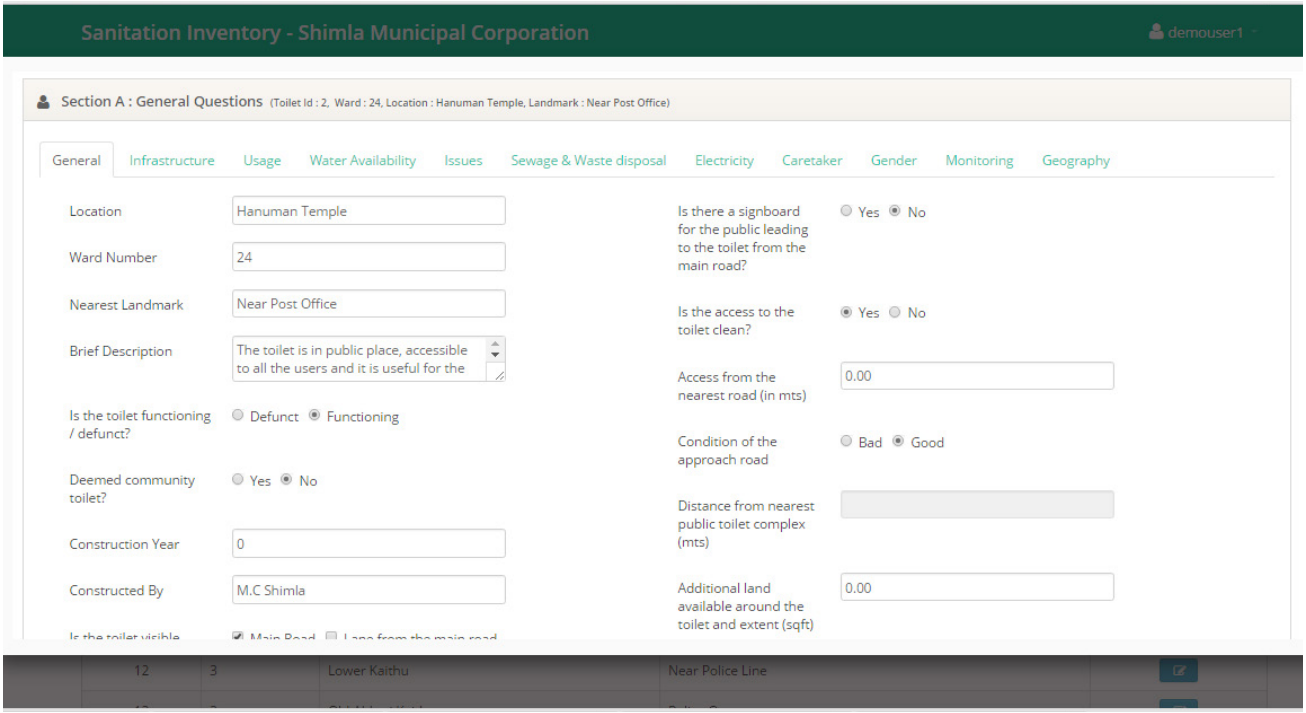
Sr. No.	Information categories	Data Input			
1	Toilet type (Refer to section 2.6)	Type 1	Type 2	Type 3	Type 4
2	Year of construction	Year			
3	Property number	Plot number			
4	Land owner	Name			
5	Toilet block owner name	Name			
6	Operator's name	Name			
7	Location address				
8	Plot size	Sq. Metre			
9	No. of floors	G	G+1	G+2	
10	Provision of ramps	Yes	No		
11	Number/size of WCs	Number	Size		
12	Number/size of urinals	Number	Size		
13	Number/size of bathrooms	Number	Size		
14	Number/size of child care rooms	Number	Size		
15	Number/size of caretaker's room	Number	Size		
16	Number/size of washbasins	Number	Size		
17	Total carpet area of toilet block				
18	Connection number- water/ electricity	Water	Electricity		
19	Year of connection installation- water/ electricity	Water	Electricity		
20	Water connection	Active	Discontinued		
21	Monthly consumption- water/ electricity	Water	Electricity		
22	Water storage tank capacity	Litres			
23	Collection and disposal system	Onsite	Sewer connection		
24	Cleaning frequency	Daily	Thrice a week	Weekly	
25	Number of users- male/ female	Male	Female		
26	Number of users of bathing facility- male/ female	Male	Female		
27	Number of users of child care room- female	Number			
28	Number of repairs	Number			
29	Type of repairs (Refer to section 4.2.1)	Major	Minor		
30	Number of clogging incidents	Number			
31	Time taken to resolve the issue	1 day	1-5 days	5-10 days	10-20 days
32	Name, age, gender of caretaker	Name	Age	Gender	
33	Shift timing	Morning shift	Night shift		
34	Absence record				
35	Salary	Rupees			
36	Cost incurred in financial year	Rupees			
37	User charges collected	Rupees			
38	Advertisement revenue	Rupees			
39	Other revenue	Rupees			

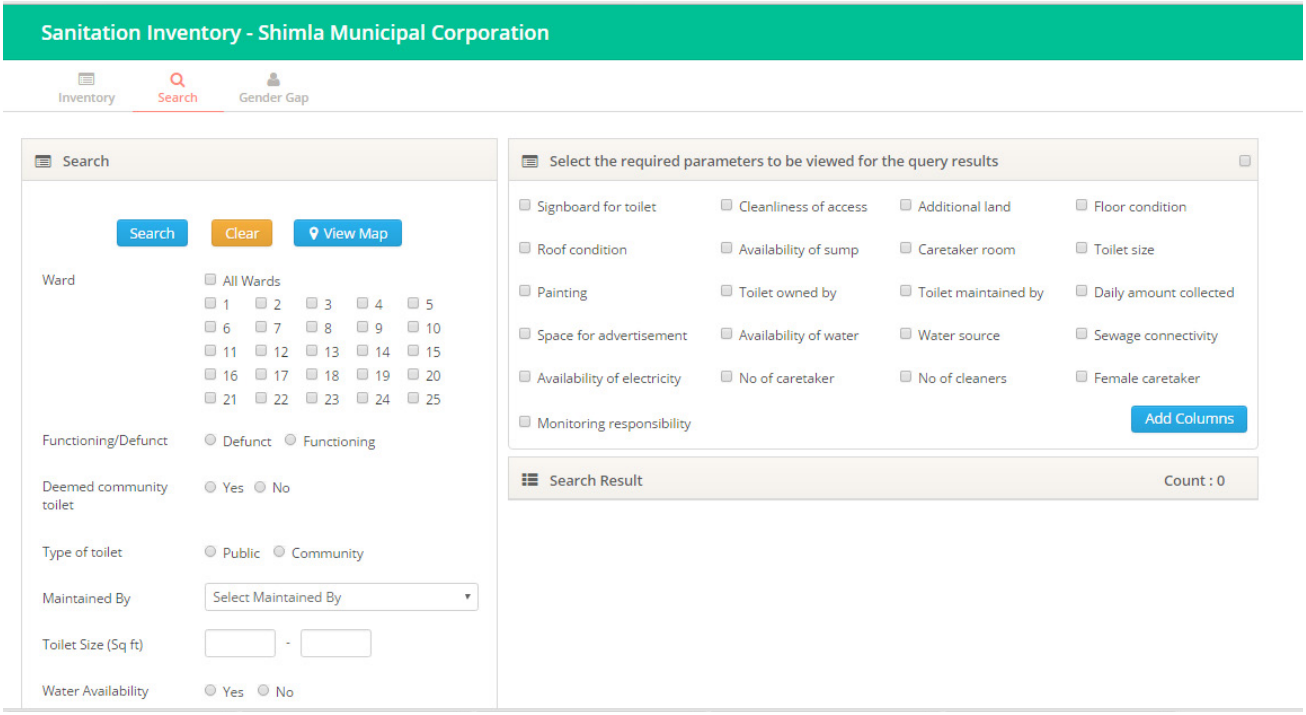
6.3 Asset inventory best practices

6.3.1 Shimla

The online asset inventory system for public toilets (inventory) provides an physical inventory of all PT, spatial location, distances and elevation details between toilets, etc. including requirements of women and old aged. The new online inventory system (www.shimla.akara.co.in) is the basis on which rehabilitation of assets and their contracting through clustering is planned. A few snapshots are presented below.

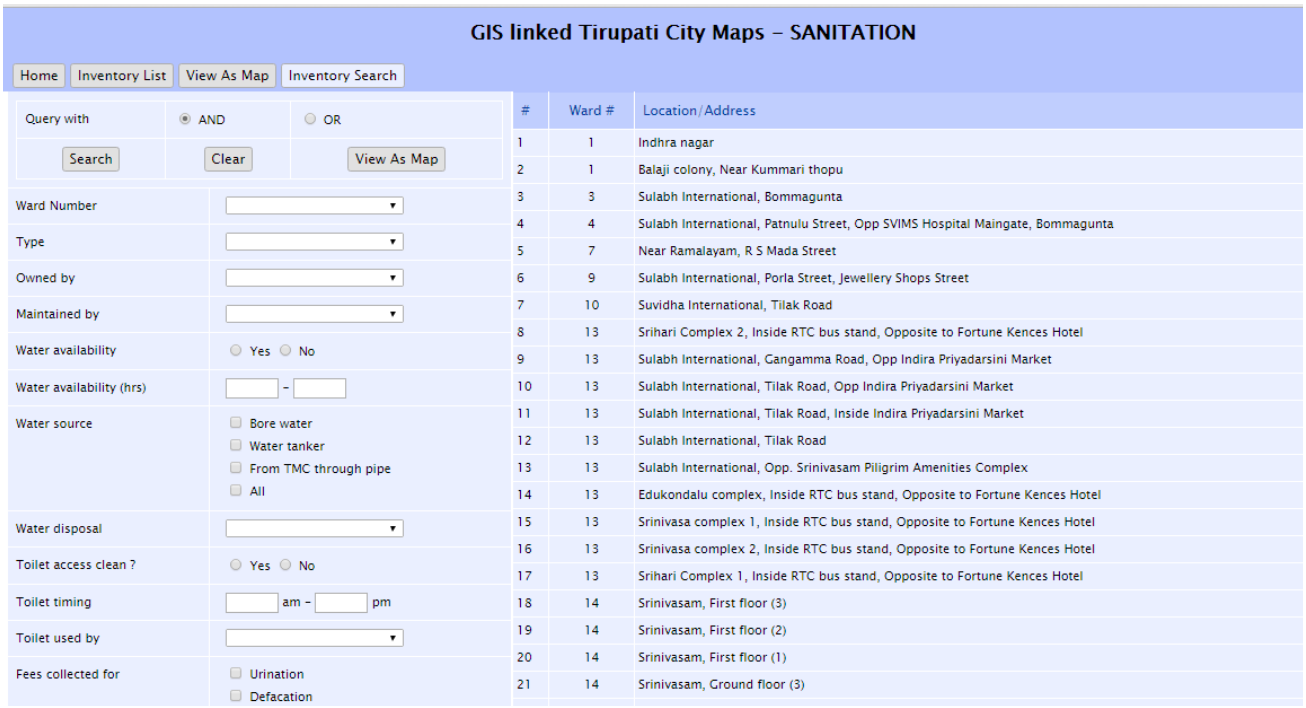






6.3.2 Tirupati

Tirupati developed an online public toilets inventory (www.tgiz.akara.co.in) that can is used for monitoring of toilet maintenance and for future planning. It provides for a snapshot of existing services rendered by the city and is a one-stop shop for information regarding the toilets' condition. While planning for future demand, the online inventory was used to locate toilets and prioritize their implementation and also in bundling/ clustering. Moreover, using the online inventory or mobile application, users can locate nearby public toilets and file complaints or report operator defaults, thereby contribute to the monitoring of the PT infrastructure, service provision and operator compliance. Responsibilities and a structure within the municipality to support the monitoring of PT are currently being defined. A few snapshots is a follows:



GIS linked Tirupati City Maps – SANITATION

Inventory List | View As Map | Inventory Search

Number	1	Constructed by	TMC (Tirupati Municipal Corporation)
ion / Address	Balaji colony, Near Kummari thopu	Owned by	TMC (Tirupati Municipal Corporation)
mark	Balaji Colony	Operated & Maintained by	TMC (Tirupati Municipal Corporation)
ude	13.631600000000001	Year of Construction	2007
itude	79.410300000000007	Last Updated On	2015-07-09
t type	Public		

r availability		**Water storage (during scarcity)**	
r availability	Yes	Collected from	Hand pump
e		No of times collected	0
hours	0	Collected by	
nal variation	No	Storage place	

t details					
r disposal	Underground drainage system	Toilet timings	0.00 am - 0.00 pm	Used as toilet	Yes
as (if No)		Period not in use	0	Used by	Both
an	No				

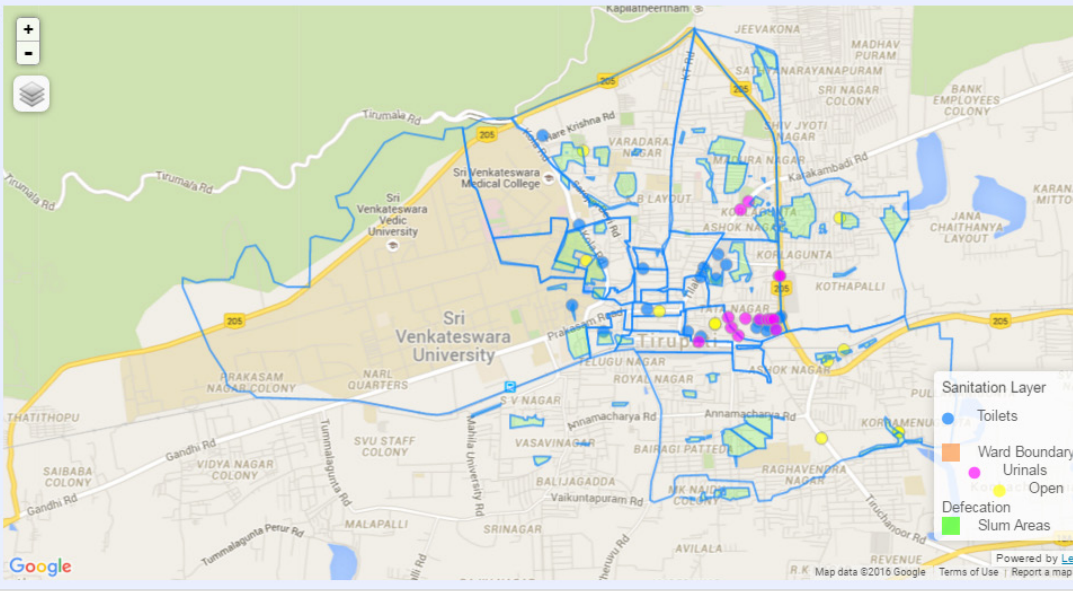
ections		**Amt collected for**					
collected	No	Urination	0.00	Defecation	0.00	Shower	0.00

GIS linked Tirupati City Maps – SANITATION

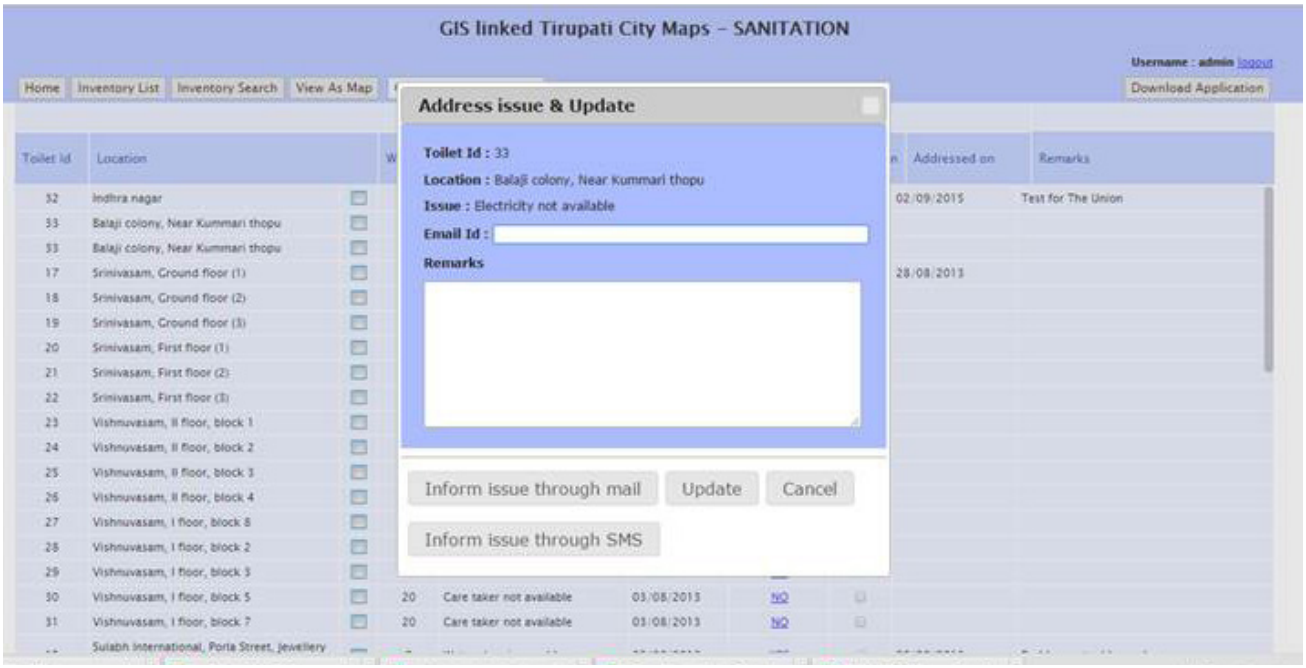
Home | Inventory List | View As Map | Inventory Search

Map

- Ward Boundary
- Ward population density
- MCT Landuse
- SWM System
- Slum Areas
- Commercial Area Lines
- Commercial Area Points
- SW Disposal Route
- SWM Sanitation Divisions
- Slum Points
- Landmarks
- Municipal assets
- Water Supply Lines
- Water bodies
- Drain network
- Sewerage Network
- Water Reservoir Points
- Open Defecation
- Urinals
- Sanitation Layer




GIS linked Tirupati City Maps – SANITATION
Username : admin logout
Home
Inventory List
Inventory Search
View As Map
Complaint Management
Download Application
View Map
Toilet Id
Location
Ward
Issue
Updated on
Issue Addressed?
Escalation
Addressed on
Remarks
32 Indhra nagar 1 Water clogging problem 03/08/2013 YES 02/09/2015 Test for The Union
33 Balaji colony, Near Kummari thopu 1 Electricity not available 03/08/2013 NO
33 Balaji colony, Near Kummari thopu 1 Care taker not available 03/08/2013 NO
17 Srinivasam, Ground floor (1) 14 Care taker not available 03/08/2013 YES 28/08/2013
18 Srinivasam, Ground floor (2) 14 Care taker not available 03/08/2013 NO
19 Srinivasam, Ground floor (3) 14 Care taker not available 03/08/2013 NO
20 Srinivasam, First floor (1) 14 Care taker not available 03/08/2013 NO
21 Srinivasam, First floor (2) 14 Care taker not available 03/08/2013 NO
22 Srinivasam, First floor (3) 14 Care taker not available 03/08/2013 NO
23 Vishnuvasam, II floor, block 1 20 Care taker not available 03/08/2013 NO
24 Vishnuvasam, II floor, block 2 20 Care taker not available 03/08/2013 NO
25 Vishnuvasam, II floor, block 3 20 Care taker not available 03/08/2013 NO
26 Vishnuvasam, II floor, block 4 20 Care taker not available 03/08/2013 NO
27 Vishnuvasam, I floor, block 8 20 Care taker not available 03/08/2013 NO
28 Vishnuvasam, I floor, block 2 20 Care taker not available 03/08/2013 NO
29 Vishnuvasam, I floor, block 3 20 Care taker not available 03/08/2013 NO
30 Vishnuvasam, I floor, block 5 20 Care taker not available 03/08/2013 NO
31 Vishnuvasam, I floor, block 7 20 Care taker not available 03/08/2013 NO
Sulabh International, Porta Street, Jewellery


GIS linked Tirupati City Maps – SANITATION
Username : admin logout
Home
Inventory List
Inventory Search
View As Map
Download Application
Address issue & Update
Toilet Id : 33
Location : Balaji colony, Near Kummari thopu
Issue : Electricity not available
Email Id :
Remarks
Inform issue through mail
Update
Cancel
Inform issue through SMS
Toilet Id
Location
Addressed on
Remarks
32 Indhra nagar 02/09/2015 Test for The Union
33 Balaji colony, Near Kummari thopu
33 Balaji colony, Near Kummari thopu
17 Srinivasam, Ground floor (1) 28/08/2013
18 Srinivasam, Ground floor (2)
19 Srinivasam, Ground floor (3)
20 Srinivasam, First floor (1)
21 Srinivasam, First floor (2)
22 Srinivasam, First floor (3)
23 Vishnuvasam, II floor, block 1
24 Vishnuvasam, II floor, block 2
25 Vishnuvasam, II floor, block 3
26 Vishnuvasam, II floor, block 4
27 Vishnuvasam, I floor, block 8
28 Vishnuvasam, I floor, block 2
29 Vishnuvasam, I floor, block 3
30 Vishnuvasam, I floor, block 5 20 Care taker not available 03/08/2013 NO
31 Vishnuvasam, I floor, block 7 20 Care taker not available 03/08/2013 NO
Sulabh International, Porta Street, Jewellery

6.4 Gender needs checklist for public / community toilets from user's perspective

The gender needs checklist is envisaged to serve as a tool for city administrators in planning, designing, operating and maintaining gender sensitive toilets.

- The checklist covers the following aspects:
- Choosing a location for the toilet block such that it has high visibility and is thus safe to use for women at all times;
- Design considerations outside the toilet block which ensure ease of access for all including women (especially pregnant, old, differently abled women) and their privacy (by providing separate entrances and waiting areas for women);
- Design aspects to be taken into cognizance while planning the interiors of the women's toilet block including provision of door locks and latches to ensure women's safety and dignity, window and roof design should be such that it doesn't compromise women's privacy. The toilet must also have adequate provision for menstrual hygiene management.
- Provision of support services like water and electricity which are very crucial for ensuring that women use the facility, they are able to maintain personal hygiene and feel safe while using the facility.
- Institutional arrangements for management of toilets must be planned in consultation with the users and women must be consulted to ensure that their needs are taken into consideration. All women toilet blocks must have a female attendant. The compliant registration system's contact numbers must be adequately displayed and there should be a separate attendant for handling complaints from women.

Gender Needs Checklist							
		Access to toilets	Privacy & dignity	Safety	Menstrual hygiene	Maintenance of toilets	Awareness
Location	Safe and highly visible place						
	Within reasonable walking distance						
External design	Entrance- good condition, highly visible. Steps not broken or damaged						
	Separate entrance for men and women						
	Adequate space in waiting area for women to stand in queue						
Internal design	Working door locks, latches, and hooks Doors in good condition and weather proofed						
	Bins and disposal mechanism						
	Toilet windows, ventilators and roofs not to compromise on women's safety						
Supporting services	24-hours/ day supply of electricity						
	Enough water for usage and cleaning						
Management	Operational 24 hours						
	User charges to be displayed at entrance all the time						
	Female caretakers						
	Women involved in decision making						
	Establish standards related to maintenance and monitoring						
	Contact number for complaints and helpline						
Knowledge about toilets	Public education campaigns and IEC						

6.5 User survey format

6.5.1 Public/community toilets inventory

Section A: General Questions

1. Location:
2. Ward Number& Name:
3. Nearest landmark:
4. Brief Description of toilet (4 -5 sentences and photographs):
5. Construction year:
6. Constructed by (indicate agency):
7. Is the toilet visible from (indicate relevant): Main road / Lane from the main road / From an elevation
8. Is there a signboard for the public leading to the toilet from the main road (indicate relevant): Yes/No
9. Is the access to the toilet clean (indicate relevant): Yes/ No
10. Access from the nearest road (in m):
11. Condition of the approach road:
12. Distance from nearest public toilet complex (in m):
13. Additional land available around the toilet and extent (in sqft):

Section B: Infrastructure Related Questions

14. Type of toilet (select right option): Public toilet / Community toilet
15. Entrance characteristics (indicate relevant):
    a. Common entrance for ladies and gents: Yes/No
    b. Is there a main door for the toilet: Yes/No
    c. Is the main door working condition: Yes/No
    d. If no, identify the issues (select all that apply, multiple responses possible):
        - Door broken
        - No Latch
        - Door is stuck and not moving
16. Floor type (indicate relevant): Mosaic / Tiles / Cement / Others (specify)
17. Floor condition (indicate relevant): Good condition / Broken/cracked / Uneven surface / Tiles/flooring has come out
18. Roof type (indicate relevant): Cement ceiling / Tile / Asbestos / Others (specify) / No roof
19. Condition of the roof (indicate relevant): Good condition / Leaking / broken/damaged/ Needs full repair
20. Type of toilet (Check availability and indicate numbers):

Men's toilet	Women's toilet
Indian toilet – pit latrine (Nos.)	Indian toilet – Pit latrine(Nos.)
Indian toilet – pour and flush (Nos.)	Indian toilet – pour and flush (Nos.)
Western type – wet (Nos.)	Western toilet – wet (Nos.)
Western Dry latrine (Nos.)	Western Dry latrine (Nos.)

21. Toilet units and their condition (indicate Nos. for following):

a. Gents-toilets (Nos.):	b. Gents – urinals (nos.):	c. Ladies toilets (Nos.):
a.1: Fully working condition	b.1: Fully working condition	c.1: Fully working condition
a.2: Units broken	b.2: Units broken	c.2: Units broken
a.3: Unit Doors without latch:	b.3: Units pipes broken	c.3: Unit Doors without latch:
a.4. Unit doors not closing		c.4. Unit doors not closing
a.5. Units without doors		c.5. Units without doors
a.6. Tap: working condition		c.6. Tap: working condition
a.7. Tap: broken/not working		c.7. Tap: broken/not working
a.8. Bucket/mug		c.8. Bucket/mug
a.9. Flush tank		c.9. Flush tank

22. Bathing units and their condition (indicate Nos. for following):

Gents:	Nos.	Ladies:	Nos.
Shower	Nos.	Shower	Nos.
Tap and bucket	Nos.	Tap and bucket	Nos.
Shower working	Nos.	Shower working	Nos.
Shower not working	Nos.	Shower not working	Nos.
Without doors	Nos.	Without doors	Nos.
Doors not closing	Nos.	Doors not closing	Nos.

23. Washbasins (indicate Nos. for following):

Gents:	Nos.	Ladies:	Nos.
Taps working	Nos.	Taps working	Nos.
Taps not working	Nos.	Taps not working	Nos.
Basin broken	Nos.	Basin broken	Nos.
Mirror available	Nos.	Mirror available	Nos.

24. Water storage sump inside toilet (indicate relevant):
    a. Gents section: Yes/No
    b. Ladies section: Yes/No

25. Light availability (indicate Nos. for following):
    a. Gents section:
    b. Ladies section:

26. Care taker room (indicate relevant): Available / Not available

27. Size of toilet (indicate relevant):
    a. Length (in m):
    b. Breadth (in m):
    c. Wall height (in m):
    d. Built up area (in sqm):

28. Paint condition (internal) (indicate relevant): Fresh and neat / Needs full painting / Needs painting with plastering / Needs partial painting

29. Advertising area:

Bill board : Available Yes/No	If yes, Area in sqft:
Outside wall : Available Yes/No	If yes, Area in sqft:
Side wall : Available Yes/No	If yes, Area in sqft:
Any other : Available Yes/No	If yes, Area in sqft:
If yes for "d", specify area type	

30. Toilet owned by (indicate relevant):
    a. Government:
    b. Private (Mention name):
    c. NGO (mention name):

31. Operated and maintained by (indicate relevant):
    a. Government:
    b. Private (Mention name):
    c. NGO (mention name):

Section C: Toilet Usage Details

32. Is the toilet being used as a toilet (indicate relevant): Yes/NO

33. Toilet used as:

34. How long is the toilet not in use (indicate relevant): _____Months

35. Toilet caters to both Men and Women(indicate relevant): Yes/No

36. Toilet timings (Specify AM/PM)

Jan – Mar	April – June	July – Sep	Oct – Dec
Open: _____ Close: _____	Open: _____ Close: _____	Open: _____ Close: _____	Open: _____ Close: _____

37. Verify sign boards outside on timings (indicate relevant): Yes/No

38. Fees collected: (Ask caretaker) (put zero if no fee collected):
    a. Urination
    b. Defecation
    c. Shower

39. Is there a signboard on user fees (indicate relevant): Yes/No

40. Is the user fee mentioned same as the collected fee (indicate relevant): Same / Higher / Lower

41. Fees apart from immediate payment (indicate relevant):
    a. None
    b. Monthly card
    c. Weekly card
    d. Cash payment

42. Daily amount collected (average) (in Rupees):

43. Currently advertising done(indicate relevant): Yes No
    a. Possibility of using space for advertising: Yes/ No
    b. Space available for advertising (in sft):

44. Daily footfall (average) (indicate relevant):

	Morning	Forenoon	Afternoon	Evening
Male (Toilet)				
Male (urinal)				
Female (Toilet)				
Male (shower)				
Female (Shower)				

45. What is the daily peak hour (specify AM/PM):

46. Seasonal variations in footfall (indicate relevant):

Foot-fall (seasonal variations)	Jan – Mar	Apr – Jun	Jul – Sep	Oct – Dec
Daily number of visitors (average)				

47. Type of users (give ranking – 1 means highest users, 4 is lowest number of users, 0 is no user, select all that apply):
    a. Tourists:
    b. Slum-dwellers:
    c. General public: Traders/vendors

48. Is a daily u sage record maintained (indicate relevant): Yes/No

Section D: Water availability Status

49. Physically Verify and Circle Availability of Water at the complex (indicate relevant): Is Water Available? Yes/No

50. Source of water (indicate relevant for each): (Yes/No)
    a. Water connection from Municipality
    b. Own bore well
    c. Water obtained and stored in the toilet complex

51. For 2b:
    a. Water is collected from: Municipality/ Private suppliers
    b. Water collected by:
    c. No. Of times water collected:

52. Storage availability (select all that apply; give specification)
    a. Overhead tank (OHT): Yes/No Capacity:
    b. Underground sump : Yes/No Capacity:
    c. If no OHT, is there a direct water connection: Yes/No

53. Water supply frequency (indicate relevant):
    a. Continuous supply
    b. No. Of hours per day

54. Seasonal variation in water supply frequency (indicate relevant):
    a. Not affected at all: No. of months
    b. Less than 75% availability: No. of months
    c. Less than 50% availability: No. of months

55. Toilet Usage Pattern during periods of water scarcity (indicate relevant): Same users as normal / Fewer users / No users

Section E: Issues related to Emergencies

56. During rains (indicate relevant):
    a. Water well drained away: Yes/No
    b. Time taken for water to drain:
        i. Less than 1 hour
        ii. 1 to 3 hours
        iii. 3 to 5 hours
        iv. 5 hours to 12 hours
        v. More than 12 hours

6.5.2 Public Toilet Facilities: Survey among Tourists and General Public

Questions to be filled by the Interviewer:

- Interview Location and Toilet (Follow the code in Inventory Survey for toilet)
- Average footfall of the toilet (from the Inventory survey)
- Average footfall during the time of interviews over a 2 hour period

1. Date of Interview:

2. Name of the respondent:

3. Phone number of the respondent:

4. Gender (indicate relevant): Male/Female/Transgender

5. Age of the respondent (indicate relevant):
    a. Less than 20
    b. 20 to 30
    c. 30 to 50

d. 50 to 60

e. Above 60 (senior citizen)

6. Resident of city (indicate relevant): Yes/No

7. If Yes (indicate relevant):
   a. Employed: Yes/No
   b. If Yes: Occupation:
   c. If No: Student/Yet to find employment/Retired/ Housewife
   d. Reason for out of home toilet use (indicate relevant):
   e. Slum dweller
   f. Local travel on official visit
   g. Local travel for purchases/market/sigh-seeing (please specify)

8. How often do you use this toilet (indicate relevant):
   a. Daily
   b. Twice or more in a week
   c. Once a week
   d. Rarely
   e. Cannot say

9. If a or b is yes,
   a. Distance from your place to the toilet: _____ minutes walk
   b. Distance in terms of km: _____
   c. Is it uphill towards the toilet from your place (indicate relevant): Yes/No

10. Do you use the toilets other than the public toilet facilities (indicate relevant):
    a. In hotels/restaurants
    b. In public institutions (municipal office, hospital, govt. offices etc.)
    c. Shops/commercial complexes

11. How long you have been using this toilet facility? _____years

12. Has the payment (indicate relevant):
    a. Increased over last
    b. one year
    c. Two to three years
    d. Three to five years
    e. Over 5 years
    f. Do not recall/remember
    g. Has been the same always since I used

13. For male users: Should this be a toilet complex or a urinal (indicate relevant):
    a. Toilet complex
    b. Urinal

14. Number of units in this toilet complex (indicate relevant):
    a. Should be increased
    b. Can remain the same
    c. Can be reduced

15. For regular users who are local residents of city: Can you be contacted again through phone if needed by the Corporation for understanding your needs better (indicate relevant): Yes/No

16. If No, for question 6 (indicate relevant):
    a. Tourist
    b. Business/Trade visitor
    c. Medical
    d. Education
    e. Others (specify)

17. Local travel or tourist with children (indicate relevant):
    a. Traveling with Children: Yes/No
    b. No. of children in the age group:

Age group	Male	Female
0 – 3		
3 – 6		
6 – 10		
10 – 13		
Above 13		

18. If tourist (indicate relevant):
    a. Other state (specify)
    b. Other country (specify)

19. If business/trade: Specify location of origin _____

20. If business/trade: You visit city once in
    a. Week
    b. Daily
    c. Monthly
    d. Rarely
21. How long is your visit to city
22. How often did you use public toilet facility in city? Specify number of times _____
23. Reason for using this public latrine (indicate relevant):
    a. Visiting the area
    b. Waiting for bus/train/taxi
    c. Visiting shops / commercial areas
    d. Other (please specify)

For all type of users following questions:

1. Which other public toilet facility did you use (indicate relevant):
    a. Name of the toilet location
    b. For local residents: Regular usage: Yes/No
2. How much did you pay for using the toilet (indicate relevant):
    a. For using urinals Rs: No fee, Rs. 1 – Rs. 2; Rs. 2 – 3; Rs. 3 – Rs. 5, Over Rs. 5
    b. For using toilets Rs No fee, Rs. 1 – Rs. 2; Rs. 2 – 3; Rs. 3 – Rs. 5, Over Rs. 5
    c. For using bath Rs. No fee, Rs. 1 – Rs. 2; Rs. 2 – 3; Rs. 3 – Rs. 5, Over Rs. 5
3. How long did you have to wait to use the toilet(indicate relevant):
    a. No wait
    b. Less than 5 minutes
    c. 5- 10 minutes
    d. More than 10 minutes
    e. Did you find garbage bins inside the women area for disposal of napkins
4. Do you feel there are adequate public toilet facilities for women in the city (indicate relevant)
    a. Yes No
    b. If No, can you specify which areas more facilities are needed?
5. What measures do you feel applicable to improve safety of women using public toilets (indicate relevant):
6. Status of the woman (indicate relevant):
    a. Married
    b. Married with child
    c. Unmarried
7. If married with child, what facilities do you expect in the toilet facility

Give specific answers (use text box with 100 words max)

1. If there is any waiting period, reason for the waiting (indicate relevant):
    a. Toilets have been occupied
    b. some of the toilets are not functional
    c. toilets were not clean
    d. care taker was not available in the facility
2. Give your ranking (1 to 5, with 1 for highest, 5 for worst) for the atmosphere in the toilet:
    a. Cleanliness
    b. Water availability
    c. Access of toilet from outside
    d. Water logging
    e. Smell
    f. Lighting
    g. Amenities (bucket, cups etc.)
    h. Wash basins
    i. Condition of floor and walls
    j. Condition of doors
    k. Behaviour of caretakers and cleaners
    l. Condition of urinals
    m. Condition of toilet seats
3. Gender
    a. Safety
    b. Privacy
    c. Usability for children
    d. Garbage bin for napkins
4. Do you have any complaints specific to this toilet (indicate relevant): Yes / No

5. Do you have any complaints about public toilets in city (indicate relevant): Yes / No
6. Do you have any complaints about open defecation in city (indicate relevant): Yes / No
7. Are you willing to pay additional payment for better quality of services (indicate relevant): Yes / No
8. If yes, how much (indicate relevant):
    a. For urinals Rs……
    b. For toilets Rs……
    c. For baths Rs……
9. If yes for 23, what improvements you are looking for (indicate relevant):
    a. No. of toilet units
    b. More cleanliness
    c. Type of infrastructure (please specify)
    d. More privacy
    e. Clean Space/lockers for keeping things being carried
    f. Water availability
    g. Better lightings
    h. Others Please specify
10. For Senior citizens
    a. Were you able to access the toilet easily
    b. If no, reason for lack of ease
    c. Distance from main road
    d. Path being slippery
    e. No proper pathway
    f. Had to search as no signboards available
11. Toilet affected by land-slides (except option a, others are multiple select):
    a. Not affected
    b. Structural damage
    c. Toilet not accessible
    d. Caretaker cannot function
    e. Toilet closed
12. Toilet affected by snowfall (except option a, others are multiple select):
    a. Not applicable/Not affected
    b. Water supply affected
    c. Sewerage affected
    d. Caretaker cannot function
    e. Toilet closed
13. Water clogging during normal periods (except option a, others are multiple select): The clogging may be physically verified by the interviewer, and regarding complaints, canvassed from the caretaker)
    a. No clogging
    b. Inside toilet
    c. Outside toilet
14. No. Of days water clogging persists (indicate relevant): _____days
15. Complain has been registered (indicate relevant): Yes/ No
16. Complain registered date (indicate relevant):
17. Complain registered to(indicate relevant):
18. No. Of days taken to fix the problem (indicate relevant):

Section F: Sewerage & Waste disposal

1. Connectivity to sewer network (indicate relevant): UGD System/On-Site Treatment/ No specific mechanism
2. If not connected to sewer network, distance from network (in m) _____
3. If septic tank, frequency of cleaning tank (number of times/month)_____
4. Who is responsible for cleaning of septic tanks (indicate relevant): City / Private / Owner

Section G: Electricity Details

1. Toilet complex has electricity (indicate relevant): Yes/ No
2. Electricity availability is (indicate relevant):
    a. Continuous
    b. Limited (No. of hours per day)
3. Electricity board number available (indicate relevant): Yes/No

4. Electricity is used for (multiple answers are to be allowed):
    a. Lighting
    b. Water sump
    c. Cleaning
5. Electricity charges are paid by (indicate relevant):
    a. Urban local body (Municipality)
    b. Contractor
    c. No payment is made
6. In case of electricity failure (indicate relevant):
    a. Issue notified to electricity board
    b. Issue is escalated to corporation officials
    c. Issue is escalated to contractor/supervisor
    d. Local person/people support
    e. Self redressal
    f. No redressal mechanism

Section H: Details of the caretaker

1. Is there a facility/space for caretaker / cleaner (indicate relevant): sitting and managing / staying
2. Count and gender of caretakers (indicate relevant):

	Male	Female
Cleaner		
Caretaker		

3. Caretaker employed by (indicate relevant):
    a. Contractor
    b. Community
    c. Corporation
    d. Self-employed
4. Employment process (indicate relevant):
    a. Description in 3 sentences
5. Shift timings of caretakers (note separately for each person):

Cleaner 1:	Cleaner 2:	Cleaner 3:	Cleaner 4:
Caretaker 1:	Caretaker 2:	Caretaker 3:	Caretaker 4:

6. Salary details of the caretakers and cleaners (indicate relevant):

	Amount (Rs.)		Frequency of payment
Caretaker 1			a. Daily b. Weekly c. Monthly
Caretaker 2			a. Daily b. Weekly c. Monthly
Caretaker 3			a. Daily b. Weekly c. Monthly
Caretaker 4			a. Daily b. Weekly c. Monthly
Cleaner 4			a. Daily b. Weekly c. Monthly
Cleaner 4			a. Daily b. Weekly c. Monthly
Cleaner 4			a. Daily b. Weekly c. Monthly
Cleaner 4			a. Daily b. Weekly c. Monthly

7. Who is responsible for cleaning the toilet (indicate relevant): Cleaners / Caretakers
8. No. of times toilet is cleaned per day (indicate relevant): _____ Nos.
9. Cleaning time each day (indicate relevant):
    a. Morning
    b. Forenoon
    c. Afternoon
    d. Evening
    e. Night
10. Is there a cleaning timesheet/record sheet issued (indicate relevant): Yes/No
11. Cleaning process (indicate relevant):
    a. Manual
    b. Mechanised
    c. Not cleaned
12. Complaint redressal mechanism (multiple selection for a and b)
    a. Telephone number
    b. Contact person details
    c. None available

Section I: Gender Related

1. Is there a female caretaker for the Toilet (indicate relevant): Yes /No
2. If yes, what is the timings (indicate relevant): Full time / Part-time
3. Work timings (specify time):
4. Prominent display of help-line number (in case of emergency for women) (indicate relevant): Yes /No
5. Bins for disposal of napkins (indicate relevant): Yes / No
6. Separate dress changing area available (indicate relevant): Yes /No
7. Toilet location close to (multiple choices allowed) (indicate relevant):
    a. Forest/fields
    b. Bar/Wine shops
    c. Accessible from nearest road
    d. Visible from nearest road
    e. Visible from elevation
    f. street light outside the toilet
    g. others (specify)_____
8. Incident / accident on women at toilet (indicate relevant): Yes /No

Section J: Geography and Appearance

1. Georeference ID
2. Latitude
3. Longitude
4. Altitude
5. Picture of toilet facility:
    a. Picture 1: Front view (with sign)
    b. Picture 2: Back-side view
    c. Picture 3: Inside toilet (for each toilet unit and urinal)
    d. Picture 4: Approach to women entry
    e. Picture 5: road to toilet, the road and street light
    f. Picture 6: advertisement board if any
    g. Picture 7: information board on prices
    h. Picture 8: storage tank and wastewater outlet

Section K: Monitoring of services

1. Monitoring responsibility (to be verified from caretaker) (indicate relevant): Supervisor / Corporation / self / No monitoring
2. Monitoring sheet (To be physically checked) (indicate relevant): Available / Not available
3. Monitoring done once in (indicate relevant):
    a. Every one hour
    b. 1 to 3 hours
    c. 3 to 5 hours
    d. Twice a day
    e. Once a day
4. Items monitored (select all that apply):
    a. Cleanliness
    b. Availability of caretakers
    c. Availability of cleaners
    d. Availability of supplies (water, electricity etc)
    e. Working condition of lights, taps
    f. Water clogging

6.6 Typical monitoring sheets for verifying service level mandates agreed for the toilet

6.6.1 Self-reporting by Operator

Notes:

1. *The format shall be maintained by the Operator on a daily as well as monthly basis against performance tasks to be undertaken as part of the contract.*
2. *To be used by the ULB/ owner to monitor services/ facilities provided by the contractor handling operations and maintenance of public toilets. Weekly and monthly inspections need to be conducted. Monitoring report will be prepared based on the information provided below*

FORMAT FOR DAILY MONITORING BY OPERATOR

		Date			Date			Date			Date			Date			Date			Date			Date		
S No.	Items to be monitored (Daily Checkpoints)	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3
A	Cleaning and maintenance																								
1	Litter has been picked up																								
2	The floor has been swept and mopped																								
3	Commodes have been cleaned and sanitized																								
4	Walls and floors have been cleaned and sanitized																								
5	Foul smell not detected																								
6	Walls and floors are graffiti free																								
7	There is no leakage/ seepage of water																								
8	The toilet block premises have been maintained well																								
9	None of the fixtures are coated/ coloured																								
10	Septic tanks are not overflowing																								

		Date			Date			Date			Date			Date			Date			Date		
S No.	Items to be monitored (Daily Checkpoints)	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3	Shift 1	Shift 2	Shift 3
B	Facilities																					
	All the doors have bolting arrangements																					
2	Adequate amount of water available 24*7																					
3	All light points in working order																					
4	Mirrors have been cleaned and polished																					
5	Electric wiring, boards, switches, etc. do not need repairs																					
6	Provision of sanitary and litter bins																					
7	Hand dryers have been provided																					
C	Expendable Items																					
1	Provision of hand wash, soaps etc.																					
2	Adequate supply of toilet paper																					
3	Hand towels																					
4	Soap/ detergent for washing clothes (where applicable)																					
	Supervisor signature at end of the day																					

Notes:

1. *Use 1 sheet for recording daily operations for every week.*
2. *All aspects to be recorded by Cleaner/caretaker and countersigned at end of each day by Supervisor.*
3. *For each cell, time undertaken for each activity and signature to be recorded.*

FORMAT FOR MONTHLY MONITORING BY OPERATOR

S No.	Items to be monitored (Monthly Checkpoints)	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
A	Repairs												
1	Toilet block needs repainting												
2	The plants/ shrubs in the vicinity are well maintained												
B	Signage												
1	Sign boards placed at appropriate places												
2	The signboards are legible												
C	Complaints Redressal												
1	The complaint box is available and placed in suitable location												
2	The complaints/ suggestions have been attended to												
D	User Charges												
1	Collection box with locking arrangement provided												
2	Income from users is as per target												
E	Staff												
1	Attendance record checked and discrepancies sorted												
2	Provided with necessary supplies for the month												
	Supervisor signature at end of the month												

Notes:

1. *Use 1 sheet for recording daily operations for every year.*
2. *All aspects to be recorded by Supervisor / Cleaner and countersigned at end of each month by Supervisor.*
3. *For each cell, time undertaken for each activity and signature to be recorded.*

6.6.2 Supervisor monitoring format

Notes:

1. *Use 1 sheet for recording status of services during spot inspection for every toilet visit by the Supervisor.*
2. *Use separate sheets to record status for toilets.*
3. *Supervisor to sign at the end of the each visit along with Operator to ensure joint agreement of findings.*

Indicate date of visit and use the Format D for recording each lapse.

1. rd No:
2. Toilet Id:
3. Location:
4. Date of inspection:

CLEANLINESS

Item	Inspection 1	Inspection 2	Inspection 3	Inspection 4	Inspection 5
Doors					
Walls					
Floor					
Toilet Bowl					
Toilet Seat					
Urinal (Male only)					
Wash basin					
Litter bin					
Sanitary bin (Female only)					
Hand dryer					

Note: Check cleanliness for the whole toilet block as a single unit and record findings.
Use reference codes – Very Dirty / Dirty /Acceptable / Clean / Very Clean

FACILITIES

	Available	Working	Adequate airflow
Hand dryer	Yes/ No	Yes/ No	Yes/ No

	Working	Auto-sensor	Appropriate water pressure
Toilet Flushing System	Yes/ No	Yes/ No	Yes/ No

	Available	Working
Toilet paper/ dispenser	Yes/ No	Yes/ No

	Available	Clean
Hand towels	Yes/ No	Yes/ No

	Working	Auto-sensor	Appropriate water pressure
Basin tap	Yes/ No	Yes/ No	Yes/ No

	Available	Working	Soap available
Hand soap dispenser	Yes/ No	Yes/ No	Yes/ No

	Available	Working
Air freshener	Yes/ No	Yes/ No

	Easy to open/ close	Working	Space constraints
Cubicle door	Yes/ No	Yes/ No	Yes/ No

	Working	Adequate
Lighting	Yes/ No	Yes/ No

	Available	Working	Adequate airflow
Ventilation system	Yes/ No	Yes/ No	Yes/ No

	Available	Located within reach	Clear of garbage
Litter bins	Yes/ No	Yes/ No	Yes/ No

	Available	Disposal friendly
Sanitary bins	Yes/ No	Yes/ No

	Auto-sensor	Odour less
Ventilation system	Yes/ No	Yes/ No

6.7 O&M requirements, performance standards and penalties

6.7.1 Typical O&M service requirements to be quantified by city

1. The Project Asset including toilets/urinals/floors/walls shall be serviced, cleaned and maintained according to city's requirements on all 7 days of the week with no exceptions except in the case of Force Majeure. Clean for the toilet operation purpose shall mean complete removal of all stains, dirt, dust and any foreign matter from surfaces, fixtures and fittings.
2. Toilet operations and cleaning
    a. Urinals / toilets / showers

The Operator shall ensure following frequency on cleaning:

a. 1 cleaning cycle for every 8 Toilet uses (both men and women) in each unit
b. 1 cleaning cycle for every 50 urinal uses (men)in each unit
c. 1 cleaning cycle for every 10 shower uses (both men and women) in each unit

3. During the cleaning cycle, the operator shall ensure that the entire toilet/urinal is properly cleaned with disinfectants & water and litter or stains are removed to make it ready for the next usage.
    a. Toilet block
4. Operator shall carry out the following operations at the preferably at frequencies specified below or jointly agreed upon while tendering or signing of contract.
    a. Continually [PREFERABLY HOURLY / ONCE IN 2 HOURS]
        i. Collect litter, refuse, leaves and other debris both throughout the interior of the building and outside including from any shrubbery or garden area and from any entrance ways, subways and/or steps which service the toilet and two metres beyond these features. All such litter, refuse or debris shall be removed from the site daily and disposed of at sites agreed between the Operator and the city.
        ii. Ensure all toilet seats are clean and dry. Remove any damaged toilet seats. To maintain the acceptable standard, check sanitary ware, floors, etc., clean all soiled areas using the approved cleaner / descaler or hard surface cleaner as appropriate and disinfect. Disinfect around all sanitary ware and washbasins.
        iii. Replenish toilet paper, soaps, paper towels and other consumables as necessary. Refill soap dispensers where required and wipe clean. Empty and disinfect all disposal bins.
        iv. Spray air freshener throughout interior of the building sufficient to mask unpleasant odour.
    b. Daily[1] [PREFERABLY TWICE, AT START & CLOSE OF OPERATIONS]
        i. Check operation of taps and pipework for leaks and repair leaks immediately.
        ii. Clean off all surfaces of sanitary ware using sanitary cleaner / descaler with particular attention to the reduction of any encrustations found. 'Standing areas' of urinals shall be treated with sanitary cleaner / descaler and washed down.
        iii. Wash down all walls and partitions using hard surface cleaner. Damp wipe doors using a diluted disinfectant solution.
        iv. Sweep any entrance ways, subways and/or steps/ramps which service the toilet.
        v. Wipe clean any ledges, fittings, pipework and any other surfaces where dust/dirt may accumulate.
    c. Weekly[2] [PREFERABLY TWICEAT SUITABLE TIMES WITHOUT OBSTRUCTING USAGE]
        i. Clean graffiti, painting over where necessary from all surfaces both inside and outside of the toilet taking care to avoid damage to the surface beneath.
        ii. Remove cobwebs and obvious dust collections from ceilings.
    d. Monthly[3]
        i. Wash windows and frames both inside and outside.

1 Operator should carry out all the daily activities between 6 AM – 8 AM of everyday
2 Operator should carry out all the weekly activities on Saturdays
3 Operator should carry out all the monthly activities during first week of every month

e. Half yearly[4]

i. Apply approved polish to hardwood doors and fittings and polish.

ii. Shall undertake white washing and painting of the toilets.

f. As Necessary - Clean out rainwater gutters and downpipes and remove debris from flat or low pitched roofs. It is the Operator's responsibility to inspect and carry out these preventive works to ensure the free flow of water to drainage.

5. Infrastructure

a. The Operator ensure sufficient water supply at each of the toilets for cleaning and washing.

6. Management of complete operations

a. The Operator shall make own arrangement for security of the toilet block and its fixtures.

b. The Operator shall furnish the names of the persons who have been appointed as attendant/ caretaker for the toilet blocks and their names will be registered with city. The said attendant/ caretaker of the Operator shall not allow any other person to occupy the toilet blocks.

c. The Operator will not allow any person to use toilets for residential purpose or for stocking of any material etc., and not keep any animal / motor vehicle in or around the complex other than one attendant –cum-sweepers at each toilet block to ensure continuous service.

d. The Operator shall maintain hygiene condition around the toilet and ensure that no wastes of any kind are dumped or waste water is stagnated or overflowed around the toilets.

e. The Operator shall ensure that the complaint or suggestion register along with feedback form and pen are made available and accessible to the Users at all time during the Operational Hours.

7. Consumables/disinfectants/equipment

a. Provide following material of good quality:

b. The liquid soap/soap cakes of standard quality and make, which will be provided in the wash basins.

c. Phenyl, acid, naphthalene balls, brooms, coir brush, scraping sheet, baskets, mugs, bleaching powder and lime powder.

d. The toilet paper and paper towel will be of standard quality and make.

e. The quality of hand driers, if any shall be maintained in proper condition.

f. Availability of consumables and stock to be available at all times and will be replaced as soon as required. To facilitate this,. This will include:

g. Enough stock of the consumables for at least a week shall be made available at all times.

h. Provide clean and dry consumables for each user.

i. Replacement of all consumable as and when required.

j. Repair of any defective fixture before next use and replacement thereof to the original specifications and design.

8. The staff should be polite, clean and behave decently with decent verbal skills. The staff will also be trained to answer any queries by the customer or citizens. The staff will also be trained with cleaning procedures and all procedures to keep the premises clean.

9. All electrical fixtures shall be working during the Agreement period. The Operator shall ensure timely replacements of electrical fixtures on need basis.

10. The Operator shall maintenance all plumbing, floors, pump etc. in good working conditions on regular basis and undertake repairs or replacement as and when required.

11. Entrance to the toilet complex should be in good condition. The steps should always be in a good condition to enable access for women who are pregnant, old or differently-abled.

12. The Operator shall ensure that the access to toilets is well lit. In case the street lights on the access to toilets are not functional, it shall immediately complaint to city about the same and get it rectified.

13. Ensure proper disposal of drainage up to the pitfall and any choking of drainage should be attended to promptly.

14. Maintenance of records

a. Record on number of users using the toilet

b. Attendance register of its employees

c. Complaint register made by the users from time to time

4 Operator should carry out all the half yearly activities within one week of the half year anniversary of signing of the agreement

d. Books of accounts of the advertisements displayed from time to time submit details of the same at time of making payment of advertisement tax and produce the relevant books of accounts, as and when specifically required by city.

Note: Cleaning materials, e.g., dusters, cloths, brushes, mops used for cleaning of urinals and WC pans must be kept exclusively for that purpose and not used for cleaning anything else.

6.7.2 Performance standards

Project Utility	Minimum Service Level	Maximum Tolerance Level	Permissible Time Limit for repairs/ rectifications
Toilet Floors	• Smooth and free from cracks, chipping or any other similar damage • Kept clean, dry without any litter, stains etc.at all time.	Nil	• Repaired/rectified within 7 days from detection • Debris/ garbage/other litter shall be removed immediately upon detection • Damaged/dysfunctional dustbins/ spitoons shall be repaired/replaced immediately upon detection
Plumbing Fittings	All plumbing fittings shall be functional as per the generally accepted standards	Nil	Any damaged/worn fittings shall be repaired/replaced within 24 hours of detection of damage or break down
Electrical Fixtures	All electrical fixtures i.e. exhaust fan, hand drier, tube lights, bulbs, etc. shall be functional and the toilet shall be well lit	Nil	Any damaged/spoiled electrical fittings shall be repaired/replaced within 24 hours of damage or break down.
Water availability	At all times water shall be available during the operational hours for the purpose of flushing, cleaning and ablution	Nil	Operator to ensure availability of water within 1 hour of its shortage.
Complaint Register	At all times available and accessible to users during Operational Hours	Nil	-
Closure of toilet	Shall be kept open at all times during Operational Hours	Nil	-
Consumables	Enough stock should be maintained at all times	Nil	Consumables which are out of stock shall be replaced within 1 hour.
Hygiene condition	• No waste shall be dumped around the toilets. • No waste water shall be stagnated around the toilets. • Water shall not overflowed around the toilets	Nil	To be removed or rectified immediately upon detection.
Information Boards/ Signage / display of user fees applicable	Visible, legible and functional	Nil	• Obstructions shall be removed immediately upon detection • Dirty information boards/ signage shall be cleaned immediately upon detection • Damaged information boards /signage shall be repaired/replaced within 24 hours of detection

6.7.3 Typical penalties for lapses / shortfalls

Operator would be required to pay penalties as outlined below to the city for any lapses/shortfall listed below.

For the purpose of calculating penalties hereunder, an event of lapse/shortfall in any of the category in any toilet forming part of the Project Asset shall be considered as the first occurrence of default. Where the lapse/shortfall occurs again in the same category either in the same toilet or any other toilet forming part of the Project Asset shall be considered as the second occurrence of default and so on.

S No.	Description of lapses/shortfall	Typical penalty per lapse/ shortfall for 1st & 2nd occurrence of default
1	Continual activities like collecting litter, refuse, leaves, other debris not carried out on daily basis	Rs. 500/-
2	Failure to undertake any of the activities which are required to be carried out at the interval of every hour as set out in this schedule	Rs. 500/-
3	Failure to replenish toilet paper, soaps, paper towels and other consumables as necessary. Refill soap dispensers where required and wipe clean. Empty and disinfect all disposal bins at the interval of every two hours as set out in this schedule	Rs. 1000/-
4	Failure to spray air freshener throughout interior of the building sufficient to mask unpleasant odour at the interval of every two hours as set out in this schedule	Rs. 500/-
5	Failure to check operation of taps and pipework for leaks and repair leaks immediately on daily basis as set out in this schedule	Rs. 1000/-
6	Failure to clean off all fittings, surfaces of sanitary ware using sanitary cleaner / descaler with particular attention to the reduction of any encrustations found. 'Standing areas' of urinals shall be treated with sanitary cleaner / descaler and washed down on daily basis as set out in this schedule	Rs. 500/-
7	Failure to wash down all walls and partitions using hard surface cleaner. Damp wipe doors using a diluted disinfectant solution on daily basis as set out in this schedule	Rs. 500/-
8	Failure to sweep any entrance ways, subways and/or steps/ramps which service the toilet on daily basis as set out in this schedule	Rs. 100/-
9	Failure to wipe clean any ledges, fittings, pipework and any other surfaces where dust/dirt may accumulate on daily basis as set out in this schedule	Rs. 100/-
10	Failure to clean graffiti, painting over where necessary from all surfaces both inside and outside of the toilet taking care to avoid damage to the surface beneath on weekly basis as set out in this schedule	Rs. 1000/-
11	Failure to remove cobwebs and obvious dust collections from ceilings on weekly basis as set out in this schedule	Rs. 500/-
12	Failure to wash windows and frames both inside and outside on monthly basis as set out in this schedule	Rs. 500/-
13	Failure to apply approved polish to hardwood doors and fittings and polish on half yearly basis as set out in this schedule	Rs. 2000/-
14	Failure to undertake white washing and painting of the toilets at the interval of every six months as set out in this schedule	Rs. 2000/-
15	Caretaker/attendant absent (per day at each toilet)	Rs. 500/-
16	On receipt of any genuine complaint from the user(s)	Rs. 500/-
17	Non availability of water during Operational Hours	Rs. 2000/-
18	Closure of the any toilet or toilet cubicle in the Project Asset for more than 3 consecutive days unless it's a force majeure event or with the prior approval of city	Rs. 2000/-
19	Non availability of consumables in any of the toilet in the Project Asset for more than 3 consecutive days	Rs. 2000/-
20	Non-compliance to any of the Performance standard for more than twice the permissible time limit specified for repairs/rectification	Rs. 500/-
21	Non-compliance to advertisement norms at any time	Rs. 500/-

Note: For any lapses/shortfall committed by the Operator after the second occurrence of default in any category listed above, the Operator shall be liable to pay 150% of the penalty amount most recently served for the same default. For example, where the operator fails to comply with the advertisement norms, it shall be liable to pay Rs. 500 for the first & second occurrences of default. On the Operator committing the same default for the third time, it shall be liable to pay Rs.750 and on fourth occurrence of the same default Rs. 1125 and so on.

6.8 Manpower requirements at toilet for sustainable service delivery

Parameters	High Footfall			Medium Footfall			Low Footfall		
	Typically > 600 person /day			Typically 300 to 600 person /day			Typically < 300 person /day		
	900 & beyond	800	700	600	500	400	300	200	100
1. Usage purpose and by	urinal, toilet, shower (for both men & women, as applicable)			urinal, toilet, shower (for both men & women, as applicable)			urinal, toilet, shower (for both men & women, as applicable)		
2. Typical toilet category applicable &serviced (as per Sec 2.6 of report)	Type 1	Type 1	Type 1, Type 2	Type 2	Type 2, Type 3	Type 2, Type 3	Type 3, Type 4	Type 3, Type 4	Type 4
3. Caretakers, needed ideally									
3.1 Number	3	2	2	2	2	1	1	1	1
3.2 Shifts of working	2	2	1.5	1.5	1	1	1	0.5	0.5
3.3 Full time / Part time	FT	FT	FT + PT	FT + PT	FT	FT	PT	PT	PT
4. Cleaners, needed ideally									
4.1 Number	2 to 3	2	1.5	1.5	1	1	1	0.5	0.33
4.2 Shifts of working	2	1.5	3	1.5	1	1	1	1	1
4.3 Full time / Part time	FT	FT	FT + PT	FT + PT	FT	FT	FT	PT	PT

Definitions & Assumptions:

1. Total operating hours of toilet = 24 hours, unless as determined by the type of toilet and agreed specifically upon by the city
2. Shift = typically 8 hours, desirable according to Indian labour standards
3. Active operation = Reasonably at 16 hours used for computation of manpower requirements (depending on toilet type vis-à-vis catchment needs, decided by the city in special cases)
4. Total footfall = combined usage (urinal + toilet + shower) for both men and women, irrespective of special needs
5. Type 5 toilet category shares similarities equivalent to Type 1 / 2 characteristics, but requires temporary units (event based ranging from 1 day to 1 week)
6. FT = persons nominate to be available at the site for the time required, as per labour standards
7. PT = Part time, meaning available at the site to Resource sharable across locations
8. Irrespective of manpower deployment, the overall expectation is to deliver desired service specifications from time to time as per the service level agreement outlined in the contract.
9. Caretakers and cleaners are officially nominated personnel of the operator, available at the toilet rendering services as defined in the contract for different time scales

6.9 Typical Content for DPR for one project site and Checklist

S. No.	Contents coverage in line with	Explanatory notes for each step	Yes / No
1	Project summary	Provides a snapshot of the project and provides an opportunity for verifying clustering possibilities	
2	Categorization of toilets – existing or proposed	Categorization important since it provides an idea of the potential footfall, possible revenue generation possibilities, operation & maintenance cycles & associated costs (High = >600 footfall per day, Medium = 300 to 600 footfall per day, Low = <300 footfall per day). This categorization shall also include the possible catchment likely to benefit from the toilet.	
3	Planning & construction	Standards adopted for the toilet (existing or proposed) and associated developments (SBM, CPHEEO, UDPRFI, BIS, CPWD, NBC, Differently abled norms, Municipal Building by-laws, etc.)	
4	Project rationale	Provides an idea of the purpose of the proposed development (retrofit / new asset) including alignment towards city-wide planning and management. Section to also provides details on the existing operator and his/her obligations.	
5	User profile	To undertake a reconnaissance survey of the landuse around the potential site. In case of existing toilet, benchmark the number of users, their possible patterns and the possible increase in its utility on account of improvements. In case of new development, organize an user survey to explore the potential and characteristics of the users.	
6	Technical review	Based on the footfall, undertake the requirement / sufficiency of the different elements of unit as per applicable norms. This shall also include all support infrastructure (within & outside the unit) to ensure sustainable service provision. Provide a detailed design & drawings of the structure (existing or proposed)	
7	Detailed cost estimates	For all the elements proposed for improvement, provided detailed engineering designs, cost estimates as per current applicable Schedule of Rates, to as much detail to support further use in tendering for construction / installation / rehabilitation as applicable. In case of BOT projects, the estimates will serve as a reference point for further negotiations.	
8	CAPEX	Detailed out as per identified format, including all components or relevant items to help tendering or procurement. A summary statement when filled in, helps in verifying if all aspects are considered. It also helps in preparing the business mode, type of contract	
9	Scoping an operation model	Based on the footfall and operational time of the toilet, detail out the cleaning cycles, manpower requirement, consumables, planning for support infrastructure, etc.	
10	OMEX	Detailed out as per identified format, including all components or relevant items to help tendering or procurement. Helps in preparing the operations & business model, user charges and other opportunities of cross-subsidization	
11	Financial assumptions	Provide clearly assumptions made and the possible implications. The assumptions shall include user charges, annual escalation in interest rates, proportion of debt, etc.	
12	Financial analysis	Provide a financial viability of the project contingent upon factors ranging from estimated demand, project cost, O&M costs, concession period, unit rates and corresponding annual growth of these various parameters.	
13	Financial projections	Provide an xls FOP of revenues & expenditures to understand the performance of the toilet under different conditions. The project IRR and NPV shall be computed to provide a snapshot of the VGF requirements and financial sustainability.	
14	Scoping a business model	Based on the financials for the management of the toilet and the past history of outsourcing operations in the city, determine the different contributing revenue options and decisions to undertake PPP.	
15	Recommendations	Provide a summary sheet on the decisions, based on which the contracting and tendering processes shall be initiated.	

6.10 Typical cost heads covered under Capital Expenses (CAPEX) and Operation & Maintenance Expenses (OMEX) for normal public toilets

CAPEX		
1.	Structural Cost	Amount (Rs.)
	Civil-Superstructure (Cement/Sand/ Brick/Fibre-reinforced Plastic, Tiles, etc.)	
	Plumbing – pipes	
	Electrical – wiring	
	Bore-well w/pump	
	Septic Tank	
	Rain-water harvesting	
	Painting (Material and Labour)	
	Labour – Civil	
	Labour – Plumbing	
	Labour – Electrical	
2.	Fittings	
	Sanitary Fittings (water closet/taps/ wash basin/urinals)	
	PVC Doors	
	Wooden Doors	
	PVC Water Tank	
	Mirrors	
	Exhaust	
	Solar Panels	
	Lighting, switches	
3.	Service Connections	
	Water supply	
	Sewerage	
	Electricity	
4	Signage	
5	Incidentals and other Overheads (~10% of above)	
	Total CAPEX	

OMEX		
1.	Manpower	Amount (Rs.)
	Caretaker	
	Cleaner	
	Supervisor	
2.	Water charges	
3.	Electricity charges	
4.	Waste disposal & treatment charges	
	Sewerage	
	Septic tank	
	Any other	
5.	Consumables	
	Cleaning supplies (soaps, phenyl, bleaching powder, acid)	
	Cleaning equipment (sponges, scraping sheets, brooms, brushes, floor wipers, gloves)	
6.	Repairs, Replacement, Maintenance	
	Containers (buckets, mugs)	
	Mechanized cleaning equipment (com- pressed cleaners, choke removal tools)	
	Apron	
	Identity card	
	Provision for repairs and replacement	
7.	Incidentals and other Overheads (~10% of above)	
	Total OMEX	

6.11 Typical FOP and Cash flow analysis for use in checking financial viability and deriving reserve price for bidding

Abbreviations	
SLM	Straight Line Method of Depreciation
WDV	Written Down Value Method of Depreciation
WACC	Weighted Average Cost of Capital
TPC	Total Project Cost
TMC	Tirupathi Municipal Corporation
WC	Water Closets
IRR	Internal Rate of Return
NPV	Net Present Value
Capex Cost	Capital Cost of the project
PAT	Profit After Tax
EBIT	Earnings before Interest and Tax
Pre-op expenses	Pre-operating expenses

Cost assumptions		
Construction period	3	months
Operation period	10	YEARS
Start date	01/07/2015	
Depreciation		
Life in years for Depreciation	10	years
SLM	9.50%	
WDV	25.89%	
Pre-operative Expenses		
Contingency	5.0%	of hard cost

Inputs	
Financing Assumptions	
WACC for 10 years	18.89%
WACC for 5 years	18.89%
Cost of debt	15.00%
Cost of equity - private developer	18.00%
Debt as % of TPC	50.00%
Cost of Capital for TMC	12.00%
Moratorim (years)	0
Debt repayment period (quarters)	4
Tax rate	33.99%

Revenue Assumptions					
	User fee (Rs/use)	Avg footfall/day	Total no. of units	Max. Cap/unit	Max. Footfalls
User fees - urinals	0	75	4	250	1000
User fees - WC	3	150	7	100	700
User fees - shower	6	140	3	75	225
Escalation in revenue (Quarterly)	1.25%				1925
Ad revenue	25.00	Rs/sqft/month			
Extent of advertising	200.00	sqft			
Yearly escalation in Ad revenue	3%				
Yearly escalation in Footfalls	5%				

Operation & Maintenance Expenses		
Core operating expenses		
Electricity	9000	Rs/quarter
Salaries	42000	Rs/quarter
Consumables	21825	Rs/quarter
Other charges	18791	Rs/quarter
Escalation in Electricity	1%	every quarter
Escalation in Salaries	5%	every year
Escalation in consumables	1%	every quarter
Escalation in other O&M Expenses	2%	every quarter

Support from TMC (10 year period)		
Extent of capital grant	0%	
Support from TMC	0	Rs/quarter
Escalation in support	1%	every quarter
Equity IRR	20.05%	
NPV of cashflows to operator	71692.65	

Support from TMC (5 year period)		
Extent of capital grant	0%	
Support from TMC	0	Rs/quarter
Escalation in support	1%	every quarter
Equity IRR	-7.85%	
NPV of cashflows to operator	-403453.53	

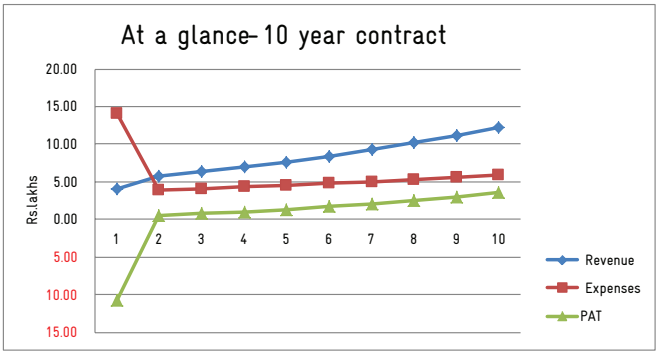
Project Cost	
Total Capex Cost	1068000
Pre-operative Expenses	
Contingency @ 5%	53400
Total pre-op expenses	53400
Total Project Cost	1121400

Financing Pattern	
Total financing requirement	1121400
Grand total	1121400

Quarters	Q2 - FY 15	Q3- FY 15	Q4- FY 15	Q1 - FY 16	Q2 - FY 16	Q3- FY 16	Q4 - FY 16	Q1 - FY 17	Q2 - FY 17	Q3- FY 17	Q4 - FY 17	Q1 - FY 18	Q2 - FY 18
	3.00	6.00	9.00	12.0	15.0	18.0	21.0	24.0	27.0	30.0	33.0	36.0	39.0
Grant from TMC	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity from Operator	1121400												
P&L Account	1.00	1.03	1.06	1.09	1.13	1.16	1.19	1.23	1.27	1.30	1.34	1.38	1.43
Revenues	1	1	1	1	1	1	1	1	1	1	1	1	1
Revenue from user fees													
Revenue from urinals	0	0	0	0	0	0	0	0	0	0	0	0	0
Revenue from WC	0	40500	41519	42563	43634	44732	45857	47011	48193	49406	50648	51923	53229
Revenue from showers	0	75600	77502	79451	81450	83499	85600	87753	89961	92224	94544	96922	99360
Revenue from Ads	0	15000	15223	15336	15450	15565	15680	15796	15914	16032	16150	16270	16391
Support from TMC	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Revenues	0	131100	134244	137351	140534	143795	147137	150560	154067	157661	161342	165115	168980
		1	2	3	4	5	6	7	8	9	10	11	12
Operating Expenses													
Initial Cash outflow	1121400	0	0	0	0	0	0	0	0	0	0	0	0
Operating expenses - electricity	0	9090	9181	9273	9365	9459	9554	9649	9746	9843	9942	10041	10141
Operating expenses - Salaries	0	42000	43037	43565	44100	44641	45189	45744	46305	46873	47449	48031	48620
Consumables	0	21825	22264	22486	22711	22938	23168	23399	23633	23870	24108	24349	24593
Other Operating Expenditure	0	18791	19455	19795	20142	20494	20853	21218	21589	21967	22351	22742	23140
Total Operating Expenses	1121400	91706	93936	95120	96318	97533	98763	100010	101273	102553	103850	105164	106495

All figures below in Rs.lakhs										
Year	1	2	3	4	5	6	7	8	9	10
Revenue	4.03	5.82	6.38	7.00	7.68	8.43	9.26	10.18	11.19	12.30
Expenses	14.02	3.93	4.13	4.34	4.57	4.80	5.05	5.32	5.59	5.89
Operating Profit (EBDITA)	9.99	1.89	2.25	2.66	3.12	3.63	4.21	4.86	5.59	6.41
Depreciation	0.80	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
EBIT	10.80	0.83	1.19	1.59	2.05	2.56	3.14	3.79	4.52	5.34
Tax	0.00	0.28	0.40	0.54	0.70	0.87	1.07	1.29	1.54	1.82
PAT	10.80	0.55	0.78	1.05	1.35	1.69	2.07	2.50	2.99	3.53
Cashflows	9.99	1.61	1.85	2.12	2.42	2.76	3.14	3.57	4.05	4.59
Support from TMC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

BOT Model Output	
10 year period	
NPV of cashflows to operator	71692.65
Equity IRR	20.05%
NPV of support from TMC (Rs.Lakhs)	0.00



6.12 Bundling of public or community toilet projects

To identify the most suitable operations and business model, toilets can be grouped (bundled / clustered) based on certain parameters. The data of individual toilets is aggregated for each cluster to identify the most appropriate cluster approach – optimizing both operationally and financially. The city inventory database forms the basis for the cluster analysis. Provided below are various criteria for bundling of various toilet projects.

Basis for bundling	Based on similar characteristics	Based on certain principles
1. Spatial Distribution (Geography / Location)	Based on spatial distribution of toilets in the city, without considering distance between toilets (ward, zone, etc.)	Mixing up toilets from zones, wards so as to make equal distance among toilets in all clusters
2. Revenue Potential (total revenue generated form footfall alone)	Categorize based on High, Medium & Low revenue potential	Averaging out revenues from each toilet to ensure cross subsidization between toilets within a cluster
3. Extent of Rehabilitation /new construction required	Clustering based on projects of renovation/new construction only	Mixing up properties based on extent of renovation/new construction with existing contracts
4. Value Clustering	Linking specific new projects with those in the respective category alone like High/Medium/ Low value	Linking in such a manner that average value across all clusters (CAPEX, OMEX) are the same.

Other parameters to be considered for determining the number of clusters are:

- Number of potential operators in the market
- Capabilities of potential operators for different types of contract types possible
- Ability of municipality to administer and monitor the contracts (single contracts or group of contracts)
- Number of toilets to be constructed or rehabilitated or managed for a particular year

6.13 Typical characteristics to be considered while selecting the type of contracts to be entered upon with operators

6.13.1 Toilet condition

BOT/BOOT/DFBOT/ etc.	ROMT	OMT	Service contract
Dilapidated condition and / require new reconstruction	Semi-dilapidated condition and requires minor repairs, reconstruction	Good condition and do not require any / limited repair works	Ready to operate toilet

City financial capacity to invest – funds currently available to undertake proposed toilet projects

BOT/BOOT/DFBOT/ etc.	ROMT	OMT	Service contract
Low	Low to Medium	High	Low

Concession period - duration of contract, as advised by cash flow analysis and FOP for each project

BOT/BOOT/DFBOT/ etc.	ROMT	OMT	Service contract
Long duration	Medium to long term	Short	Annual
Typically, 7 years plus	Typically, 5 to 7 years	Typically 3 to 5 years	Typically, 1 year, extended
Block based for the whole period, for ex. 7 years	Block based for a period and further extendable based on performance, for ex. 3 + 2 + 1 years	Block based for a period and further extendable based on performance, for ex. 3 + 1 years	Renewable every year based on performance, similar to employment

Profitability for revenue generation - based on footfall

BOT/BOOT/DFBOT/ etc.	ROMT	OMT	Service contract
Low, normally associated with low to medium footfall locations	Medium, normally associated with medium to high footfall locations	High, normally associated with high footfall locations	Nil

Opportunity to relook at land for other uses - competition for use of land

BOT/BOOT/DFBOT/ etc.	ROMT	OMT	Service contract
Low	Medium	High	Not applicable / same as OMT

Opportunity to use new / latest technologies - for different parts of the toilet infrastructure and facilities

BOT/BOOT/DFBOT/ etc.	ROMT	OMT	Service contract
Low	High	High	Not applicable / same as OMT

Possibilities of changing operational model - based on operator requirements, manpower availability, bundling opportunities

BOT/BOOT/DFBOT/ etc.	ROMT	OMT	Service contract
Low	Medium	High	High

Operator competitiveness - operator availability in the market for providing services

BOT/BOOT/DFBOT/ etc.	ROMT	OMT	Service contract
Low	Medium	High	Medium

Operator skillset required – construction related

BOT/BOOT/DFBOT/ etc.	ROMT	OMT	Service contract
High	Medium	No	No

Operator skillset required – operations & maintenance related

BOT/BOOT/DFBOT/ etc.	ROMT	OMT	Service contract
Low	Medium	High	High

Operator financial capacities to enter into business - including mobilizing debt for capital expenses and working capital

BOT/BOOT/DFBOT/ etc.	ROMT	OMT	Service contract
High	Medium	Low	Not applicable

6.14 Typical contract- table of contents

Standard contract documents are available for procurement of services for different projects, which are comprehensive (scope, role, legal & contractual perspectives) to cover all aspects for a fair transaction and equitable sharing of risks. Given the early stages of professionalization in the services of public and community toilet management; a strong intent to foster such engagements in small and medium towns, the maturity of such operators rendering services (in an unorganized and semi-organized set-ups), the level of complexity of current contract documents requires to be revisited without compromising them being legally tenable. Typical best practice contents are highlighted below for different types of contracts followed currently in the sector (OMT, BOT variants, ROMT). While standardization is possible, differentiators to cover specific contexts are highlighted below.

6.14.1 Typical table of contents for OMT contract is stated below:

1. Agreement between parties
2. Definitions and interpretation
3. Rights – grant of rights, agreement period, acceptance of rights
4. Project asset – handover of asset (including details of asset normally annexed), rights & conditions to use the asset
5. Operator obligations – performance security, financing arrangement, operator obligations including schedules and requirements, obligations including self-reporting, change of scope, exemptions to performance, insurance and indemnity
6. Obligations for the ULB
7. Payment terms – Obligations, payment of premium, payment of O&M fee, damages
8. Handover conditions of asset – to operator, to ULB
9. Monitoring mechanisms - procedures, review meetings, agreement reviews
10. Termination – force majeure, operator defaults, ULB default
11. Dispute resolution – amicable resolution, arbitration
12. Others – representations & warranties, assignment & charges for both ULB & operator, governing law & jurisdiction, survival, amendments, notices.
13. Annexures or Schedules
    - O&M Requirements, Performance Standards and Penalties
    - Facilities to be procured as part of maintenance of toilets
    - Obligation of operators towards women users
    - Fee disbursement (premium and O&M)
    - Inspection card
    - Monitoring parameters
    - User fees
    - Description of the project asset – inventory, designs, cost estimates and other relevant information for transparent decision making

6.14.2 Typical table of contents for BOT variants contract is stated below:

1. Agreement between parties
2. Definitions and interpretation
3. Rights – grant of rights, agreement period, acceptance of rights
4. Project site – handover of project site, rights & use of site, peaceful possession, applicable permits
5. Operator obligations – performance security, financing arrangement, project completion, drawing (preparation, review), project implementation (construction/installation), operator general obligations, environmental compliance, O&M obligations, obligations including self-reporting, change of scope, exemptions to performance, insurance and indemnity
6. Obligations for the ULB
7. Payment terms – Obligations, payment obligations, payment mode premium and O&M fee, damages
8. Monitoring mechanisms - procedures, review meetings, agreement reviews
9. Termination – force majeure, operator defaults (construction, O&M), ULB default
10. Handover conditions of asset – obligations of operator, obligations of ULB
11. Dispute resolution – amicable resolution, arbitration

12. Others – representations & warranties, assignment & charges for both ULB & operator, governing law & jurisdiction, survival, amendments, notices.
13. Annexures or Schedules
    - Description of the project asset – inventory and other relevant information for transparent decision making
    - Construction requirements (permanent structure, development control, common instructions, instructions for deploying advertisements, civil & joinery works, fittings & fixtures, electrical, support infrastructure, safety, gender needs and construction guidelines.
    - Project completion schedule
    - O&M Requirements, Performance Standards and Penalties
    - Facilities to be procured as part of maintenance of toilets
    - Obligation of operators towards women users
    - Fee disbursement (premium and O&M)
    - Inspection card
    - Monitoring parameters
    - User fees

6.14.3 Typical table of contents for ROMT contract is stated below:

1. Agreement between parties
2. Definitions, interpretations, arithmetic conversions, priority of documents
3. Rights – grant of rights, agreement period, acceptance of rights
4. Project asset – handover of project site, rights to use of site, applicable permits
5. Operator obligations – performance security, financing arrangement, general obligations, project implementation (renovation), operation & maintenance, change of scope, exemptions to performance, insurance and indemnity
6. Obligations for the ULB
7. Payment terms – Obligations, payment of premium, payment of O&M fee, payment mode, damages
8. Renovation expenses – aspects, handling mode, responsibilities, failure, insurance
9. Monitoring mechanisms - procedures, review meetings, agreement reviews
10. Termination – force majeure, operator defaults (construction, O&M), ULB default
11. Handover conditions of asset – obligations of operator, obligations of ULB
12. Dispute resolution – amicable resolution, arbitration
13. Others – representations & warranties, assignment & charges for both ULB & operator, governing law & jurisdiction, survival, amendments, notices.
14. Annexures or Schedules
    - Description of the project asset – inventory and other relevant information for transparent decision making
    - Renovation requirements – general, installation standards, fittings & fixtures, electrical & lighting, wash basins & mirrors, disposal bins, suggestion box, doors, signage
    - Obligation of operators towards women users
    - Facilities to be procured as part of maintenance of toilets
    - O&M Requirements, Performance Standards and Penalties
    - Project completion schedule
    - Fee disbursement (premium and O&M)
    - Inspection card
    - Monitoring parameters
    - User fees
    - Performance security
    - Technical proposal
    - Description of project asset

6.15 Model contracts review

6.15.1 Operations and maintenance contract between Tirupati Municipal Corporation (TMC) and the Operator

The contract is only for the operations and maintenance of the existing public toilet facilities. The major obligations of the operator are:

- Collect user charges
- Undertake the operations and maintenance without any sub-contract as per the performance obligations
- Ensure the services (water availability, electricity availability etc.) in the toilets as specified
- Bear all the costs towards the operations and maintenance activities
- Pay a premium to TMC/ seek a fee from TMC
- Generate advertisement revenue

The TMC's obligations are:

- Handover the facilities without any encumbrance to the operator in specified conditions
- Decide the user charges
- Authorize the operator to collect the user charges and also to use the facility
- Provide and ensure availability of trunk infrastructure
- Obtain necessary permits
- Pay a fee to the operator if applicable

The risk framework is as follows.

- The service provision risk is on the operator including ensuring availability of services, cleanliness, acceptable behaviour of staff, and proper maintenance of the facility.
- The revenue generation and collection risk is with the operator since as per the TMC approved tariff rates, the operator needs to charge the users. There is a risk of a situation when cost is escalated and the revenues cannot recover the cost. If the operator has quoted with a premium, the operator bears the risk of losses due to low recovery and premium to be paid to the TMC.
- Also collection of user charges from the users is the sole responsibility of the operator.
- Risk of obtaining the necessary permits is with TMC.

Thus, risk allocation is significantly on the operator.

6.15.2 Construction of public toilet blocks on Design, Build, Operate & Transfer (DBOT) basis for South Delhi Municipal Corporation (SDMC)

The contract is of designing, constructing, operating and maintaining and transferring the public toilets at various sites identified in south Delhi. The contract requires the operator to

- Design the public toilets at the specified locations and as per the specified design requirements
- Construct the toilet blocks as per the designs approved
- Construct the necessary infrastructure for ensuring services availability such as water, electricity even in case when the service is not available on account of an issue in trunk infrastructure
- Lay a water line or a sewerage line in case it is not available
- Pay the user charges for water and electricity
- Carry out capital works by arranging necessary funding and staffing
- Ensure availability of necessary supplies and materials
- Operate and maintain the facilities as per the specifications provided by SDMC
- Put advertisements on toilet walls as per the specifications provided by SDMC only until the toilet is operational
- Get license for advertisement from SDMC for each location separately
- Upload status reports on SDMC website
- Maintain all the necessary records
- Provide a system to users for complaints registration and redressal
- Pay to SDMC 3 months advance license fee.

SDMC's responsibility is to

- Ensure the availability of necessary clearances from the Government
- Decide the user charges to be levied by the operator
- Handover the sites

The risk framework is as follows.

- The service provision risk is on the operator including ensuring availability of services, cleanliness, acceptable behavior of staff, and proper maintenance of the facility.
- The revenue generation and collection risk is with the operator since as per the TMC approved tariff rates, the operator needs to charge the users. There is a risk of a situation when cost is escalated and the revenues cannot recover the cost. If the operator has quoted with a premium, the operator bears the risk of losses due to low recovery and premium to be paid to the TMC.
- Also collection of user charges from the users is the sole responsibility of the operator.
- Risk of obtaining the necessary permits is with TMC.
- Thus, risk allocation is significantly on the operator.
- The capital investment risk is completely on the operator along with the construction risk and O&M risk.
- The service provision risk has also been put on the operator even in case of an issue with the trunk infrastructure
- The revenue generation and collection risk is with the operator since as per the TMC approved tariff rates, the operator needs to charge the users. There is a risk of a situation when cost is escalated and the revenues cannot recover the cost.
- There is also an add-on risk of paying the license fee to the SDMC on the operator
- There are other small risks of getting licenses for advertisements
- The SDMC is only liable to handover the sites and support for necessary approvals from the government.

Thus the risk allocation seems highly skewed with very high risk on the operator.

6.16 Options / steps for improving revenue generating potential

Based on past experience, a summary of typical actions ULBs can undertake to improve the revenue generating potential at each project location is outlined below. The following sequence requires to be followed and the possible benefits for each action or combination shall be verified using in the FOP. The best result shall be used as a possible negotiation opportunity with the operator or used for verification of tender evaluation results.\

Steps	Typical actions	Result	Risks / Opportunities
1	Increase awareness & marketing to increase footfall	City incurs expenditure on providing signage, street lights, access, penalties for open defecation/urination. Cost intensive effort to be owned by city.	Could increase footfall, but require full support of people near toilet and other stakeholders.
2	Increase the timing of operation of toilet to 24 hours	Could potentially increase footfall opportunity. Ideally preferred service is available but requires understanding of demand.	Could require the full-time presence of staff and possibly increase the expenditure.
3	Alter timings of toilet to suit utilization pattern	Coincide with maximum demand during the day or night. Clear knowledge of utilization of the catchment required and agreed upon with users.	This could reduce the personnel cost from full-time to part-time or per hour basis employment
4	Alter user charges	Increase user charges for all or specific categories which are revenue generating. Location & footfall dependent, approach often questionable.	Could lead to lesser usage if footfall is already low or reluctance to pay.
5	Configuration of the tender conditions by ensuring minimum revenues results (fixing minimum base price or reserve price)	Competitiveness of operators will result, subject to revenue generating potential of the location. Prevalent approach in other sectors to ensure minimum coverage of financial risks & capable operators are selected.	Operator takes up the risk on account of existing conditions, but could have working capital issues and minimum profit margins.
6	Augment by providing finances by City (using different pricing strategies, for ex. no user charges)	Support to cover complete expenditure costs. Cover complete revenue-expenditure gap with city finances.	Highly dependent on city's user charge principles and management of existing contracts with different conditions. Critical to ensure basic services are provided.
7	Augment by providing finances by City	Additional support to cover certain part of expenditure. Cover gap as indicated from tendering results.	Critical to ensure basic services are provided
8	Support by adding advertisement revenues (directly provided under the contract or indirectly financed outside the contract)	Additional support to cover certain part of expenditure. Typically increases 10% to 15% of revenue.	Subject to location, space available and advertiser willingness & category. Not a permanent solution as finding advertisers & negotiation requires different skills.
9	Support subsidy for meeting costs for water supply and electricity (currently borne by operator)	Additional support to cover certain part of expenditure. Typically covers 20% to 25% of expenditure, depending on the footfall.	Both aspects are critical for good maintenance and are also common expectations from users (cleanliness, safety), and drives footfall.

Steps	Typical actions	Result	Risks / Opportunities
10	Provide opportunity to manage an additional high earning toilet(s) – existing /proposed depending on the location and operator interest	Clustering of toilets to offset/minimize subsidies or improve revenues as a whole package. Cross-subsidization and control in the hands of the operator.	Operator capacities determine this option. Services in low revenue toilets could receive less focus and fall into repair.
11	Optimize operations & maintenance (through control of consumables, reducing cleaning cycles, not employing adequate staff)	Commonly practised by operators from a profit motive. Irrespective of savings envisaged, should not be allowed/considered.	Could lead to penalties for non-confirmation with service charter / agreement. Requires detailed monitoring to avoid failure.
12	Change of implementation approach from OMT to Service contract	City can attempt contract for staffing alone (through local non-profit groups) OR use City staff (available for sanitation or with other services), with full involvement in operation & management of toilets. No benefits.	The benefits of outsourcing cannot be fully exploited. The choice requires high degree of management by the city staff. Status quo of poor service results in most cases.
13	Expanding roles of other service providers to render these O&M services	Where other revenue generating options could be explored. New approach, with professional maintenance skillset transferred back to toilet management.	Requires modifications to existing contracts, which is issue prone and subject to operator capabilities. In new contracts could be an option.

Notes

Partners

Swachha Andhra Corporation

Hon'ble Chief Minister of Andhra Pradesh Sri. Nara Chandra Babu Naidu with a goal to achieve the newly launched campaign "Swachh Bharat Mission" on 2nd October 2014 by Hon'ble Prime Minister of India has found Swachha Andhra Corporation which was incorporated on 1st May 2015. Swachha Andhra Corporation has the mandate to implement the objectives of Swachh Bharat Mission. Elimination of open defecation, eradication of manual scavenging, modern and scientific municipal solid management, to effect behavioral change regarding healthy sanitation practices, generate awareness about sanitation and its linkage with public health, capacity argumentation for ULB's and to create enabling environment for private sector participation in capital expenditure and operation and maintenance are the main objectives of the mission.

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The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is owned by the German Government and works in the field of international cooperation for sustainable development. GIZ is also engaged in international education work around the globe and currently operates in more than 130 countries worldwide.

Germany has been cooperating with India by providing expertise through the organisations now forming GIZ, for more than 50 years. To address India's priority of sustainable and inclusive growth, GIZ's has been implementing efforts along with the partners in India on the Sustainable Urban and Industrial Development; among others.

SNUSP – II, as part of Indo-German Co-operation, supports Indian government in implementation of its sanitation improvement schemes and missions such as National Urban Sanitation Policy (NUSP), Swachh Bharat Mission (Clean India Mission) and Atal Mission for Rejuvenation and Urban Transformation (AMRUT). The objective of the project, is to support Indian states and cities take effective measures to avoid pollution caused by wastewater and municipal solid waste with special focus on the urban poor and women.

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