Ministry of Housing and Urban Affairs
Government of India

स्वच्छ भारत
एक कदम स्वच्छता की ओर

ADVISORY ON
PUBLIC AND COMMUNITY TOILETS

Central Public Health and Environmental Engineering Organisation (CPHEEO)

MINISTRY OF HOUSING AND URBAN AFFAIRS
www.swachhbharaturban.gov.in

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Developed by

Ministry of Housing and Urban Affairs, Government of India

In technical collaboration with GIZ India

Support to National Urban Sanitation Policy – II project

Published by Ministry of Housing and Urban Affairs, Government of India

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Not for Sale

हरदीप एस पुरी
HARDEEP S PURI

सत्यमेव जयते

आवासन और शहरी कार्य
राज्य मंत्री (स्वतंत्र प्रभार)
भारत सरकार
MINISTER OF STATE (I/C)
HOUSING AND URBAN AFFAIRS
GOVERNMENT OF INDIA

MESSAGE

The Ministry of Housing and Urban Affairs (MoHUA) has, as is well known, embarked on an ambitious programme of planned urbanisation through its flagship missions such as Swachh Bharat Mission (SBM), Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Smart Cities Mission and National Heritage City Development and Augmentation Yojana (HRIDAY).

Under the Swachh Bharat Mission, the Ministry, in partnership with States and Urban Local Bodies (ULBs), is determined to make cities and towns open defecation free and clean by 2 October 2019. For guiding them in this endeavour, Ministry has prepared several guidelines, advisories and handbooks for effective implementation which can be accessed on the Ministry's website.

I am happy to launch the "Advisory on Public and Community Toilets" which is a felt need for planning, implementation, O&M and monitoring and evaluation of public sanitation facilities such as public and community toilets. With this Advisory, ULBs will be in a position to ensure that public sanitation facilities do not fall into disuse.

I appreciate the support received from GIZ in developing this Advisory. I am sure ULBs will find this Advisory a useful tool in achieving and sustaining ODF status for their cities.

New Delhi
08 November 2018

(Hardeep S Puri)

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Secretary

सत्यमेव जयते

स्वच्छ भारत
एक कदम स्वच्छता की ओर

भारत सरकार
आवासन और शहरी कार्य मंत्रालय
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Government of India
Ministry of Housing and Urban Affairs
Nirman Bhawan, New Delhi-110011

New Delhi, Dated: November 5, 2018

PREFACE

The Ministry of Housing and Urban Affairs (MoHUA) is committed to transform cities to make them better place to live. Swachh Bharat Mission-Urban (SBM-U), flagship programme of Government of India aims to make the country fully clean by 2nd October, 2019 as a befitting tribute to the father of the nation on his 150th birth anniversary. Given that 12% of country's urban households defecated in the open as per Census 2011, the provision of clean and well maintained public and community toilet facilities is the felt need. Availability of clean and hygienic toilet when the person is away from his residence is basic right of the citizens. Keeping in mind India's growing urbanization, vast geographical area, prevailing systems and practices, this is a humongous task for Urban Local Bodies (ULBs). But even under such constraints, the cities have done exemplary work to attain open defecation free (ODF) status.

Access to Toilet means more than just construction of a toilet block; it encompasses many things including land identification, planning, analysis, right design, operation and maintenance, monitoring, effective systems of governance and vision to improve and excel. With the aim to support and guide ULBs, this advisory on Public and Community Toilets would provide a tool to ensure hygienic and healthy toilets to the citizens. This publication deals with various management aspects of Public and Community Toilets, which the Ministry hopes, will make implementation of successful and sustainable projects on the ground easier.

I extend my best wishes to all Urban Local Bodies for moving towards "Swachh Bharat" and achieving the objectives of SBM (U) in true spirit!

(Durga Shanker Mishra)

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सत्यमेव जयते

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भारत सरकार
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निर्माण भवन
GOVERNMENT OF INDIA
MINISTRY OF HOUSING AND URBAN AFFAIRS
NIRMAN BHAWAN

नई दिल्ली-110011, तारीख 20
New Delhi-110011, dated the 20

FOREWORD

Sanitation has become a critical challenge in urban areas today. The rapid pace of urbanization and growing population has made it difficult for Urban Local Bodies to provide sustainable sanitation services to all its citizens. The Swachh Bharat Mission (Urban) (SBM-Urban), launched on 2nd October 2014 and being implemented by the Ministry of Housing and Urban Affairs, has as one of its stated objectives the creation of Open Defecation Free (ODF) cities and towns across Urban India, and improvement of sanitation conditions in urban areas of the country.

In order to achieve this mandate, Ministry is extending technical and financial assistance to ULBs for improving public sanitation facilities under SBM. Under the Mission, there has been a paradigmatic shift in the way the sanitation component of SBM (Urban) is being implemented - the focus is now on counting and sustaining Open Defecation Free (ODF) towns/cities, rather than only counting toilets. The efforts have started to emerge and as on date, 19 states have become ODF in their urban areas, and more than 4100 ULBs (which comprises more than 90% of ULBs in the country) are now ODF. This has been made possible through the construction of more than 60 lakh units of Individual Household Toilets (i.e. more than 91% progress against Mission target) and more than 4.5 lakh seats of Community and Toilets (CT/PTs) (i.e. more than 90% progress against Mission target). As on date, the Mission is well on track to achieve its sanitation objectives.

Ministry is also focusing on accessibility of toilets and system for user feedback on cleanliness of toilets. In this direction, MoHUA has partnered with Google to upload and make available on Google maps all the public and community toilets in the cities - probably the largest such initiative in the world.

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The maintenance of the public sanitation facilities, i.e. Community and Public Toilets which form an integral component of the SBM ODF+ protocol, is critical to sustain its regular use. Accordingly, this national level advisory has been prepared in line with these objectives in order to achieve sustainable standards of public sanitation services. The advisory details out implementation strategies for planning, designing, construction, operation and maintenance and upgradation of PT / CT facilities and related infrastructure. A key feature of the advisory is a scoring matrix with four broad categories of indicators, viz. Mandatory, Essential, Desirable, and Additional / Aspirational. This matrix can be a very valuable tool for ULBs to not only maintain sustainable standards of cleanliness and functionality of Community and Public Toilets in their jurisdiction, but also enable rating of various CT/PTs as being "Excellent", "Very Clean", "Clean", "Usable but Dirty" and "Unusable" while inculcating a healthy spirit of competition among ULBs to keep their CT/PTs well maintained.

I thankfully acknowledge the support extended by GIZ India in bringing out this advisory. I would also like to appreciate the untiring efforts made by CPHEEO and the National Project Management Unit in bringing out this advisory comprehensively covering all issues related to CT/PTs at one place. I hope that this advisory will serve as a guide for sustainable management of public sanitation infrastructure.

V. K. Jindal

(V.K. JINDAL)

Place : New Delhi

Dated : 08th November, 2018

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Abbreviations

AMRUT	Atal Mission for Rejuvenation and Urban Transformation
ATM	Automated Teller Machine
BIS	Bureau of Indian Standards
BOT	Build-Operate-Transfer
CAPEX	Capital Expenditure
CBO	Community-Based Organization
CSR	Corporate Social Responsibility
CPWD	Central Public Works Department
CPHEEO	Central Public Health and Environmental Engineering Organisation
CT	Community Toilet
DBFOT	Design Build Finance Operate Transfer
DUAC	Delhi Urban Art Commission
DPR	Detailed Project Report
EPC	Engineering Procurement and Construction
GI	Galvanized Iron
GIS	Geographic Information System
GOI	Government of India
GPRS	General Pocket Radio Service
IEC	Information Education and Communication
LED	Light Emitting Diode
MCGM	Municipal Corporation of Greater Mumbai
MFI	Micro Finance Institutions
MoHUA	Ministry of Housing and Urban Affairs (earlier MoUD)
MoUD	Ministry of Urban Development (now MoHUA)
MTV	Mobile Toilet Van
MIS	Management Information System
NBC	National Building Code
NGO	Non Governmental Organisation
NUSP	National Urban Sanitation Policy
O&M	Operation and Maintenance
OHT	Over Head Tank

OMT	Operate, Maintain & Transfer
OPEX	Operating & Maintenance Expenditure
PPP	Public Private Partnership
PT	Public Toilet
RCC	Reinforced Cement Concrete
ROMT	Rehabilitate-Operate-Maintain-Transfer
SBM	Swachh Bharat Mission
SHG	Self Help Group
SWM	Solid Waste Management
TCPO	Town and Country Planning Organisation
UGD	Under Ground Drainage
ULB	Urban Local Body
URDPFI	Urban and Regional Development Plans Formulation and Implementation
VGF	Viability Gap Funding
WC	Water Closet (flush toilet)

Frequently Asked Questions (FAQs)

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

Community toilets (CT) facility 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 community members, whereas public toilets (PT) facility 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 CT slightly differs with that of PT. In CTs, most working men and women members use toilets between 5AM to 10AM. During noon, women use toilets and for washing clothes and usage decreases in the evening and night. In case of PTs, use pattern vary considerably depending on the location of such toilets. A PT located at railway station is used almost throughout the day till late evening. Likewise, such toilets located at interstate busy bus terminals operate all 24 hours. Whereas a PT located in a park / zoo, operates during the official time of operation of such institutions.

Q3. What facilities are crucial for public toilets and community toilets?

For a PT / CT facility, 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 CT facility area for washing clothes is equally important.

Q4. What is the average cost of constructing a toilet seat/ urinal?

Average cost of per WC in a PT / CT facility varies considerably depending on local schedule of rates, market rates, specifications, treatment technology for wastes and site condition.

However, as per the SBM guidelines, tentative basic cost for PT / CT facility is Rs. 98,000/- per seat and urinal is Rs. 32,000/- per seat, with 40% VGF from GoI, State assistance will be atleast 1/3 of GoI's assistance.

Q5. In BOT model of managing public toilets, when can the break-even be achieved?

Break-even point depends on the location of toilet facility and footfall. However, for a PT on BOT basis, break- even point is between 10-15 years typically.

Q6. How can the toilets be made suitable to women, differently abled people?

It is essential to have separate blocks for men and women. Number of seats /WCs should be as per the prescribed standards. There should be adequate number of enclosed baths. It is recom-

mended that for PT/CTs, there should be a provision for safe disposal of used sanitary napkins for women block. Proper lighting arrangement inside as well as outside the toilet facility is a prerequisite.

All PT / CT facilities must have at least one unit for physically challenged person in each block- men and women. Such unit(s) should be located near the entry gate of toilet facility to minimize the travel distance by such persons. Design of such toilet should be as per the standards.

Q7. How can the operators for PT/CT, 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 CTs. 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 PT / CT facility needs to maintain a feedback register placed at the counter of toilets, easily available to users of toilets. Operators of toilet facility 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 regular meeting by ULB to review comments received from users and action taken to rectify.

Q8. What are the effective ways of monitoring the maintenance of toilet facilities?

Regular monitoring of toilet facility 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, behaviour 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 facility.

Apart from physical monitoring of the toilet facility there should be monitoring of feedbacks from the users. There should be one questionnaire containing different aspects of operation and maintenance of toilet facility and users should be requested to evaluate the performance. User feedback machines should be installed in the toilets. User friendly mobile application can also be used for monitoring purpose.

Toilet facilities 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.

Executive Summary

Over the past years, the Government of India and few State Governments had published several publications (guidelines, standards, manuals, norms, etc.) on 'Public and Community Toilets'. The National 'Advisory on Public and Community Toilets attempts to combine all the relevant information from all such earlier efforts of the Governments in a single document.

Salient Features of the Advisory

- The Advisory attempts to compile all the earlier efforts (Guidelines, Manuals, IS codes,etc.) of the Government in the field of Public Toilets & Community Toilets
- The Advisory covers all the stages (planning, design & construction, O&M and management) of any toilet project, for ensuring comprehensive planning and sustainability of any infrastructure
- The Advisory includes relevant sections on gender (women & transgender), differently abled, elderly & children
- The learnings from Swachh Bharat Mission have also been captured in this advisory

Structure of the Advisory

The advisory is structured as:

Chapter 1 : Background

Chapter 2 : Planning

Chapter 3 : Design & Construction

Chapter 4 : Operation & Maintenance

Chapter 5 : Management & Sustainability

A brief summary of the key sections (chapters) of the Advisory is presented below :

Planning : This section outlines all the key steps required in planning for PT/CTs. The various planning steps detailed in the Advisory are Data collection & analysis for need identification (user feedback formats, inventory formats), Design (Norms for provision of toilets - numbers/ sizing, site selection criteria, Project Report), Cost Estimates, Sources of funding for construction costs & O&M costs, Contracting, O&M and monitoring.

Design & Construction : This section outlines the design considerations while planning for new PT/CT facilities. The design consideration covered in the Advisory are

- External elements (location, visibility, signages, display boards, aesthetic appearance, landscaping, graffiti proofing & security)
- Toilet access (separate entrances for men & women, toilet entry & visual intrusion)
- Toilet facilities (toilet cubicles, urinals, bathing area, washing area, waiting area, caretaker's room & store room)
- Toilet infrastructure (water supply arrangements, water storage arrangements, plumbing, wastewater management, stormwater drainage, electricity & wiring)
- Toilet internal elements (walls, roofs, floors, doors & windows)

- Ventilation (natural & mechanical)
- Lighting (natural, external, internal & emergency)
- Accessories & Provisions (tissue dispensers, waste bins, hand wash, soap dispensers, hand drying equipment, air fresheners & sanitizers)
- Gender-specific infrastructure (sanitary pad vending machine, sanitary bins & disposal of sanitary pads)
- Other planning aspects (material selection, use of colours while painting, concealed spaces, etc.)

Operation and Maintenance: This section outlines various components on O&M of PT/CT. The various items covered in the Advisory are

- Operation related activities (opening & closing, equipments & consumables, cleaning schedules, safety & security)
- O&M staff and their responsibilities
- Maintenance of structure (internal, external, minor repairs & major repairs)
- O&M cost & financing (user fee collection, revenue generation options)

Management & Sustainability: This section discusses key aspects related to management of PT/CT. The key management aspects include monitoring & reporting of service levels (including user satisfaction feedback, cleanliness protocol & performance standards), asset management (including Google maps toilet locator), Occupational Health & Safety, User awareness creation (IEC) and Capacity Building.

A summary of relevant sections (related to PT/CTs) from the following references has been produced in chapters related to Design & Construction and O&M.

- Manual on Sewerage & Sewage Treatment Systems, CPHEEO, MoUD, 2013
- Model Building Bye-laws, MoUD, 2006
- SP 7 : National Building Code of India, BIS, 2016
- Urban and Regional Development Plans Formulation & Implementation Guidelines, MoUD, 2014
- Harmonised Guidelines on Norms and Standards for Barrier Free Environment for Persons with Disability and Elderly Persons, MoUD, 2016

Few examples illustrating good practices with respect to Public / Community Toilets in India are compiled in Annexure 2.

With all its rich & all-inclusive content, the Advisory attempts to serve as a single resource book for government officials, private consultants & other stakeholders. With this Advisory, the ULBs will be well informed while planning for new infrastructure and also how to take care of existing infrastructure. This advisory attempts to contribute to the achievement of the Swachh Bharat Mission objectives.

1. Background

This Chapter sets the context for the advisory. Brief information on earlier documents (guidelines, norms, standards) of the National and State Governments, focus on gender and the structure (outline) of the advisory is presented in this chapter.

1.1 Introduction

The Government of India's (GoI's) Swachh Bharat Mission (SBM) was announced on October 2nd, 2014 with a target of making India open defecation free by October 2nd, 2019, the 150th birth anniversary of Mahatma Gandhi. Given that 12% of country's urban households defecate in the open as per Census 2011, the provision of clean and well maintained PT / CT facilities requires immediate and focused attention.

Swachh Bharat Mission talks about actions 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 behavioural changes; capacity augmentation; and creating supporting environment for private sector's involvement. This national advisory on Public and Community Toilets has been prepared in line with these objectives in order to achieve standards of service levels.

Swachh Bharat Mission Guidelines, 2014

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. PTs are to be accessible to one and all and well-connected to important areas and pedestrian junctions.

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

This advisory will serve as a guide to informed decision-making through the entire project cycle, for developing implementation strategies for planning, designing, operation and maintenance and management of PT / CT facilities and related infrastructure.

1.2 Existing guidelines

The Government of India had published 'Guidelines on Community Toilets' in 1995. This guideline was the first attempt by the Government of India to capture the subject of Community Toilets in a comprehensive and exclusive manner. This guideline served as an important resource book to implementing agencies on issues related to understanding of user preferences, demand responsive designs, construction and O&M. Few State Governments like Odisha, Andhra Pradesh, Telangana, Punjab, etc. have formulated state level guidelines for CT / PTs to further achievement of SBM objectives. There are also several norms from Bureau of Indian Standards that provide directions to specific aspects related to planning of PT/CTs.

A growing need to follow a systematic and evidence based approach towards toilets management is well articulated in NUSP and SBM guidelines. The use of data management, technology for accurate planning and decision-making at all stages of project planning and management has prompted the need to develop this comprehensive advisory for city planners, engineers, decision makers and operators.

1.3 Focus on gender

It is well-known that of the various user groups, women and adolescent girls are the most vulnerable and adversely affected by lack of clean and accessible toilets. Poor location, inappropriate design and inadequate maintenance are the main constraints for women (and adolescent girls) to use PT / CT facilities.

Since the sanitation needs of women are significantly different from those of men there is a constant need to move beyond mere provision but, integrate gender needs in the overall institutional arrangements and service delivery processes. Recognizing this, gender has been given due consideration in this advisory.

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; 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.

Women can also play a key role in monitoring of service levels and their continued involvement can help in improving service efficiencies and in making O&M agencies more accountable. A gender needs checklist (with special focus on women) that shall be used for planning and managing PT / CT facilities is presented in **Annexure 1**.

1.4 Structure of the advisory

The advisory is structured as follows:

Chapter 1 BACKGROUND

Chapter 2 PLANNING
Details out the various planning processes for PT / CT facilities

Chapter 3 DESIGN & CONSTRUCTION
Details different aspects related to designing & constructing new toilets and retrofitting existing ones

Chapter 4 OPERATION & MAINTENANCE
Details out various activities that need to be carried out to ensure efficient O&M of toilet facilities

Chapter 5 MANAGEMENT & SUSTAINABILITY
Details key aspects related to management of PT / CT facilities

ANNEXURES
All Annexures related to above chapters are presented in this section.

2. Planning

This Chapter details out the various planning processes for PT / CT facilities. The various planning steps include data collection for need identification, design of toilet facilities, preparing cost estimates, contracting process for construction and O&M planning for sustainable management of PT / CT facilities. It is envisaged that this step-by-step process will help the municipal officials in systematic and robust planning of PT / CT facilities.

Traditionally, revenue wards have been considered as the primary unit of planning. Given the diverse locations of PT / CT facilities, it is essential to differentiate micro level planning (focus on toilet facilities, on technical and operational aspects) and macro level planning (focus on city wide planning and management). A step by step process of planning should be followed to comprehensively approach the solutions, minimize risks of failures at every stage and avoid reiterations of the processes. Few good practices in planning and management of PT / CT are presented in **Annexure 2**

Key steps in planning for Public Toilets / Community Toilets

- ➔ Step I : Data collection for need identification
- ➔ Step II : Design
- ➔ Step III : Cost Estimates
- ➔ Step IV : Source of funding
- ➔ Step V : Contracting
- ➔ Step VI : Operation & Maintenance
- ➔ Step VII : Monitoring

2.1 Step I: Data collection for Need Identification

It is important that PT / CT facilities are viewed and understood from two sides - the demand side (user related) and the supply side (infrastructure and institution related). An integrated assessment provides the extent of requirement of toilet service provision. User understanding is essential while creating new toilets as well as improving service levels for existing toilet facilities. Key learning areas include siting appropriate location for toilets; selecting toilets for service improvements; understanding user catchment and usage patterns; improving the infrastructure and facilities in each toilet; cost implications and revenue generation potential among others.

2.1.1 Demand side data

For PTs, locations generating continuous visiting by people like tourists' places, public gathering places, railway stations, bus stands, markets etc. (refer *Table 2.1* for details on toilet categories) need to be identified through a spatial analysis. The following key information needs to be collected.

TABLE 2.1: CATEGORIZATION OF PUBLIC TOILETS

Type of toilet	Typical Location	Typical users	Typical hours of operation	Typical User charges	Revenue potential
Type 1 Transit Area toilets	• Bus stands • Railway stations • Metro stations • Bus stops • Fuel stations • Taxi / auto stands • Roads / walkways / intersections	Tourists, Locals, Travelers	24 hours	Per use	High revenue
Type 2 Institutional Area toilets	• Commercial areas • Markets*, Shopping malls • Education institutions • Hospitals / Healthcare centers • Offices • Choultries / Dharamshalas • Theatres • Convention centers • Hotels / restaurants • Marriage halls • City infrastructure**	Office goers, Shoppers, Tourists, Travelers, Locals, Business	Minimum 12 hours (toilets at offices may be open 24 hours depending on the operational hours of the institution)	Per use or free usage (depending on the location and institution)	-
Type 3 Public Space toilets	• Parks • Playgrounds • Recreational areas • Parking areas • Religious places • Historical places	Children, Adults, Locals, Pilgrims, Tourists	8 to 12 hours (mostly during the day)	Per use	Low revenue
Type 4 Community toilets	• Slums • Low income areas	Families with children	24 hours	Per use or Monthly Pass	Low revenue
Type 5 Event linked toilets	• Functions • Fairs • Exhibitions	Organizers, Visitors, Patrons	8 hours (or depending on the duration of the event)	Free usage	-

Note:

** Wholesale markets dealing with vegetables / grains / other commodities / warehouses / truck terminals / cold storage facilities*
*** Municipal Zone or ward offices / water supply or sewerage infrastructure / SWM infrastructure or transfer stations / ATMs / Open spaces*

- Number of persons gathering
- Duration and timing of gathering
- Gender based differentiation
- Willingness to pay for toilet usage
- User preferences on type of toilet, other services

For planning of CTs, following data needs to be captured (Refer **Annexure 3** for more details of inputs to be captured from user)

- Number of families staying and potential users
- Gender and age-wise category of users
- Daily usage pattern
- Peak time load
- Facility utilized / needed (urinal, WC, bathrooms etc.)
- Waiting time to use the toilet facility
- User preference for type of toilet, other services

2.1.2 Supply side data

The supply side assessment is aimed at mapping the existing infrastructure (location, capacity to handle demand, level of service, etc.) so that the gaps could be identified as well as new infrastructure can be suitably planned. Typical data to be collected are:

- Location(s) of existing PT/CTs
- Gender-wise toilet seats (Men / women / children / differently abled / transgender), urinals, baths,
- Facilities provided (child care room, hand wash, changing room, caretaker provisions, etc.)
- Level of cleanliness
- Availability of water, electricity
- Wastewater disposal mechanism and solid / menstrual waste collection service
- User charges collected for different uses
- Measurements and drawings
- Technical capacity of the ULB
- Administrative capacity of ULB (manpower supply)
- Financial capacity of ULB
- Contract management capacity of ULB

A GIS based inventory of existing facilities is best suited for archival, spatial and non-spatial analysis. The asset inventory could be devised using details provided in **Annexure 4.**

2.1.3 Data analysis

Data to be used for planning PT / CT facilities in the city needs to be analysed by integrating the demand and supply database. While demand side input on location would indicate the location where the toilets need to be provided, supply side input provides the number of existing toilets in the vicinity which could be retrofitted to be made more usable. This will enable the

authorities to identify and site locations for new toilets construction.

Another important assessment is the footfall assessment in the vicinity of potential locations. People count undertaken while designing shopping malls, traffic studies will help identifying potential people likely to visit / use the toilet. The assessments also help calculate the number of units required for each type of user as per norms and potential neighbourhood location. This calculation will help arrive at land requirements or conversely based on land available what proportion of users can be provided with services. Alternately, if additional land is available around existing toilets, additional handling capacity can also be worked out through refurbishment.

In addition, gaps in number of toilets and services level can be combined at city level to quantify overall city requirement and commitments.

These identified gaps would indicate the areas in which the city needs to focus on for better planning and management of the toilet facilities. In addition, the demand side input can also help calculating potential revenue possible from user fees, other revenue sources, cash flows for management of toilet(s). Such assessments are important to evaluate the possibilities of ULB managing the newly created assets or formulate alternative operational models. **Annexure 5** provides detailed inputs on decision-making required while siting PT / CT facilities.

2.2 Step II: Design

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 basic 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 utilized.

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

2.2.1 Categorization of Toilets

To ease planning efforts by cities, it is important to categorise different types of toilets so that they can be planned & constructed based on the user needs as well as local conditions.

Toilets can be categorized on the basis of locations and user types. The toilets have been categorized primarily into 5 types based on the location of the facility in relation to its usage (*Table 2.1*).

The type of infrastructure and facilities provided for each type have also been arrived from various guidelines and presented in *Table 2.2.* They are categorized as mandatory / recommended / optional based on past sector experience and operational convenience.

TABLE 2.2: INFRASTRUCTURE AND FACILITIES REQUIRED IN VARIOUS CATEGORIES OF TOILETS

Type of toilet	Men					Women					Differently abled unit (refer footnote)	Transgender unit (refer footnote)	Caretaker /storage room	Waiting circulating space	Washing area
	Indian WC	Western WC	Urinal	Hand-wash + Mirror	Bath	Indian WC	Western WC	Hand-wash + Mirror	Child care wash + changing room	Bath					
Type 1 Transit Area toilets	Mandatory	Mandatory	Mandatory	Mandatory	Recommended	Mandatory	Mandatory	Mandatory	Recommended	Recommended	Mandatory	Recommended	Mandatory	Recommended	-
Type 2 Institutional Area toilets	Mandatory	Mandatory	Mandatory	Mandatory	Optional	Mandatory	Mandatory	Mandatory	Optional	Optional	Mandatory	Optional	Mandatory	Optional	-
Type 3 Public Space toilets	Recommended	Mandatory	Mandatory	Mandatory	-	Recommended	Mandatory	Mandatory	-	-	Mandatory	Optional	Mandatory	Optional	-
Type 4 Community toilets	Mandatory	Mandatory	Optional	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Optional	Mandatory	Recommended	Recommended	Recommended	Recommended	Mandatory
Type 5 Event linked toilets	Optional	Mandatory	Mandatory	Mandatory	-	Optional	Mandatory	Mandatory	-	Optional	Recommended	Optional	-	Optional	-

Foot note:

1. *Mandatory- Defined as per norms and guidelines already available in CPHEEO Manual / URDPFI Guidelines / IS Codes.*
2. *Recommended- To be provided based on demand and 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 to be 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*
7. *Single toilet units (like E-toilets) are covered under Type 1 & 3 toilets above. Suitable guidelines / norms to be adapted if this is the preferred option over a toilet facility.*
8. *Standalone Urinal facilities as an option are covered under Type 1, 2, 3, 5 toilets above. Suitable guidelines / norms to be adapted if this is the preferred option over a toilet facility.*

2.2.2 Norms for provision of toilets

The norms for the number of WCs, urinals, bathrooms and standard sizes of WCs, bathrooms, urinals and washing area in PT/CT are presented in *Table 2.3 to 2.6*.

The norms are in line with the Guidelines for Swachh Bharat Mission (Urban), 2014. IS 1172:1993 lays down the sanitation requirements in specific urban areas i.e. Railway stations, markets, office buildings, factories, restaurants, etc. These norms are also in line with the 'Model Building Bye-laws', 2017, MoUD.

TABLE 2.3: NORMS FOR SANITARY FACILITIES IN PUBLIC TOILETS (Source: CPHEEO Manual on Sewerage and Sewage Treatment, MoUD, 2013)

NO	Sanitary Unit	For Male	For Female
1.	Water Closet	One per 100 persons up to 400 persons; for over 400 add at the rate of one per 250 persons or part thereof.	Two for 100 persons up to 200 persons; over 200 add at the rate of one per 100 persons or part thereof.
2.	Ablution Taps	One in each W.C.	One in each W.C.
3.	Urinals	One for 50 persons or part thereof.	Nil
4.	Wash Basins	One per W.C. and urinal provided	One per W.C. provided

Note
i) It may be assumed that two-thirds of the number are males and one- third females
ii) One water tap with drainage arrangements shall be provided for every 50 persons or part thereof in the vicinity of water closet and urinals.
**At least 50% of female WCs may be Indian pan and 50% European WC*

TABLE 2.4: NORMS FOR COMMUNITY TOILET (Source: Guidelines on Swachh Bharat Mission-Urban, GoI, 2014)

Toilet Seats	Bath units	Urinal units	Clothes washing Area
One seat for 35 men	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
One seat for 25 women			

TABLE 2.5: SIZE OF TOILET CUBICLE, BATHROOM, URINAL & WASHING AREA (Source: Guidelines on Community Toilets, GoI, 1995)

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

*Note: *In case of space constraint the minimum sizes may be adopted. However, it has been observed that the minimum dimensions, which are found acceptable for individual household toilet units, are sometimes not being accepted for community toilet cubicles, because while a user is willing to bear the discomfort in his own premises in exchange of other conveniences, he or she is not willing to use a confined space in a community toilet due to odour and hygiene issues and thus is susceptible to reverting to defecating in the open.*

In addition to urinals for men, there should be provision of urinals for women also, which can be used by them for low or no charges. In the absence of urinals for women, women use toilets even if they use it just for urination and pay the user fee for usage of toilet which is higher than the user fee for usage of urinals, this means a much higher cost for women for accessing urination places.

TABLE 2.6: SANITATION REQUIREMENTS FOR VARIOUS LOCATION TYPES (Source: IS 1172:1993)

Location for PT	WC for Men	WC for Women	Urinal for Men
Railway station, bus station and seaports (Junctions & intermediate stations)	3 for first 1000 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
Railway station, bus station and seaports (Terminal stations)	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
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
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
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 25 persons 3 for 26 to 40 persons 4 for 41 to 57 persons	1 for 7 to 20 persons. 2 for 21 to 45 persons. 3 for 46 to 70 persons. 4 for 71 to 100 persons.
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
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 seats

A CT should have all the facilities like bathing cubicle, washing clothes, toilet for children and disposal for used sanitary napkins.

While planning for number of seats, in addition to daily average footfall, the ULB should also take into consideration the 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, PTs around railway stations have continuous all day demand, whereas those using CTs are at specific periods in a day for example, between 6 am to 10 am and 6 pm to 10 pm. The underlying sense for planning is a maximum waiting period of 5-10 mins to avoid queuing outside the facility. (The time 5-10 mins is indicative and based on user perception, as there are no norms or guidelines for the same).

CPHEEO / SBM recommends PTs & CTs are required to be located in reasonable vicinity (1 km for PT & 0.5 km for CT) of dependent users.

2.2.3 Site Selection

Identification of the project sites is a pre requisite for provision of PT / CT facilities. In case of CTs, undertaking a survey of the area to identify households who can be provided with individual household toilets and the rest (those without space for own toilets) can be served through a CT.

In case of PTs, potential areas with daily floating population need to be identified in a town. Such areas may be market places, bus stands, railway stations, court compounds, parks etc. Even in some areas if PTs are available, its adequacy needs to be assessed. For detail assessment for potential new sites **Annexure 5** may be referred to.

Based on the type of demand, typical toilet unit size, and required facilities toilet projects can be conceived on the following lines:

- Construction of permanent new toilets / urinals
- Rehabilitation of an existing toilets (working / defunct)
- Conversion of a urinal to a toilet
- Deployment of temporary toilet / urinal

The above choices are governed by land availability, site layout and alignment and available finances, etc. Upgradation of existing infrastructure is preferred prior to creation of new infrastructure. Indicative land requirements for toilets is indicated in **Annexure 6**, for reference.

Some of the typical field cases regarding for PT/CT are:

- There could be site conditions wherein sufficient space is not available. In such cases smaller facilities with fewer units (1 men and women toilet), either urinals / toilet units can be installed.
- In cases where land alignment is not suitable, modular / prefabricated structures, etc. can be used.
- In cases where, full-time deployment of manpower is not possible, self-cleaning toilets could be an option.

- When land is not available but continuous demand is high or for a limited period, mobile toilet vans (MTV) could be an option. During events and in case of CTs for a temporary period, MTV could be an option.
- In many cities MTVs are available on daily payment basis. Such toilets are also installed by ULBs for slum areas where adequate space for constructing CTs is not available.

Mobile toilet vans (MTV) – are temporary toilets / urinals (5-10 WCs/urinals) mounted on wheels. There is one sludge tank of required volume below the WCs and on chassis of the van. It is equipped with water storage and wash hand facilities. Such MTV is installed at required site. After the sludge tank is filled or is about to fill, it is moved 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 cleaner is attached with the system with cleaning materials. The system is more suitable for short gathering and functions.

An example of: Mobile Toilet Van

2.2.4 Project Report

A well-structured Project Report (also called DPR) for planned PT/CT should be prepared with sufficient details to ensure approval, and subsequent project implementation in a timely and efficient manner. The survey information collected forms the basis for preparation of the Project Report. The guidelines on planning, design & construction, O&M and management will be of help in preparing the Project Document. The recommended typical contents of the Project Report for PT / CT is provided in *Table 2.7*.

Table 2.7 TYPICAL CONTENTS OF PROJECT REPORT FOR PT/CT

1. Background
2. Field Data and Analysis (Information which forms the basis / need for the project)
3. Design & Construction (including site maps, Design, Drawings & Bill of Quantities)
4. Cost Estimates (Land, Construction & O&M)
5. Sources of Funding (Financial contribution from various sources, User charges, Cost Recovery, Cross-subsidy)
6. Contracting (Roles & Responsibilities, Contracting type)
7. Operation & Maintenance (Staff requirements, cleaning schedules, consumables, etc.)
8. Monitoring (monitoring and reporting process, roles and responsibilities)

2.3 Step III: Cost Estimates

There are three major costs involved in developing PT / CT facilities – land cost, construction cost and O&M cost. For the benefit of decision makers, typical cost heads for construction works as well as the O&M works have been provided in the *Table 2.8* and *2.9*.

TABLE 2.8: TYPICAL COST HEADS FOR CONSTRUCTION

CONSTRUCTION
Item
1. Structural Cost, including associated components
Civil – sub-structure elements, super- structure (walls, roof, flooring, plastering & other necessary civil structures) Procurement charges for fibre-reinforced plastic structure / modular / pre-fabricated structures / e-toilet, etc.)
Plumbing
Labour – civil, plumbing, electrical
Bore well, pumping equipment, sump & overhead tank
Ramps, hand rails, safety gate, etc.
Painting and related aspects
Structures above single storey, caretaker/store room if any
Sewer connection / Septic tank where sewerage systems do not exist
Rain-water harvesting, storm water drainage arrangements
Landscaping / horticulture / gardening
Monitoring panels
2. Fittings / fixtures
Doors – wooden, metal, PVC, incl. associated privacy & safety accessories
Sanitary Fittings (water closet / urinals / taps / floor trap / grating / wash basins)
Ventilation fittings, including exhaust fans
Other accessories (soap tray / liquid soap dispenser / buckets / mugs / waste bins / mirrors / towel rail etc.)
Electrical and Lighting fittings
Display boards, storage cabinets, racks
Solar Panels
Inverters / generators (if faced with frequent power outages)
Advertisement boards & related accessories incl. electrical connection where required
3. Service Connections
Water supply
Sewerage
Electricity
4. Other items
Signage, incl. direction signs, distance markers, sign boards
IEC items – wall painting, posters, public messaging, etc.
5. Overheads (upto 10% of above)

TABLE 2.9: TYPICAL COST HEADS FOR O&M

OPERATION & MAINTENANCE
Item
1. Manpower (monthly)
Supervisor
Caretaker
Cleaner
2. Water charges (monthly)
3. Electricity charges (monthly)
4. Waste disposal / treatment charges (monthly)
Sewerage / Septic tank
Solid waste
Any other (sanitary waste)
5. Consumables / cleaning supplies (monthly)
Liquid soaps, phenyl / disinfectant, bleaching powder, dilute acid, cleaning material, floor cleaners, air fresheners, napkins
6. Cleaning equipment (quarterly)
Sponges, scraping sheets, brooms, brushes, floor wipers, gum boots, gloves, tools for removing choke, dusters
7. Replacement of accessories (quarterly / half yearly)
Buckets / mugs / soap trays / waste bins / uniform / identity card
8. Minor repairs and maintenance
9. Monitoring, telephone/mobile, registers, complaint books
10. Incidentals and other Overheads (~10% of above)
11. Taxes and other statutory compliances

Note
The above lists of components are recommended for all PT / CT irrespective of the funding support.

2.4 Step IV: Source of funding

2.4.1 Funding for Construction costs

ULBs have been predominantly using own funds for creating PT / CT facilities. Presently opportunities have been created for ULBs to access and appropriately use a mix of centrally sponsored schemes (SBM), state government support and own funds. All public and community toilets constructed under SBM must have a minimum 5 year maintenance contract.

When multiple toilet projects are combined and funds are found insufficient, cities can explore PPP modes with long concession periods. Some alternative mechanisms for accessing the construction costs may include:

- Grant subsidies from Government, donor agencies
- Loans (MFIs / SHG federations / banks)
- CSR support
- Levying a separate ULB 'Cess' for PTs

2.4.2 Funding O&M costs

O&M costs includes staff costs, cost for electric supply, water supply, sewage disposal; cleaning equipment, consumables supplies and repairs (refer ***Table 2.9*** for details). O&M costs should be generally met completely by user charges wherever possible, a principle advocated by MoHUA generally for all infrastructure projects. The idea is to make toilet operations financially sustainable. Some options for meeting the revenue shortfall could include:

- Allowing potential advertisement revenue
- Small-scale vending of toiletry items
- Subsidies for certain O&M cost heads
- Reimbursements for repairs from time to time
- In cases where prefabricated facilities are installed, separate equipment / structure related maintenance costs from toilet operations costs
- Attaching revenues from commercial areas & other infrastructure towards O&M of toilet facility

2.4.3 Grouping/Clustering

Typically, facilities which attract higher footfalls will have a tendency to generate higher revenues from advertisements and vice versa. Hence, ULBs could consider grouping few commercially attractive toilets with toilets having less revenue potential to increase the overall attractiveness of the projects package, thereby making overall services financially feasible and a viable business model.

The obvious risk in such an approach is to prevent the operator from maintaining the profitable ones while under-servicing and neglecting the rest. This makes monitoring of service levels across all toilet locations a critical function.

Grouping could be attempted based on spatial location, revenue potential, type of projects (new construction / rehabilitation), etc. Other benefits of grouping include fewer project packages to outsource, availability of limited service providers in the city, administrative convenience, etc. Different grouping options of projects prior to commissioning are detailed in **Annexure 7**.

2.5 Step V: Contracting

It is the responsibility of the ULB to provide public sanitation services. Project preparation for PT / CT facilities requires multi-disciplinary skills such as technical, social, financial and contracting. Importantly, a clear hierarchy of staff and responsibilities based on institutional capacities needs to be defined. When such skillset is not available in-house, the ULB is recommended to seek external help from NGOs/CBOs and consultants.

A critical aspect of management is the ability to decide the extent of private sector participation and providing supporting business environment to them. The level of engagement of private sector could be for:

- Providing manpower services for O&M
- Construction / rehabilitation / retrofitting activities
- Financially investing into construction

Common issues with PT / CT projects are related to poor quality of construction (poor choice of materials, poor workmanship & poor supervision) and lack of ownership by operator. Often, construction is outsourced to a local contractor and O&M given to a different operator. In such cases, the operator pays minimal attention to routine maintenance and repairs while awaiting ULB involvement. The resultant poor maintenance causes user dissatisfaction and disuse of facilities.

ULBs should explore alternative arrangements and choose the most appropriate option that will ensure good quality of construction and proper use of facilities constructed. The possible arrangements emerging are:

- Single agency handling construction and O&M
- Construction by CBO / NGO under ULB guidance
- Construction and operation by operator (operator finds own contractor), with separate contracts / financing arrangements for each activity
- ULB procures and install pre-fabricated structures to avoid construction related quality issues
- ULB procure and provide mobile toilets to avoid construction issues

This step is critical and should be aligned with the overall project package, operations and business model formulated and financial budgets / outlays available with ULB. The decision will have a bearing on the nature of contractual or concessionaire agreement with operator.

The various contracts entered upon reflects the operational plan a particular project is designed for (**Annexure 8** provides a comparison various types of contracts)

Typical contents of various contract types have been provided in **Annexure 9 .**

Sample/Model RFP documents for contracting public / community toilets can be found in the knowledge repository at www.swachhbharaturban.in.

2.5.1 Service contracts (SC)

This contract type is applicable when toilet structure is already constructed and requires only O&M services.

- These contracts are simple outsourcing contracts for manpower services from an operator as against a pre-defined monthly fee and renewed from time to time.
- The ULB retains the ownership of the facilities and is responsible for investments, repairs and maintenance of the facilities and other cost items outlined in *Table 2.9* through its own staff and processes.
- These are normally applicable to toilets under Type 1 in *Table 2.1*.
- The performance parameters are limited to timely availability of staff and if needed rewards are based on a fixed plus variable component (or deduction for lack of performance).
- The revenue risk of this model lies with the ULB. Normal procurement evaluation will be based on the least cost to the ULB.

2.5.2 Operate, Maintain & Transfer (OMT) contracts

This contract type is applicable when toilet structure is already constructed and requires only O&M services.

- The contracts are usually shorter in term and related to the life of the asset.
- The ownership remains with ULB, however the revenue risks and rewards are borne by the contractor.
- The ability to charge for services or revenue augmentation possibilities is available with operators.
- Generally, repairs and maintenance works are borne by the operator irrespective of quality of construction, as agreed in the contract.
- The period of contract can be a single time step (3 to 5 years) or can be innovated to extension based on performance (3 years plus extendable annually based on performance).
- Since revenue generation option is available with operator as a support, normal procurement evaluation will be based on the highest premium paid to ULB OR the least subsidy sought from the ULB.
- In cases where projects are packaged as a group, high footfall toilets could be evaluated on highest premium and low footfall toilets on the least subsidy. Under such differentiated procurement, the ULB can cross-subsidize earnings from one package to the expenditure to be incurred in other packages.

2.5.3 Rehabilitate, Operate, Maintain & Transfer (ROMT) contracts

This contract type is applicable when toilet structure is available and is in need for rehabilitation / retrofitting prior to O&M services. Rehabilitation can be defined as making improvements to the toilet without dismantling the structural frame while reorganising internal spaces.

- Investments on the asset rehabilitation / retrofitting are borne by the private operator.
- With a proper rehabilitation plan, rehabilitation process can be carried out parallel to toilet operations without completely shutting down the toilet.
- The selection of contractor for rehabilitation can be done by operator or ULB and is mutually agreed upon. The idea is to make operator responsible for quality of work and consequently the repairs and maintenance.
- Operator is also responsible for repairs, maintenance works, re-investments and daily operations.
- Contracts are generally medium term allowing operator to recover the investment (rehabilitation cost and O&M cost). The period of contract can be a single time frame of min. 5 to 10 years or based on performance (3 or 5 years, extendable annually based on performance). The contract period should be worked out for each project site. In case toilets are clustered/grouped, a combined financial viability needs to be organized and a common contract period should be arrived at.
- At the end of the term, the contract is reviewed and extended or the facilities are handed over to the owner/government.
- Since revenue generation option is available with operator, normal procurement evaluation will be based on the highest premium paid to ULB OR the least subsidy sought from the ULB OR overall contract period.

- In cases where projects are packaged as a group, toilets having similar rehabilitation costs can be grouped along with high footfall toilets and could be evaluated on highest premium and vice versa. Under such differentiated procurement, the ULB has to be clear on the quantity of rehabilitation upfront prior to selection of operator.
- In some cases, the ULB undertakes rehabilitation on its own and hands the asset / group of assets and follows an O&M contract process. This could be time consuming and depending on the number of assets, could also lead to closure of toilets during rehabilitation.

2.5.4 Build, Operate & Transfer (BOT) contracts

This contract type is applicable when a new toilet structure is to be constructed and ULB hands over the land to the operator prior to construction and O&M services.

- Investments on the asset construction is completely borne by the private operator.
- The model is based on the designs provided by ULB and operator finances, constructs and operates accordingly, in which case it is called a BOT.

Sometimes instead of construction, installation of a pre-fabricated toilet could be an option.

- Alternately, the operator could be asked to design the toilet within a standard framework, monitored and technically advised by ULB, in which case it is called DBFOT contract.
- Operator 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 for both Construction cost and O&M cost. The period of contract can be a single time step (>10 years) followed by performance based extensions. The contract period has to be individually worked out for each project site (before aggregation, if required) and heavily dependent on the cost of construction and footfall.
- At the end of their term, the contract is reviewed and extended or the facilities are handed over to the government.
- Other aspects are similar to a ROMT contract.

2.5.5 Contracts for installation of pre-fabricated toilets (MC-Maintenance contracts)

This contract type is applicable when a new toilet structure is to be installed (coin operated or normal toilets or mobile toilets) prior to operations and maintenance services.

- Given that construction is a time consuming process, ULBs sometimes procure prefabricated systems and install them with minimal construction (normally for leveling, connections, etc.).
- When specifications are clearly defined, the engagement is a goods procurement contract / goods plus services contract.
- Depending on the pre-fabricated type (material / technology / style), a maintenance contract is separately entered with product vendor independently by ULB or operator depending on who procures products on pre-defined specifications. Maintenance can be for civil, mechanical, electrical parts of the toilet. In case of mobile toilets, maintenance of the complete structure is outsourced.
- The ULB will enter into a separate operations contract (SC / OMT) with a separate operator.

- This type of arrangement is slightly risky if ULB does not have a dedicated management team, since liability of poor service is dependent on 2 different contracted entities and co-ordination is a difficult process.

2.5.6 Contracting for community toilets

This contract is similar to all above contracts, except the end user being a defined community of a smaller footfall, could be interested in taking up some responsibilities.

- Instead of a private agency, the community themselves (SHG / NGO / CBO on their behalf) could choose to take up O&M activities. This ensures there is a feeling of belonging and services are fairly accessed across various economic backgrounds.
- Sometimes, personnel from the community or identified by the responsible group for this service could be used to provide cleaning services, similar to a service contract. Where multiple such toilets are there, a framework arrangement is also possible.
- The costs for O&M could be borne by the user community (monthly household passes / pay by use) and additionally subsidized by ULB, where required.
- Linking to a PT closest to the community, normally within 0.5 km distance can also be explored.

2.6 Step VI: Operation & Maintenance

Operations and maintenance of PT / CT is one of the weaker areas of management and is often evident from user surveys / complaints from users. Poor O&M results in reduced usage and often people resort to open defecation and urination.

Based on the toilet category, it is important to frame an appropriate O&M plan for the project. This would include detailing on toilet operation hours, cleaning cycles, equipment and consumables required, appropriate staffing (caretakers / cleaners), attending to repairs (minor and major), user charge collection, monitoring and complaint redressal, awareness creation, etc. These subjects are presented in detail in Chapter 4.

Annexure 10 provides typical O&M service requirements and **Annexure 11** indicative performance standards and penalties.

2.7 Step VII: Monitoring

In outsourced arrangements, the ULB is free from managing day to day operations, but the role shifts to being supervisory in nature. In the absence of strict supervision and monitoring by ULB, the operator is normally under no to pressure as per pre-agreed performance parameters outlined in the contract.

Simple and effective complaints reporting mechanism can provide good feedback to ULB and cause it act against the contractor to remedy the situation. The monitoring mechanism could be devised both from self-reporting and inspection perspectives. **Annexure 12** provides information on Cleanliness Protocol for PT/CT which ULBs can use.

3. Design and Construction

Design and Construction of PT / CT facilities must take consideration of diverse sanitation needs of different users. It is crucial that designs, technology and material choices support sustainable O&M practices, subsequently increased usage and better achievement of health and environmental benefits. This chapter discusses different aspects related to designing and constructing new toilets.

3.1 General design considerations

Public and Community Toilets should provide clean, safe, accessible, convenient, and hygienic facilities to the public at a level of privacy adequate to perform necessary personal sanitary functions.

This section outlines the design considerations while planning new PT / CT facilities. The key design considerations are accessibility, external structure, internal design, infrastructure, facilities and accessories. While all aspects need to be mandatorily designed for, their relative importance is governed by local conditions and user preferences.

3.1.1 Gender considerations

As women and girls face greater problems in use of toilets, their needs require more weightage for sanitation improvements. Two key considerations controlling toilet usage are size of the toilet facility (i.e. number of seats) and its location. Aspects like safety and privacy are central to toilet design.

3.1.2 Location considerations

Location is of utmost importance in ensuring that toilet facilities are accessible and maximizes opportunities for utilization. PT / CT facilities should be located within reasonable walking distance of the 'activity generating' areas (refer *Table 2.1* for categories of type of public toilets) as indicated in SBM. ULBs should ensure that all the users of the Community Toilets should have access to the Community Toilet within 500 m from their settlement / habitation and all commercial areas should have public toilets within a distance of 1 km.

An example of: E-toilet close to catchment (@ bus stand)

3.1.3 Number of toilet facilities / units

Depending upon the magnitude of footfall and its type, it is to be decided whether a single toilet facility in a particular location or multiple toilet facilities in nearby locations meets the needs of user catchment as per norms. Land availability also effects this decision.

3.1.4 Soil

The nature of the soil often influences the structure foundation and stability. Toilets constructed on marshy / land filled areas / sandy soils often require suitable foundation (National Building Code, Govt. of India). Soil characteristics also influences the design of water sumps, plumbing connections to water supply and sewerage.

3.1.5 Water table

While ground water table level does not have much bearing on the external design consideration, it is an important consideration for treatment / disposal of waste-water generated in toilets. In water logged areas, plinth levels should be sufficiently raised to prevent entry of water into closets.

3.1.6 Terrain and topography

The topography of the region impacts the construction of the toilets as access is to be provided from multiple sides. In conjunction with soil and water table levels, services planning will require detailed attention and design. If on-plot / non-networked solutions are used, the designs become more complicated and often increase structure costs. For ex. location of certain sites below the road level or sewer invert level would pose an issue with regards to water drainage.

3.2 External Elements

Accessibility is a key attribute for ensuring that toilet facilities are used by all. Accessibility is defined in terms of location and visibility of the toilet facility (signage to guide users to locate toilets location).

3.2.1 Location and visibility

PT facilities should be located close to heavy footfall generating areas for the convenience of women, children, aged and differently abled. Toilet facilities should not be located close to places deemed unsafe for women like liquor shops, areas without street lighting or walking access, etc. Whereas locations for CTs shall be such it can be accessed with a reasonable walking distance with women in mind.

Adequate consideration should be given to providing a clearly defined, accessible and safe pedestrian path to the toilet facility, including ramps. The path must be well lit to ensure that the user's personal safety is not compromised, particularly for women and adolescent girls.

The toilet facilities must be located in places that it is highly visible from a distance. To improve visibility of the facility, some options include:

An example of: Highly visible entrance

- Locate 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 toilet facility.
- As far as possible follow uniform colour codes and standard nomenclature for easy recognition.

3.2.2 Signage and display boards

Appropriate direction signs ensure that users are aware of the location of the toilet facilities and distance to access them. Signage close to / front of toilet could also indicate type of facilities (including toilets for women, differently abled, child care room, etc.) available in the facility. Common locations for display of direction signs are main junctions, busy areas and road margins.

The signage must use suitably sized fonts in dark colours against a contrasting light colour background so that it can be easily seen. Legible universal signage of a man, woman and person in a wheelchair should be used at the entrance and passage ways. Reflecting material shall be used to make signs visible at night.

Within the toilet facility premises display boards indicating the type of facilities available telephone numbers of maintenance agency, helpline numbers, user charges, toilet operation timings, responsible ULB staff details must be put up. These should be preferably located next to light source and the text used shall be in red colour on light yellow or green background for night visibility. Other types of messaging like proper use of toilets, health benefits can also be displayed within the facilities.

3.2.3 Aesthetic appearance

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

The walls of the PT / CT facilities can be used for advertisements. Alternately, displaying public awareness messages on safe sanitation and hygiene practices using visuals and images, works best.

An example of: Toilet with aesthetic advertisements

An example of: Health related messaging on toilet wall

3.2.4 Landscaping / Horticulture / Gardening

Where possible to locate, small potted plants or landscaping can be designed in front of the toilets. Excess water from cleaning or overflows can be suitably directed towards the plants.

External landscaping can also be used to deter parking of vehicles near the toilet (auto / taxi stands), high pedestrian movement, high vehicular movement, etc. that causes discomfort or safety hazard for toilet users. Potted plants inside the toilets contribute to ambience.

3.2.5 Graffiti proofing

The external walls shall be so designed to avoid minimize opportunity for graffiti and sticking of posters.

3.2.6 Security and restricted access

During periods of toilet closure, entry and exit doors, windows should be securely locked. Deadbolts and locks help prevent access to any toilet infrastructure inside the toilet and consequently chance of vandalism.

It is import to design toilets which do not offer unregulated access for the caretaker / cleaner from his usual place of operation. In single storied buildings, the critical access to the roof should be curtailed and should only be accessible through ladders under the control of the caretaker. Access shall be restricted to all areas not intended for public occupancy or not used by fixtures.

3.3 Access

3.3.1 Separate sections for men and women

The toilet facilities must have separate entrances for men and women which lead them to their respective sections of 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. It is preferred to create access so that men avoid crossing the women section of toilet.

3.3.2 Toilet entry and visual intrusion

The entrance to the toilet facility must be designed such that it allows easy access for people. Design and layout of the toilet facility should consider needs of women, small children, aged, infirm and differently abled. Simple design elements to increase accessibility are ramps, lower elevation and plinth heights, height of steps, etc.

The entry, passages and cubicles to PT / CT facilities shall be so considered and designed to allow entry and exit without making physical contact with surface like walls, doors or people. Occupants in waiting areas shall not have visual access to those inside the toilet. Toilets, cubicle, mirrors etc. are generally planned to view away from the line of sight of the main entrance.

3.4 Facilities

The internal design considerations are the most crucial for ensuring acceptability and usage. The designs shall consider diverse sanitation needs of different user groups (women, children, aged and infirm, differently abled and transgender persons) without compromising safety and privacy at all times.

3.4.1 Toilet cubicles

The number of units for WCs / urinals / showers provided in a facility would depend upon the location, number of users and land availability. (Refer ***Section 2.2.1*** for norms for PT / CT facilities). Appropriate mix of Indian and western closets should be provided and of suitable dimension.

An example of: Well Designed Toilet unit

Indian toilet closet pans should be of standard design and made of ceramic or an equivalent material allowed by standards. 20mm traps with water seal should be used, which require only 2 litres 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: Prefabricated western toilet variant

All western toilets should preferably be wall hung and fitted with manual or automatic flushing device. The fixture should be concealed to deter vandalism. Toilets should be fitted with drum roll toilet paper dispensers adjacent to the water tap. Hooks (double hooks) at convenient height should be affixed behind toilet doors. When space allows a platform or foldable shelf could be installed in the toilet for putting personal items.

Doors and cubicle partitions should be tightly fitted so as to avoid gaps and openings. Wherever possible, all such cubicle partitions should extend to within 5 cm (2 inches) from the floor. Partitions between cubicles should extend to at least 2134 mm (7 feet) above the floor level. An ablution tap coupled with hose and a spring-loaded nozzle should be installed in all toilets. Floor trap should be provided within the toilet where it is fitted with an ablution tap, bucket and mug. The flooring of WC cubicles should be properly graded towards the floor trap so as to keep the floor as dry as possible.

Where possible, customized squatting pans requires to be planned for children, preferably in the women's section of the toilet facility. Half height door help mother to open the door from outside and additional door fixtures at half the height of the normal doors, should be planned for. This would also help access for certain differently abled users.

3.4.2 Toilets for differently abled and special needs

While working out the number of units, one of the units shall be designed for differently abled (with all facilities to cover different types and degrees of disability) men or women in their respective blocks. Harmonised Guidelines on Norms and Standards for Barrier Free Environment for Persons with Disability and Elderly Persons, 2016, GoI clearly advice the norms and specifications of different toilet elements to be provided.

For example to support people using wheel chairs, additional space to manoeuvre, grab bars, sloped ramps with railings, doors, location height and type of fixtures require different settings. Some other functional modifications include:

- Wash basin located near the entrance.
- Normal toilets are to have an average height of around 32 to 40cm while toilets for the physically differently abled should be in the range of 38 to 45cm (CPWD, 2014). The minimum size of a toilet cubicle should be 1500mm x 1750mm.
- Minimum clear opening of the door shall be 900mm and the door is to swing outwards.
- Suitable arrangement of vertical/horizontal handrails (with 50mm clearance from the wall) shall be made inside the toilet.
- Toilet floor should have a non-slippery surface.
- Guiding steps near the entry should have a textural difference.
- Additional options for toilets for the physically differently abled include adding a handicap bidet.

Toilets for transgenders can also be appropriately allocated as stand alone without clubbing with gender based toilets and the doors opening directly into the vastness of the hall instead of a narrow passage. This facility should be mandatory for PTs located at crowded places like railway stations, bus stands. However, for CTs, this may be taken as optional, depending on the presence of such cases in the area.

An example of: Access for differently abled to PT

3.4.3 Urinals

Urinals must be provided in the men's block of every PT / CT facility. 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 centre to any side wall, partition, vanity or other obstruction, or closer than 900mm centre-to-centre 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 urinal users from using the WCs and wetting the toilet seat. 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.

An example of: Full length urinal for children

Recently water less urinals are being used in offices and PTs. 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 odour, waterless urinals use odour 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.

In addition to urinals for men, there should be provision of urinals for women also, which can be used by them for low or no charges.

An example of : Urinal for women

3.4.4 Bathing area

Bathing facilities should be provided in whichever toilet typology it is applicable especially in CTs as per the sizes mentioned in the norms (refer Table 2.4 and 2.5).

3.4.5 Washing area

Washing areas should be provided in both men and women blocks as per the sizes mentioned in the norms, essential in CTs and optional in PTs.

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 block as they could experience sexual harassment / assault while waiting around toilets. Usually it is 2 to 3m wide depending on the area available. 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: Sufficient changing space for women

3.4.7 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 PTs located at railway stations, bus stands and other areas which are open round the clock and have hight footfall. Where technically possible, caretaker rooms could be provided on the first floor so that the operations can be handled.

3.4.8 Store room

One small room for storing cleaning materials / equipments is essential in all toilet complexes and is very crucial in case of PTs. Its size can be decided depending on volume of such items that need to be stored.

3.5 Infrastructure

3.5.1 Water supply and storage arrangements

Availability of sufficient water in a PT / CT is essential for its efficient operations and maintenance. It is also essential to ensure that users practice good personal hygiene.

Water requirement for the facility may be worked out and enough storage for half day operation is to be kept in storage. If municipal water supply is reliable, the toilet blocks may have underground sump that can store half a day's requirement and overhead tanks for another half. If municipal water supply is not available, toilet block may have its own bore well and pump with no underground sump. It should have standby pumping facility. 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.

3.5.2 Plumbing

All internal water supply and drainage pipes that are connected to fixtures - WCs and basins must be concealed to avoid physical contact or sufficiently covered for protection against human contact. They should be secured with hangers, supports, fasteners made of durable material and capable of repeated human use impact. Sharp or abrasive surfaces under wash basins and sinks must be avoided in order to prevent accidents and injuries.

In hilly areas where cold season predominates, a water heating system shall also be installed or made available to supply hot water for bathing, washing and ablutions, etc. Where freezing of water in pipes is envisaged, all plumbing designs are required to be reinforced with backup / alternative facilities to support toilet operations.

3.5.3 Wastewater management

Human waste from PT / CT facilities needs to be properly managed to maintain sanitary conditions, to ensure that there are no adverse consequences on health and the environment. The following approaches may be adopted for safe treatment / disposal of waste water. Appropriate technology must be selected based on site condition, hydro-geological conditions, availability of infrastructure in the vicinity, etc. Different options are:

Connection to sewer - The toilet facility must be connected to a sewer line if it is available in

the vicinity. In doing so, the costs associated with wastewater treatment and disposal are minimized. The wastewater should be collected and conveyed by laying underground pipes as per the standards (CPHEEO 2013).

On-site treatment - On-site treatment solutions need to be considered in absence of availability of sewer lines in vicinity. Several technologies may be used for on-site treatment of human wastes including septic tanks, bio-digesters, decentralised waste water treatment systems, etc.

CPHEEO Manual, 2013 provides details of how to integrate the onsite treatment systems with the toilet facility. Conventional septic tank is one of the most common modes of on-site treatment followed in cities when sewer networks are absent. CPHEEO Manual provides the dimensions of septic tanks based on the number of users (*Table 3.1*). Since septic tanks need frequent cleaning (1 to 2 years depending on its size and the number of people using toilet), safe disposal of septage needs to be organized in tandem with city-wide infrastructure. For cleaning, equipments like jetting machines, septage cleaning machines can be hired from ULB / septage cleaners.

TABLE 3.1: RECOMMENDED SIZES OF SEPTIC TANKS (Source: CPHEEO Manual on Sewerage & Sewage Treatment Systems, MoUD, 2013)

No. of users	Length (m)	Breadth (m)	Liquid depth in m (Cleaning interval of septic tanks)	
			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

The effluent from the septic tanks should be connected to a soak pit or dispersion trench. It is important that only the toilet and urinal waste is connected to the septic tank. Wastewater from washing and bathing should be connected directly to soak pit.

3.5.4 Storm water drainage

While it is desirable to harvest rain water at the toilets, the size of structure is often a deterrent and limits the benefits derived out of the effort. All down pipes from the roof, floor cleaning or wash water used for maintenance other than those directed towards the sewer network shall be directed towards the storm water drainage. This will help avoid stagnation in the toilet surroundings and obstructing access. The area around the toilet shall also be levelled suitably to ensure rain water is directed towards the storm drainage. This will also prevent people dirtying the toilet.

3.5.5 Electricity and lighting

Availability of electricity is an important component of any PT / CT facility. 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 facility. Toilet cubicles must be lit well. The gate of the toilet facility must also be provided with adequate lighting. Local electricity board will be responsible for providing required electric supply for the toilet facility. However, the agency for the

construction /operation and maintenance of toilet facility will be responsible for proper electric wire fittings, installing meters and making payment against the meter reading.

Where electric cables are required, surface mounting is to be avoided. They should be fully concealed and passed though plastic pipe ducts. To help in easy maintenance, avoiding sharp corners or edges is a must, and alternately using covered tiles or PVC strips along these edges as far as possible. Access panels to pipe ducts should be located as far as possible in unnoticeable areas.

3.6 Internal Elements

3.6.1 Walls, roof and floors

Since most toilets are single storied, a minimum height specifications of 9 ft shall be applicable. When multi- storied structures are constructed for space considerations or differentiating men and women uses or providing caretaker stay place, local building rules for residential structures shall be followed.

Normally bricks and mortar / RCC are used for construction of toilet facilities and units, as such materials are universally available and the structure is durable. In case of RCC structures, most preferred combination are bricks for walls and stone tiles for floors (commonly kota tiles). For ease of maintenance, tiles flooring (which is anti-skid, non-slip surfaces, natural stone, water proof, etc.) in common areas and cement flooring in toilet units are the best combination. While inner walls of toilet unit should have tiles up to at least 3 ft., bathrooms should have tiles up to roof height to prevent seepage from continued water usage. Tiling for bath, walls and floors are a functional requirement consistent for all type of structures.

In some areas where stones (local or laterite) are available at affordable prices, they are an alternative for brick and mortar superstructures, despite high labour costs. Fibre Reinforced Plastic (FRP) is another recent material used for construction of toilet bocks and units. Cost effectiveness and quicker installation times are an advantage. User comfort in FRP based facilities during summer (deformation, outward bulging out) and continually higher temperatures is suspect. FRP structures are not load bearing, so require additional structure to house over head tank. ULB staff need to have a clear understanding of material science and its implications on creating complex / additional structures.

3.6.2 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. Doors which are easily closable - free-swinging or sliding should be provided. All doors should have privacy hardwares like handles, latches, locking devices / sliding deadbolts, etc. User operated locks shall be always available on the insides only and authorized outside latches shall be available for emergencies or during out of service. All doors shall be tightly fitted so as to avoid gaps and openings, thereby preventing privacy compromise. All doors shall have durable hooks of sufficient strength capable of holding at least 6.8 kg weight. Where it is difficult to install hooks on the doors, the same may be installed on the strongest wall of the unit.

Windows should be provided primarily for ventilation purposes but not compromising the privacy and safety of the toilet facility.

Doors have wider flexibility in material options, for ex. wooden, plastic, GI sheets. To avoid water reacted decay in wooden door, aluminium sheets of up to 2ft from the bottom should be superimposed. Suitable corrosion prevention paints are to be used for GI sheets.

3.7 Ventilation

Proper ventilation and odour control is one of the biggest priorities while operating PT / CT facilities. Effective ventilation ensures that vitiated air is quickly extracted and helps avoid dampness and subsequent growth of mould on floors and walls. Ineffective ventilation can make a PT / CT facility unusable, even if it is well designed.

3.7.1 Natural ventilation

Natural ventilation of an occupied space should be through windows, doors, louvers or other openings to the outdoors. Good design helps in careful positioning of windows, ventilators, louvers, openings to the outdoors, etc. to allow for free air movement inside the toilet without compromising the privacy. The operating mechanism for such openings should be provided with access so that the openings are controllable by the building occupants and securable in the event the public toilet room must be secured from vandalism.

3.7.2 Mechanical ventilation

If mechanically ventilated, the air exchange rate should have a minimum of 15 air changes per hour or 35.4 L/s (75 cfm) exhaust per toilet cubicle. Suitable replacement air should be provided for exhaust systems to ensure a slight negative pressure within the public toilet. The replacement air may be taken directly from the exterior, or from adjacent spaces that are permanently air-conditioned or naturally ventilated. The replacement air may be drawn through louvers in the doors, walls, door undercuts, or other means.

The exhaust system should dispel the air directly outdoors without causing any nuisance to neighbouring premises. The exhaust air should be discharged to the exterior of the building at a position at least 2 meters (6 feet) above the exterior surface level and at least 5 meters (16 feet) from any opening into the building where the discharge air may re-enter the building such as windows, doors or air intakes.

3.8 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.

3.8.1 Natural lighting

Natural lighting can be used to help create a softer, friendlier environment. The design should incorporate elements allowing natural lighting during the day, enough to at least half the toilet space. Good natural lighting highlights hard-to-clean areas.

3.8.2 External lighting

Good external lighting deters anti-social people from strolling around the facilities, thereby encouraging women to use toilets. Lighting is also a key safety feature for old and infirm persons who may fall and hurt themselves if the toilet facility is not well illuminated. Thoughtful selection of fixtures and lamps coupled with careful placement is essential

Where possible, advertisements with illumination should be attempted and favoured to benefit from night time additional external illumination. This additional lighting serves as a sense of safety for users, most importantly a positive driver for women users.

For added safety and security of the users during night time, installing flood-lights / mass lights near public toilets can make users in the area have a sense of safety and security. Flood-lights light up an entire area (broader spread) and remove hiding places around access points of public toilets providing a feeling of security.

3.8.3 Internal lighting and fittings

All toilets should be provided with warm colour lighting for general lighting as well as down lights above the wash basin / mirror. The minimum general lighting level is 300 lux. Warm colour lighting aids in creating a better ambience in the toilets, which in turn encourages more care and responsibility from the users.

Wherever possible or alternatively encourage usage of energy efficient lighting fixtures (CFL or LED). The specific lighting requirements will vary depending on the site conditions. The lighting needs of a 24 hour facility will be different from those not operational at night, hence to be planned for while deciding the operational hours of the toilet.

3.8.4 Emergency lighting

Another critical aspect to plan for is emergency lighting in both men and women blocks. The illumination shall be so designed with reflecting exit signs to indicate path for exit from the toilet safely. When toilets are open at night, alternative backup energy systems like generators, inverters shall all made available and functional. The wiring system shall be so designed to accommodate this requirement.

3.8.5 Advertisement boards

This infrastructure is normally outsourced to advertisement agencies unless required by government to display socially responsible messaging / schemes. Ideally the revenue department of ULB is best positioned to advise on the contracting modalities, including designs and types. The layout and positioning shall not interfere with the toilet operations and safety.

3.9 Accessories and provisions

3.9.1 Hand wash and mirrors

Sanitary and water supply fixtures like hand wash basins, toilet pans and traps and foot rests, etc. are to be provided as per standard designs. Wash basins with mirror should be provided both in men and women blocks. The tap form and design are to be selected from hygiene maintenance perspective.

The water pressure and tap / wash basin position should not cause water to splash onto user's body during activation. In order to keep the floor dry, the vanity top-cum-wash basins should be installed outside the toilets for common use by all. Liquid soap dispensers, paper towel dispenser or hand dryer, towel rails and litter bins should be installed adjacent to the wash basins.

An example of: Hand washing facility

As an effort to conserve water, electronically controlled taps can be considered. Sensor controlled taps with their precise flow settings and positive shutoff characteristics, offer effective means for providing adequate water flow when required. Further it also helps minimize hand contact.

3.9.2 Soap dispensers

A liquid soap dispenser should be provided at each wash basin. A cleaning and refill mechanism of the dispenser should be available.

3.9.3 Waste and refuse bins

Bins are to be provided within all toilet cubicles subject to space availability, or alternately adjacent to the wash basin. The bins provided shall not be hand operated, but could be foot operated, motion sensors or other acceptable methods.

3.9.4 Tissue dispensers

A toilet paper roll may be made available in all toilet cubicles. This minimizes the exposure to touching facilities after ablutions.

3.9.5 Hand drying equipment

A minimum of one hand dryer blower shall be made available in men and women units. Alternately, a paper towel dispenser or paper rolls be made available adjacent to wash basin.

3.9.6 Air fresheners

Aromatic air fresheners shall be available for use when odour issues are raised, after cleaning following the cleaning cycles. Air freshener spray facilities could be an alternative, but needs to be located properly to avoid direct human contact.

3.9.7 Toilet and urinal sanitizers

Cakes, tablets, liquid sanitizers placed directly into receptacles without interfering with operations is a possibility. Sanitizers shall be placed to avoid direct contact to water supply mechanism. The sanitizers selected shall not have any corrosive or health effects on the cleaning staff.

3.9.8 Child care and diaper changing stations

Depending on space availability, there shall be a small space for child feeding/ child care in a PT / CT facility. Where fixed facilities are not a possibility, chain or holding belt linked wooden planks could be attempted. In the absence of such a facility, it becomes very difficult for a mother having a small child to use the toilet.

3.10 Gender specific essential infrastructure

3.10.1 Sanitary Napkin vending machines

Depending upon the no. of women users, it is recommended to provide Sanitary napkin vending machine at Public Toilets at transit areas (Airports, Railway Stations, Bus Stands, etc.), commercial areas (Shopping malls, Markets, etc.) and institutions (Educational institutes, Govt. & Private offices, etc.).

The Government of Kerala had launched the 'She Pad' scheme in Nov. 2017 to facilitate free sanitary napkins and storage spaces for napkins. The scheme was launched to benefit girl children of classes VI to XII in all government and aided schools in the State.

3.10.2 Sanitary bins

Provision of covered sanitary bins for proper disposal of sanitary napkins must be available in each cubicle in the women's block. The operation and maintenance plan must include a mechanism for the proper disposal of the sanitary napkins. A tie up with sanitary napkins manufacturing companies or women's groups making sanitary pads can also be worked out to facilitate sale of sanitary pads in the toilet facility. Include signs that ask women to dispose of feminine products in the sanitary bin and not the toilet.

3.10.3 Disposal of used Sanitary napkins

There should be provision for storage of used sanitary napkins in the women's block. The used napkins should be disposed safely with the help of local biomedical waste collection & disposal agency.

3.11 Other planning aspects

3.11.1 Regulating user movement inside toilet

A number of different activity spaces needed in a toilet trigger user circulation within the toilets. Space occupied by the fixtures / appliances, space required by the user for waiting / changing and further space for safe storage of belongings during toilet use. In many cases, these spaces may overlap on occasion. Hence, it is desirous to carefully plan the placing of the fixtures / appliances in the order of use, thereby simplifying the user circulation within toilet space. In some cases, use of sensor-operated appliances could help minimize time spent inside the toilet and hygiene.

3.11.2 Material selection

Materials used should be durable and resistant to weather effects, external loads, heavy usage, abuse vandalism and neglect. Applied finishes such as paint should be avoided. Examples of good materials:

An example of: PT constructed using Cement blocks available locally

- Floor: Non-slip ceramic tiles, natural stone, homogeneous tiles, terrazzo
- Wall: Ceramic tiles, natural stone, homogeneous tiles, stainless steel, enamelled steel panels, glass block, aluminium panels, phenolic cladding. Anti-slip homogeneous tiles are often selected because they are durable and are relatively easy to clean. The walls should be tiled, allowing the cleaners to sponge down the walls and floors thoroughly with little difficulty. Another alternative is to use ceramic tiles or wall cladding.
- Ceiling: Mineral fibre board, fibrous plaster board, Aluminium panels or strips.
- All sanitary fixtures, surfaces and accessories should be made of durable materials so as to withstand possible abuse, extra weight and heavy usage.

3.11.3 Use of colours while painting

Colours can be used to brighten the toilet, create interest and produce a conducive environment. Colour, achieved with materials and lighting, is one of the vital ingredients in creating ambience. It can be part of the tile or stone finishes, or added to the applied finishes such as the enamelling on steel or aluminium. If paint is to be used, it should be restricted to areas that are out of reach, e.g. ceilings.

3.11.4 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 facility remains open and easy to access for cleaning.

3.12 Norms / Design Specifications / References

A summary of the references related to design and construction of PT / CT is presented below for ready reference. It is envisaged under this Advisory too, these guidance documents shall be referred & followed.

3.12.1 Harmonised Guidelines on Norms and Standards for Barrier Free Environment for Persons with Disability and Elderly Persons, MoUD, 2016

a Chapter 8 – Sections 8.1 to 8.11 outlines detailing norms, design specifications for different elements of a toilet construction for persons with disability. Subjects covered include norms for provision of facilities, manoeuvring space, ramps, internal dimensions,

stationery fittings and fixtures, requirements for doors, water closet, grab bars, washroom accessories, use of colours, urinals, showers, signage.

- Section 8.12 indicates items pertaining to PTs whose norms and specifications are similar to general toilets described above.

b Chapter 13 – Section 10 provides an "Access Audit Checklist" which is used to check compliance to toilet facilities.

c Appendix - A comparison of international best practices in barrier free standards (European Union, Canada, USA).

3.12.2 Model Building Bye-laws, MoUD, 2016

a Chapter 4 – outlines the general building requirements and services under different context.

- Section 4.32 provides the codes for construction / installation of plumbing and sanitary services.
- Table 4.6 provides per capita requirements for various occupancies / uses.
- Table 4.7 provides flushing storage capacities.
- Table 4.15 provides inputs on segregated sanitation for visitors in public buildings.
- Table 4.23 provides general standards / guidelines for PTs in public area.
- Sections 4.35 and 4.36 provides inputs on toilets at construction sites, special / contingency toilets

b Chapter 8 – indicates provisions for differently abled, elderly and children under different context.

3.12.3 CPHEEO Manual on Sewerage & Sewage Treatment Systems, MoUD, 2013

a Part A Section 8.6 – outlines the norms for PTs as decentralized sewerage

- Section 8.6.1 provides for norms for PTs with focus on attention to gender issues.
- Table 8.2 highlights norms for provision of toilet facilities, signage's, maintenance and cleaning in public places
- Table 8.3 provides norms for sanitary facilities in each unit as proportion of number of users.
- Sections 8.6.2 and 8.6.3 provides inputs on off- site treatment and special PTs.

b Part A Section 8.7 – deals with CTs as decentralized sewerage

- Section 8.7.1 provides norms to be followed for CTs
- Table 8.4 provides sanitation provision for special event as a proportion of persons visiting

c Part A Chapter 3, shall be followed for assessments on volume of sewage.

3.12.4 Urban and Regional Development Plans Formulation & Implementation Guidelines, MoUD, 2014

Section 8.2.2.8 recommended norms for PTs in public areas on aspects related to locations, signage, payment modes, maintenance and cleaning.

3.12.5 SP7: National Building Code of India, BIS, 2016

a Main section has 12 parts
- Section 5 provides requirements for accessibility in buildings and built environment for persons with disabilities and the elderly
- Section 8 has provisions for building and plumbing services
- Section 10 provides for new / alternative building materials and technologies

b Annex 1
- Part 6, Section 5 deals with concrete structures, Section 7 on prefabricated and systems building and mixed / composite construction
- Part 8 Section 1 deals with lighting and natural ventilation, Section 2 on electrical and allied installations, Section 6 on information and communication installations.
- Part 9 Section 1 deals with water supply, Section 2 on drainage and sanitation
- Part 10 Section 2 deals with signs and outdoor display structures
- Part 12 deals with asset and facility management

c Annex 2
- Part 4 deals with roles and responsibilities for all professionals and contractors involved in construction projects
- Part 5 provides comprehensive planning norms for minimum amenities to be provided in a city / town
- Part 23 deals with use of modern lighting techniques

4. Operations and Maintenance

Operation and maintenance of PT / CT facility is closely linked to design and proper construction practices. O&M of a toilet facility includes several activities like cleaning, provision of consumable items, dedicated staff for the facility, undertaking repairs & replacement, etc. The operations and maintenance activities can be viewed at two levels - regular and occasional including repairs. This section talks about various activities that need to be carried out to ensure efficient O&M of toilet facilities.

4.1 Operations related activities

Operations include the general day-to-day activities related to daily operating of the toilet - opening and closing of the toilet facility, cleaning, ensuring safety and staffing, etc. User satisfaction is heavily dependent on the proper and timely operations, hence setting service level standards for each activity is critical.

4.1.1 Opening and closing time

The opening and closing time of public toilet should be appropriate to local demand and activity pattern. *Table 2.1* provides an understanding of type of PT / CT users and their duration in a day. A clear understanding of the usage pattern / people movement at potential locations will clearly help in deciding the opening and closing hours.

An example of: Information disclosure

The operating hours should clearly consider the quantum of women users to ensure easy and timely access to PTs (refer **Annexure 1** for gender needs requirements). In case of CTs, the opening hours must be adjusted to suit the needs of the users and must be appropriate to local demand and activity patterns. The timings should be arrived at after consultation with the relevant stakeholders / user groups.

Toilets near fruit and vegetable stock market / mandi may be kept open for 24 hours as there will be a constant influx of people shopping (morning till evening) and those related to loading and unloading operations (midnight to morning). Another case may be, toilets located near government offices may be operational from 9-10 am to 5-6 pm, aligning with office timings. When operating hours exceed 8 hours, multiple shifts may be planned to keep the toilet facility open, without any interruptions. A board should be fixed at the entrance of the toilet block prominently displaying the opening and closing time and complaint / feedback contact details.

4.1.2 Equipments and consumables

Cleaning of toilet requires various equipment and supplies. These typically include safety gear for the cleaner, consumables (such as detergent and disinfectants) and other miscellaneous items for convenience. Operation staff should have access to sufficient number of cleaning tools to aid their cleaning activities, hence necessitating an inventory and stocking system by the operator. A detailed list of equipment and consumables required has been provided below.

TABLE 4.1 : LIST OF EQUIPMENTS AND CONSUMABLES

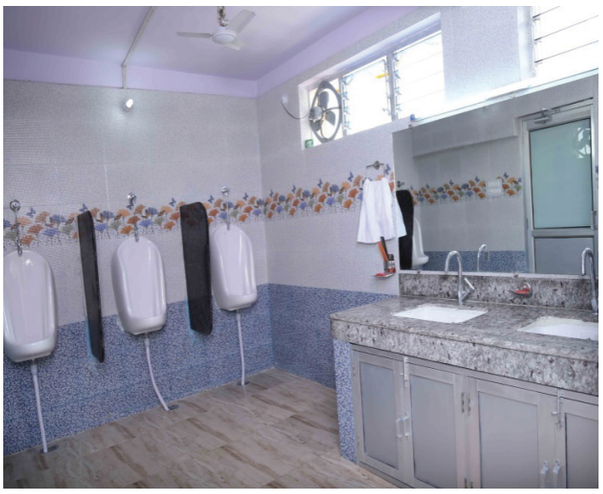
Cleaning equipments	Consumables	Other equipments	Cleaner safety gear
• Brush for cleaning toilet seats / bowls • Plastic scrubber / brush for cleaning wash basins • Brush / scouring paper for cleaning tiles • Brooms for wet areas • Brooms for dry areas • Cloths / mops for cleaning floor • Floor wipers • Plastic scrubber / sponge / cloths for scrubbing plumbing fixtures and other general purposes • Bucket for mixing floor cleaning agent with water • Mug for pouring floor cleaning agent mix • Sponges / soft cloth for cleaning mirrors • Dust collecting pan • Dust bins	• Sanitary ware cleaning agent • Tiles cleaning agent • Floor cleaning agent • Plumbing fixtures cleaning agent • Glass and mirror cleaning liquid • Soap / non-abrasive cleaning liquid • Disposable garbage bags • Hand washing soap • Naphthalene balls	• Sign boards / Warning Signs • Trolley / tray for carrying cleaning equipment • Room freshener (optional) • Plumber's snake • Plunger • Ladder	• Rubber Gloves • Face mask • Boots • Uniform / Apron

4.1.3 Cleaning schedules

The term "cleaning" refers to all activities related to the provision and use of all cleaning equipment and consumables for predefined activities and schedules by cleaning staff. This schedule ensures that the toilet facility is clean and hygienic at all times.

The operator shall ensure that the toilet is regularly cleaned by having cleaning cycles, as much the footfall demands or a minimum of three times every day. Periodic, scheduled cleaning may be done during off peak hours so that the users are not inconvenienced. Some cleaning activities are required periodically once a week or fortnightly, especially for fittings, wares and surfaces.

Cleaning frequency depends on the number of users (toilet located in a busy shopping area requires more frequent



An example of: Clean toilet block

cleaning cycles than a toilet in residential location). Operation standards are outlined by the ULB and also dependent on the fund availability. In any case, the interval between cleaning cycles should not exceed 8 hours. Different number of cleaning cycle can be worked out based on toilet facility layout (men and women units) and footfall.

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 service requirements, the performance standards and the typical structure of penalties have been provided in **Annexure 10** and **11.**

Graffiti resistant material should be used on all external and internal surfaces including sanitary wares, vanity tops, partitions, ledges etc. Graffiti and objectionable drawings when found within or outside the toilet facility must be immediately removed. User awareness creation against this activity is an option.

The wastewater generated from the toilet facilities should be properly and carefully managed. If the wastewater from the toilet is connected to the septic tank, the septic tanks should be regular emptied to avoid overflow, odour nuisance, insect nuisance and environment pollution. The emptying of septic tanks should be done mechanically ensuring that the service provider strictly follows occupation health and safety practices.

4.1.4 Safety and Security

The following aspects need to be considered to ensure that the safety of the users (especially women and children), is not compromised in PT / CT facilities. A core design principle in PT / CT facilities is supervised access.

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.

It is recommended that existing Public / Community Toilet blocks whose life has exceeded 10-15 years should undergo a structural audit periodically (every two-three years) for maintenance and repairs of the structure, if any. The periodical structural auditing of such old toilet blocks will be useful in understanding the present serviceability and structural viability of structures ensuring the safety of users. The structural audit must be carried out following auditing norms, methods of non-destructive testing and code provisions. The structural auditing will help to implement maintenance and repair work timely which leads to prolonged life of the toilet facilities and safety of the users.

4.2 O&M staff & their responsibilities

The number of staff persons needs in each category for the O&M of a toilet block depends upon the number of users, the usage hours, method of user charges collection and the institutional arrangements for O&M. The aim should be to appoint the minimum number of staff essential for carrying out all the daily and weekly O&M schedules and general up-keep measures.

For effective implementation of the recommended O&M schedules and general upkeep

measures, the following categories of O&M staff should be appointed.

a **Cleaner** will be responsible for keeping the toilet clean by carrying out most of the day to day activities. At least one cleaner should be available during the usage hours.

b **Caretaker** will be responsible for:

- Overall O&M and upkeep of the toilet complex
- Regulate the use on a "first come first served" basis
- Collection of user charges (in case of monthly pass holders, making the entry in the card & signing it whenever the payment is received)
- Maintaining the complaint and suggestion book properly
- Receipt and issue of cleaning materials and equipments
- Carrying out routine repairs and replacements
- Educating the users

If the O&M, is carried out by the local community, this function is usually looked after by a community member.

c **Supervisor** will be responsible for monitoring the performance of cleaner and caretakers and for keeping a record on the status of O&M of each toilet complex. The supervisor should plan visits in such a way that he/she inspects the community toilet at different hours of the day. A few visits should be during the peak hours. A supervisor's duties include:

- Ensuring that the toilets are neat and clean, all infrastructural facilities are available and functioning well and users are fully satisfied
- Attending the complaints and suggestions recorded in the complaint book / box
- Collecting the user service charges from the caretakers and depositing them daily in the bank or at the instructed place (if collection on any day falls short of target or the O&M expenditure is high, he/she should enquire into it)
- Bringing to the notice of the concerned person / authority, the difficulties and problems faced in the operation of the toilet blocks

If the O&M is carried out by the community, this function is usually performed by a community member.

A flexible and pragmatic approach should be followed in defining the requirements and responsibilities of each category of staff.

As far as possible a women caretaker / cleaner should be appointed for the women section. However, if for economic reasons it is not possible to keep separate caretaker / cleaner for the men and women sections, the men caretaker / cleaner should clean the women section also during a non-use or lean-use period.

Depending upon the various factors the staff requirements should be worked out for different institutional options at the project preparation stage.

An indicative requirement of caretaker and cleaner for a 10 seat toilet block (24 hours) is given in *Table 4.1*.

TABLE 4.2: INDICATIVE REQUIREMENTS OF CLEANERS & CARETAKERS FOR A 10 SEAT TOILET BLOCK (24 hours shift)

Duty Hours		Cleaner	Caretaker
Morning shift (Peak hours)	5 A.M. – 9 A.M.	1 with split duty hours	1 with split duty hours
Day shift (Lean hours)	9 A.M. – 5 P.M.	1	Nil
Evening shift (Peak hours)	5 P.M. – 9 P.M.	Same as Morning shift	Same as Morning shift
Night shift (Lean hours)	9 P.M. – 5 A.M.	Same as Day shift	Same as Day shift
Total		**3**	**1**

Note:
- *Shift = generally 8 hours desirable according to Indian labour standards*
- *The number of Cleaners will be reduced for a toilet block closed during Night*
- *Atleast one cleaner should be available during the usage hours*
- *Irrespective of manpower deployment, the overall expectation is to deliver desired service levels (as per the contract)*

The deployed staff shall be provided uniforms, identity cards, communication equipments. cleaning gloves, aprons, masks, gum boots, etc. All the items should be replaced atleast once in 6 months.

Occupational health and safety requirements are covered in ***Section 5.5*** of this report.

4.3 Gender and differently abled specific considerations

Safety, security and access needs to be looked proactively to prevent risks to women and adolescent girls from using the facility or sexual assault while using the facility. Special attention should be given to areas prone to vandalism, functional lighting fixtures, water availability, functioning doors, intrusion of privacy, etc..

On a similar note protocols should be available for cleaning ramps, railings, handles, toilet seats, wash basins, and storage space. By protocol, caretaker or cleaner should attend to such users on a priority and not overcharge them.

4.4 Maintenance of structure

All Public and Community Toilet systems, materials, fixtures, accessories and appurtenances, both existing and new, and all parts thereof, should be maintained in proper operating condition in accordance with the original design in a safe and sanitary condition. 'Maintenance' includes the repair and replacement of the above as required.

4.4.1 Internal elements

These include replacement of latches, refurbishing broken doors, replacement of non-functional / damaged electric bulbs and other lighting fixtures, repair of broken roofing sheets, electrical wiring, plumbing and other similar repairs that may be required in a toilet from time to time.

4.4.2 External elements

Maintenance of external elements like entrance to toilets, septic tanks etc. on a timely basis. 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.

4.4.3 Minor repairs

These repairs should be undertaken on a priority basis without the need for approval from ULB. Such repairs would not require the facility to be shut down. Preferably, these repairs are to be undertaken during non-operational hours and the costs met from the routine monthly O&M expenses.

4.4.4 Major repairs

This may include upgradation of the facility, rehabilitation, structural repairs, refurbishment of roof, tanks, soak pits etc. which sometimes could entail closure of the facility. These repairs may be carried out by ULB / contracted out to another private entity/ undertaken by the operator, depending on the nature of the contract. The costs towards major repairs may be reimbursed by ULB depending upon the contract conditions.

4.5 O&M Costs and financing

4.5.1 Costs for operation and maintenance

Cost for O&M is often paid by the operator unless subsidized by the ULB which can be grouped along the following four heads:

- Daily and occasional maintenance costs: Include cost of cleaning equipment, consumables
- Minor repairs: Those if not attended, may close daily operations partially / completely. Include repair / replacement of fixtures (taps, buckets, mugs, etc.), repairs of motor pumps, lights, etc. The value is normally within three days of user fee collection and not reimbursed by ULBs.
- Major repairs: Those if not attended, slows daily operations and usage. Could include works like painting, structural repairs to building or elements (internal and external) / OHT / sewer clog removal, cleaning of septic tanks / storm water drain, electrical wiring / exhaust fans, specialized equipment in pre-fabricated toilets, etc. The value of such repairs is much higher and often requires approvals from ULB, irrespective of who bears the costs.
- Monthly payments: Electricity bills, water bills, solid waste cleaning, staff costs. Such monthly bills may vary widely depending on the size and layout of the facility, location, its age, no. of WCs, hour of operation per day, availability and quantity of water supply, number of working staff etc.

4.5.2 User fee collection

This is one of the important functions which is essential for the financial sustenance of the toilet facility. Normal user fee collection process happens at three levels – enquiry on the amounts to be paid, use of facility and payment for services. In many cases, user fee collection is a point of

conflict and dissatisfaction among users. The user fee for usage of toilets and urinals for men and women should be prominently displayed at the entrance of each toilet facility.

An informal trade-off mechanism exists and needs to be recognized and factored in the overall fund trail and financial computations. Exemptions for regular users or quid-pro-quo (give and take) arrangements or excessive charging are typical activities that are difficult to control, despite fair and transparent transactions are envisaged. The result is often a differentiated behaviour from the caretaker / cleaner often resulting in cash trapping and under reporting.

Informal and unreported downstream outsourcing arrangements often complicate the situation leaving the process of transparent transactions difficult to achieve. The operations become vulnerable when costs of repairs have to be met from fluctuating revenues, which are heavily under reported. The implications of such complex structures and human behaviour are observed in the failing service levels.

With changing payment modes emerging (digital payment platforms, etc.) the pilferages from the current cash transaction mode could lead to more transparent financial operations.

4.5.3 Revenue generation options

Different options are possible to augment revenues from different sources to ensure O&M costs are at least recovered and where possible extended to capital costs and refinancing costs.

- Revenue from allowing advertisements on the external walls of the toilet. This option is highly dependent on the design of the toilet and shall be done without compromising the use and safety of the structure. Panels / illuminated boards are best preferred. The local advertisement circle rates are applicable and ULB Revenue Department could help in formalizing these contracts either between 1) ULB and advertisers or 2) Operator and advertisers.
- Allowing for manned kiosks selling toiletry related items. Sale of tobacco or related products should not be allowed. This option is possible in toilets where caretaker & cleaner are managing operations.
- Allowing for differential user charges depending on the location of the toilet facility within the city to take advantage of the user willingness to pay and also cross subsidize certain operations.
- Allowing for other services like ATMs in the toilet premises could be an option.

Revenue generating options require strategic decision-making by the ULB and must be deployed to newly constructed and old toilets so that service provision and revenue generation is uniform across the city.

4.6 References for O&M

A summary of the references related to Operation & Maintenance of PT / CT is presented below for ready reference. It is envisaged under this Advisory too, following shall be referred.

CPHEEO Manual on Sewerage & Sewage Treatment Systems, MoUD, 2013

a Part B Section 10.4 – deals with latrines and toilets including methods of cleaning and maintenance.

b Part B Section 10.4.2 specifically details the outlines, processes to be followed for O&M and Section 10.4.3 for mobile toilets.

5. Management & Sustainability

This section discusses the key aspects related to management & Sustainability of PT / CT facilities, viz. planning for various project risks, monitoring and reporting of service levels, updating of assets, occupational health and safety, user awareness creation and important future planning considerations.

5.1 Understanding and planning for risks

One of the critical aspects of management is to understand risks in projects implementation and in service provision. This would help ULB take advance action and also decide the nature of engagement with operator while sharing the risks. The possible risks (independently / jointly) by the ULB and operator is highlighted below (Table 5.1).

TABLE 5.1: RISK QUANTIFICATION AND SHARING

Type of Risk	Asset is owned and built by ULB and only operated by operator for a predefined period.	Asset is owned and built by ULB while operations managed by operator for a defined period (including revenue generation)	Asset is owned, built, and managed by Operator for a defined period (including revenue generation)
Design and construction	ULB	ULB	Operator
Financial	ULB	ULB	Operator
Performance	Operator	Operator	Operator
User charges collection	ULB	Operator	Operator
Force majeure	ULB	ULB	ULB

Note: *Land is always owned by ULB.*

Based on the quantification of risks, the financial viabilities can be appropriately worked out and incentives/ penalties quantified in the contract itself.

5.2 User charges

The PT user charges are normally determined to enable revenue enough to keep the toilet facility in good condition (application of "user pays" approach). Wherever possible, explore possibilities of cost recovery for creating the facility or cross-subsidize, over a period of time. The charges for use of CTs however needs to be affixed with elements of both "user pays" and "ability to pay" approaches.

The user charges are usually regulated by the ULB for different uses, which the operators are contractually obligated to adhere and also publically display in all toilets. Though ULBs approach user charges from a welfare perspective (for ex. No charge for usage of urinals in all PT / CT facilities), the operators often charge higher, in the absence of proper monitoring mechanisms. In a competitive procurement system, it is sometimes possible for ULBs to allow differential pricing in different locations to take advantage of user willingness and also cross-subsidize internally certain operations.

User charges payment has been one of the difficult subjects to monitor given the whole system is transacted on cash and liable for cash trapping. Hence, public display of user charges levied in front of toilets and complaints system needs to be organized at each toilet. Simultaneously, a redressal mechanism at the city level needs to be created to respond to complaints. Another aspect is underreporting of footfall during enquiries. This has implications on the level of services committed to be provided – manpower deployment and cleaning cycles.

5.3 Monitoring and reporting of service levels

To ensure the user public is satisfied with services after every use, monitoring of PT / CT facilities is an essential activity. This can be accomplished by – (a) Service monitoring by ULB, (b) self-reporting by operator, (c) user satisfaction surveys and (d) Swachh Survekshan

5.3.1 Service monitoring by ULB

Service monitoring as per the contract is mandatory responsibility of ULB since they are contractually bound and responsible to administer contracts in letter and spirit. Unannounced inspections by ULB staff should be carried out during the toilet's operations period at any frequency - daily, weekly, monthly, bi-monthly, bi-annual or yearly.

The focus of inspections and the recommended frequency could be:

- Daily: Toilet facility 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
- As and when required: Waste-water treatment & disposal arrangements, sludge levels and desludging

The purpose of inspections could be different depending on the time of inspection. The operator is contractually obligated to allow the ULB staff access the toilet facilities for routine checks, redressing any repairs / recommendations for service improvements, etc.
Annexure 12 provides a indicative cleaniness protocol for the use of ULB staff, which also serves as a record of further evaluation against performance standards and levy of penalties.

Normal practice is to organize periodic meetings to review the operator performance on all aspects related to the contract, like service levels and maintenance of the toilet facilities and the records maintained by the contractor, etc.

5.3.2 Self-reporting by operator

In order to foster accountable services, it is desired operators follow their own monitoring mechanism of activities carried out to maintain cleanliness and safety in the toilet facility. The monitoring could be during different shifts of the day, daily, weekly or monthly which the cleaner and caretaker normally records and authenticated by caretaker / supervisor of the toilet. This record, when maintained systematically also provides as a reckoner for daily operations and maintenance activity plan. **Annexure 12** provides an indicative cleanliness protocol format which operators can use.

5.3.3 User satisfaction surveys

The idea of such surveys is to ascertain user desires and expectations to be fulfilled, while charging them with user charges. Such surveys can also be conducted by the ULBs periodically and helps to understand & address any complaints consistently observed in toilet facilities, which have not been fixed by the operator. **Annexure 3** provides a typical user survey format that ULBs can use. Various ULBs (e.g. NDMC) have initiated setting up of user satisfaction consoles in some toilet facilities to monitor quality of services in real time manner with the support of national telecom entities.

Implementation of Online Real time user feedback system for Public & Community Toilets i.e. Swachh Poll

For ensuring proper maintenance and cleanliness of toilets, there is a need to provide a platform such that the ULBs and various stakeholders can continuously monitor the cleanliness of toilets by directly seeking feedback from users.

In view of this, MoHUA envisages implementation of an ICT based solution to capture real-time feedback from community and public toilets including private establishments used by public in all cities. This solution allows citizens to directly give feedback from the toilet location that they visit and would display real-time feedback data on online dashboard.

An example of: online real time user feedback system for PT

In this regard, BSNL, Telecommunications Consultants India Limited (TCIL) and M/s. ITI Limited and can be engaged by ULBs for implementation of the ICT based solution for monitoring of Community and Public Toilets including private establishments used by public. The above mentioned companies will charge **Rs 945 (exclusive of applicable taxes) per device per month** for providing the solution.

For further information on the online toilet monitoring solution refer D.O No. 16/4/2017 – SBM I dtd. 12th May 2017, D.O No. 16/4/2017 – SBM I dtd. 24th May 2017 and Lr.No.AS(G)/1/SBM-2017 dtd. 12th July, 2017 on www.swachhbharaturban.in (Circulars).

5.3.4 Toilet Monitoring Tool

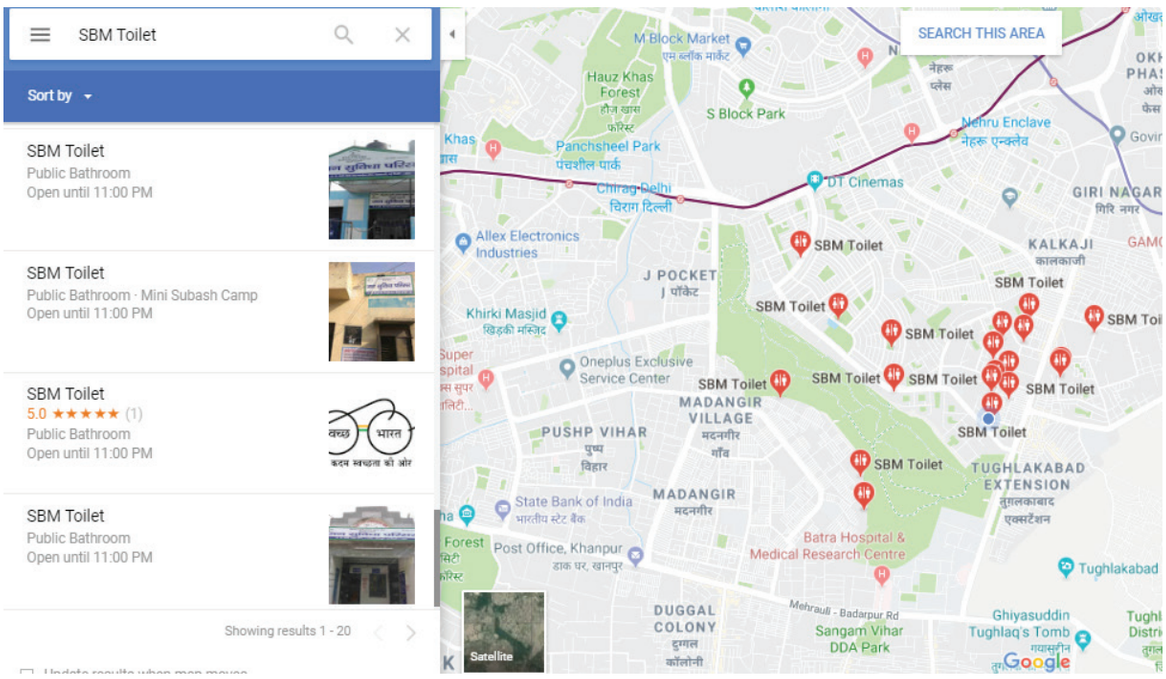
One of the objectives of the Swachh Bharat Mission – Urban (SBM - U) is to provide sanitation coverage through the construction of Community & Public toilet facilities across cities in India for achieving Open Defecation Free status. With majority cities already having achieved ODF status, and other cities gearing up towards the same, there is now a need to move beyond measuring outputs/targets for toilet construction to enhance access, actual usage, improved monitoring and maintenance for sustainability.

In order to increase the access and usage of public toilets, it is essential for citizens to be able to locate the nearest toilet Google Maps was identified one of the most widely-used apps for

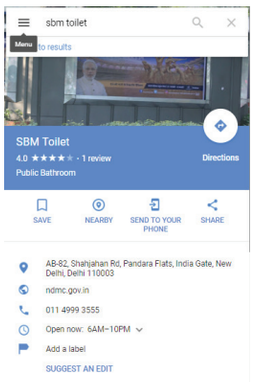
navigation purposes which will ensure wide reach, possibility of providing location of toilets. This platform allows the user to rate and review the toilets. MoHUA partnered with Google for utilizing google maps to help public to locate the public toilets and provide feedback. These toilets includes toilets located in Communality, Municipal, Hospital, Malls, Bus Stand, Railway Station, and Metro etc.

As on date there are more than 570 cities with 30,000+ Toilets mapped with the name of "SBM Toilet" that are live on Google Maps. Another major challenge was to utlise the feedack given by citizens given on Google Maps to take corrective action for ULBs. Therefore, MoHUA is developing a Toilet Monitoring Tool to capture the feedback of users on usage of these CTs/ PTs from different sources (Google maps, SMS, Swachhta App, Third Party review) and allow ULBs to access and monitor it through a dashboard. The dashboard will captures the ratings of all the toilets mapped on Google Maps. This dashboard will allow the ULBs to monitor all the toilets in order of their rating. This dashboard is being developed to capture the mobile number of the care taker as well so that ULB can notify all the caretakers accordingly. Once the testing is complete it will be launched nation-wide for all stakeholders. MoHUA is also working to create an IEC Campaign in partnership with Google to promote the usage of these toilets and seek their feedback.

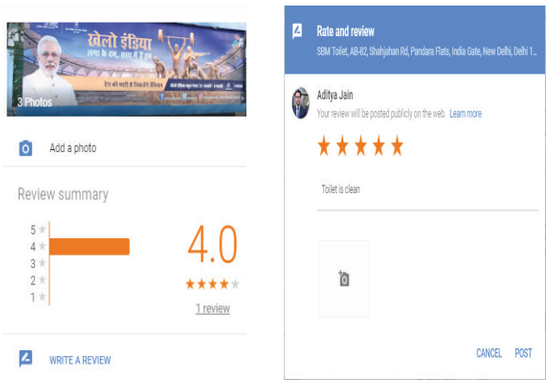
Some of screen images showcasing features of Toilet Monitoring Tools are as below



Step 1: Open Google Maps application and search the nearest toilet on Google Maps by typing "SBM Toilet"

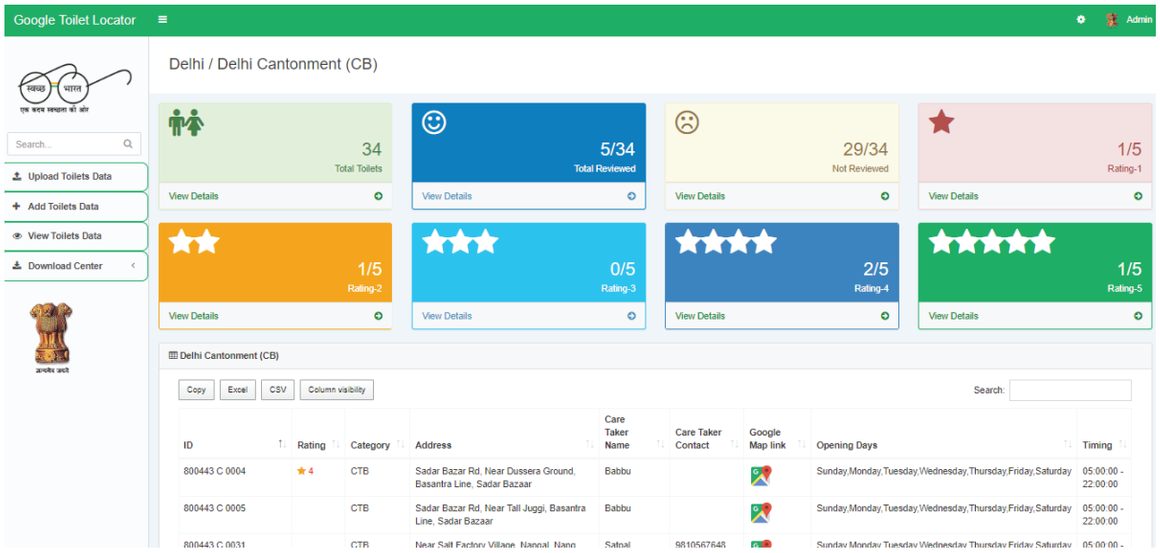


Step 2 Select & Use the Toilet

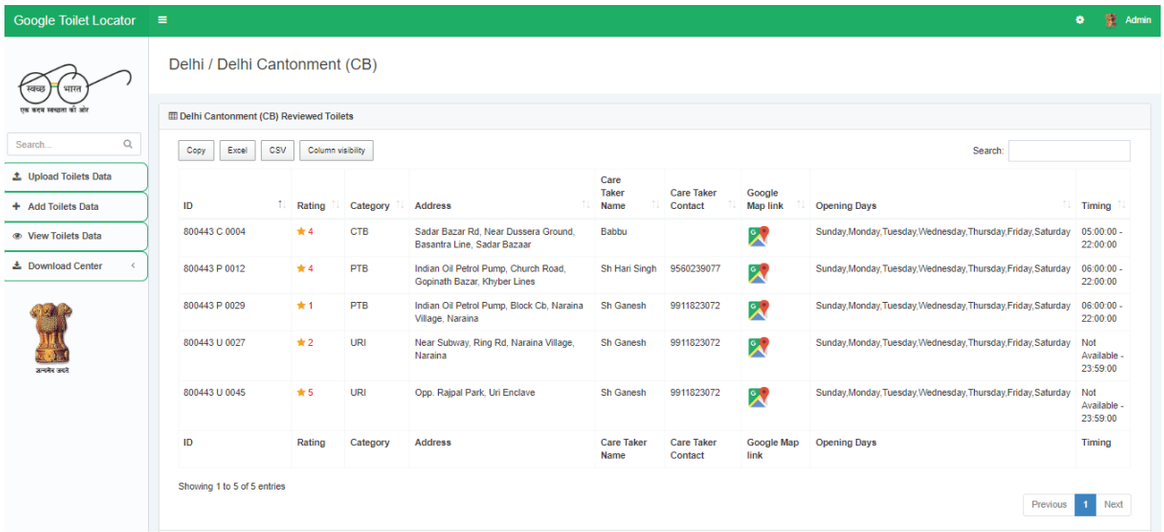


Step 3: Rate and Review the Toilet

Toilet Monitoring Tool Snapshots



Delhi Cantonment (ULB Level Dashboard)



Toilet Level Dashboard

5.3.5 Swachh Survekshan

MoHUA has been conducting annual Swachh Survekshan surveys since 2016, which includes PT and CTs as a subject for evaluation and ranking. The intent is to create a competition among cities regarding the ability to deliver SBM mandates consistently.

States and cities can also attempt such exercises to encourage a sense of competition among cities and provide financial and other incentives for successful cities, ULB staff and service providers.

In addition, supplementary methods like introducing citizens' report cards, citizens' monitoring committees etc. can be used for continued monitoring of services.

5.4 Asset management

One of the first steps while planning for PT / CT facilities is to create an asset inventory of the toilets to enable an evaluation of the quality of services. Most toilets are built on ULB assets and require to be clearly mapped and ownership clarified. This ownership mapping also provides an opportunity to attempt different viability models.

An easy method to create dynamic database is the use of GIS for asset inventory building. It will help integrate various data to provide analytical inputs related to adequacy of number of toilets for women / vulnerable groups, suitability of toilets location, adequacy of facilities against the population density, travel distances etc. The system can also be integrated with other support services (water supply, wastewater systems, electricity, telecom, etc.) to ensure satisfied services are delivered.

This database can be also integrated by connecting it to mobiles / other handheld devices used by for reporting user satisfaction, complaints, etc.

Another benefit of maintaining GIS based inventories / database is in the planning for new assets. Such systems also help in planning and siting of toilets as explained in **Annexure 5.** In preparation for future planning, MoHUA has already mandated the capture of geographical coordinates of toilets constructed under SBM.

Providing unique ID to each toilet block

The citizens must be aware of the basic information about the public toilets they wish to use and must have access to grievance redressal mechanism. In view of this, as well as for record keeping purpose, ULBs are requested to identify all public access toilets and community toilets in their city, provide each of these toilets with unique identification numbers in specific format recommended by MoHUA and prominently display all the basic information at the entrance of each toilet block.

Sample Format for Display at Entrance of each Toilet Block

For further information on unique ID for public toilets, please refer D.O. No. 15/37/2017-SBM-1 dtd 15th Nov. 2017 on www.swachhbharaturban.in (Circulars).

5.5 Occupational health and safety

One of the critical management related issues to be addressed is health and safety of the operator's staff, which is often neglected. Poor working conditions for operators are often seen in toilets managed by a contractor or in sub-contracted toilets.

This subject can be addressed through carefully drafted contracts mandating operator to provide minimum standards of working environment for their employees as per labour laws, at the toilet premises. Areas that should be covered include working hours, minimum wages, medical & health insurance, providing uniforms, use of protective gear (boots, rubber gloves, face mask, uniform/apron), cleaning equipment, storage space, etc. while operating and maintaining the toilet. Importantly, it is to be ensured the operator is not violating the stipulations outlined in Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013, among other water and wastewater legal provisions. Occupational health and safety is also one of the subjects the ULB is obligated to indirectly monitor.

5.6 User awareness creation / IEC

Awareness programs need to be conducted in the community on the ill effects of open defection and to encourage the use of CTs. The programs should focus on the relationship between open defecation and faecal-oral transmission and associated diseases. The program must also explain 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. An effective communication drive aims to focus on the need to overcome the user's socio-economic traditions and beliefs. Key focus areas of a well-structured, targeted and executed public awareness programme could include deepening user knowledge of toilet facility, changing attitudes and practices (like smoking, spitting paan) and improvements in individual hygiene practices (like treating CTs like household toilets). IEC programs and budgets under SBM could be used for awareness creation.

It has been observed that Public & Community Toilets are many times not properly maintained forcing the public to defecate/urinate in the open. In view of this, the States/ULBs are encouraged to launch special cleanliness drives (one-two month duration) in their respective states / cities annually to ensure proper O&M of CT/PTs and triggering behaviour change among users towards their upkeep and cleanliness.

The States / ULBs may take innovative steps to ensure wider user awareness creation in their States / Cities i.e. engaging students as Swachhagrahis, engaging cricket associations/clubs as Swachhagrahis, etc.

5.6.1 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 reach.

5.6.2 Outside the structure

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

ULBs while preparing user education campaigns or messaging require to target messaging on multiple fronts. One of the option is having education messages that are persuasive in nature in a step by step manner.

Psychological studies indicate high receptiveness of people to visuals. This messaging mode requires visuals to be simple, uncluttered; attractive and eye-catching. Use of local languages along with visuals reinforces messaging and future action. Slogans, humour and cartoons are other successfully attempted medium.

Message placement is one of the important aspects to maximise the effective reach of the message. Stickers and posters preferably of vinyl are ideal tools (water repellent nature) that offer flexibility for locating messages in both inside and outside the toilet.

5.7 Capacity Building

MoHUA provides for funds to undertake IEC and capacity building activities under SBM. The SBM E-learning portal (https://swachhbharat.cloudapp.net/) provides opportunity for e-learning for various subjects related to PT / CT facilities.

5.8 Ensuring Sustainability

Given that concrete PT facilities have a long structural life, it is important that the overall process of service provision (planning, implementation, operations) incorporates sustainability elements.

Some of the sustainable practices possible within the toilet unit are:

- Choice of durable materials for the toilet structure (prefabricated structures of varied designs, strengths, consistency and quality), consistent to locational and climatic conditions
- Focus on user comfort and convenience beyond the stipulated toilet unit size norms
- Focus of internal spaces to provide privacy and safety for women particularly
- Continued focus on natural ventilation (air and light) in design
- Energy efficient lighting systems
- Vandal proof systems
- Plan for facilities and supporting elements (ramps, bigger sized toilets) for vulnerable groups
- Efficient flushing fixtures to minimize water consumption
- Self-cleaning systems to minimize use of manpower to clean toilets

Aspects on site planning for future facilities could include:

- Acquire more land and plan for incremental improvements as footfall increases through

use of modular structures

- Active engagement during city land use planning to earmark specific land parcels to meet current distance standards
- Sharing of private facilities for public use is another co-management practice that require fostering by local laws

Aspects on processes changes for future facilities could include:

- Immediate adoption of GIS based asset inventory system to help integrate with other ULB data systems
- Dedicated ULB staff available to manage contracts and services
- Clear service level agreements to be the basis of contracting
- Consistent maintenance practices to prolong the asset life thereby reducing the cost to rehabilitation
- Since ULBs are currently investing in construction of toilets using SBM funds / CSR funds and favouring O&M contracts, shorter and extendable contract periods with same operator will help match service mandates to meet changing user requirements from time to time.
- Performance based contracting with incentives
- Focus on deeper understanding on financial viability at the stage of planning to support project structuring
- Improved understanding of project risks by ULBs
- Widening the operator market by allowing newer type of institutions (non-profit groups, facilities management companies)

With 19 states and more than 4000 cities already Open Defecation Free, it is now required to consolidate and sustain the ODF outcomes achieved. To this end, MoHUA has launched the SBM ODF+ and ODF++ protocols, with a focus on achieving holistic sanitation. While ODF+ protocol focuses on Operation & Maintenance of Community and Public toilets by ensuring their functionality and proper maintenance to ensure their continued usage, SBM ODF++ focuses on addressing safe management (safe containment, collection, safe treatment and discharge) of fecal sludge from toilets and ensuring that no untreated sludge is discharged into open drains, water bodies or in the open.

Annexures

Annexure 1: Gender (especially women) needs checklist for public / community toilets

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:

- Choosing locations for toilet facility with high visibility and thus safe to use for women at all times
- Design considerations outside the toilet facility which ensure ease of access for all including women (especially pregnant, old, differently abled women) and privacy (by providing separate entrances, waiting areas for women)
- Design aspects to be taken into consideration while planning the interiors of the women's 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 water and electricity are crucial for ensuring that women use the facility, maintain personal hygiene and feel safe during use

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's block must have a woman caretaker / cleaner. The compliant registration system's contact numbers must be adequately displayed and there should be a separate caretaker for handling complaints from women

Parameters / check points		Gender Needs Checklist					
		Access to toilet	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, hooks, doors in good condition and weather proofed		✓	✓			
	Bins and disposal mechanism		✓		✓		
	Toilet windows, ventilators and roofs not to compromise on women's safety		✓				

Parameters / check points		Gender Needs Checklist					
		Access to toilet	Privacy & dignity	Safety	Menstrual hygiene	Maintenance of toilets	Awareness
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	✓					✓
	Women caretakers		✓	✓	✓	✓	
	Women involved in decision making					✓	✓
	Establish standards related to maintenance and monitoring				✓	✓	
	Contact number for complaints and helpline			✓		✓	✓

Annexure 2 : Good practices

The following few cases illustrate good practices of toilet planning and management in India

Municipal Corporation of Greater Mumbai (MCGM) – Slum Sanitation Project

- Prior to Slum Sanitation Project (SSP), Municipal Corporation of Greater Mumbai (MCGM) provided sanitation improvement schemes for slum dwellers through a supply driven approach. Given the large failures in operation of toilet facilities, a demand driven approach was adopted where infrastructure was built in specific locations chosen by slum dwellers.
- The toilets were designed to house 16-20 seats, with separate access for men, women and children. Where space was limited, the facilities were built on two floors with a men's section on the ground floor and a women/children's section on the first floor. The second floor housed water tank and accommodated caretaker's stay.
- 24 hour water and electricity supply were a must in these toilets, connections to municipal sewerage network or septage cleaning were organised.
- Multi-party MOUs were signed between MCGM, CBOs or small local business enterprises (SLBEs). CBOs/SLBEs provided O&M services, while MCGM undertook financing, managing and performance evaluation (parameters – cleanliness, access to facilities) of toilet facilities over time.
- The total capital investment cost of toilet provision was borne by MCGM under World Bank loan for up to 60% of the costs and supported by up-front user capital contributions between Rs. 100 to 500.
- Cost recovery was through mandatory monthly pass payments of Rs. 30 per family or Rs. 1 per usage for visitors.

New Delhi Municipal Council (NDMC)

- In the 1990s, the New Delhi Municipal Council (NDMC) and the Municipal Corporation of Delhi (MCD) issued tenders for PT construction and operation on BOT basis for 5 to 7 year concession period.
- While ULB obliged to provide the land, water and sewage facilities and electricity connections, the contractor was responsible for operations and maintenance.
- Cost recovery were through on wall advertising and user fees. This model required construction mainly in crowded areas having advertising potential.
- This management model was extended to low-income area's through cross-subsidising the costs and making it commercially viable service provision.

Municipal Corporation of Tiruchirappalli

- This model attempted to involve self- help groups to operate and maintain CTs. 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 Tiruchirappalli. This approach was successful in 179 of 186 slums in Corporation area and were declared open defecation free within two years of the partnership.
- The model involved a combination of PTs in commercial areas and CTs in slum communities. A mix of pay-n-use and free services.
- The model included conduct of training programs on hygiene and sanitation.

Delhi Urban Art Commission (DUAC) - Smart Public Toilet

- DUAC's Smart Public Toilets are distinctive, aesthetically pleasing designs appropriate for modern requirements, appreciated by the user
- Incorporated with Hi tech and smart contemporary environment friendly features
- Standardised designs, Industrially prefabricated for mass production for high quality and competitive pricing
- High durability life of approx. 15-20 years, minimum maintenance, easy to clean, self sustainable, vandalism resistance
- Cost varies from 1.0 to 1.5 lakh per seat
- Hassle free transportation to predesignated sites for quick installation
- Variety of functional customisations like incorporation of guardroom / ATM / small etc. with the toilets
- Adequate space for adverstisement and Revenue generation

Sulabh Toilet Model

- Sulabh toilet complexes are located in public places, bus stands, hospitals, markets and slums. For the construction, operation and maintenance of these complexes, Sulabh plays the role of a catalyst and a partner between official agencies and the users of the toilet complexes.
- In the Sulabh Two Pit Pour Flush Compost Toilet, there are two pits one of which is used at a time. It is an indigenous technology and the toilet can easily be constructed by local labour and materials.
- Pits are generally designed for 3-year desludging interval, but if desired, it can be designed for longer periods or it can be reduced even to two years.
- More than 1.3 million Two Pit Pour Flush Compost Toilets have been installed in India by Sulabh alone. The Government of India has also got installed 54 million such toilets.
- Toilets in cities are typically built on a BOT basis by Sulabh retaining a part of the contract value as contractor's fee. Sulabh has a typical 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.

Namma Toilet Model

- The toilet structure is made with FRP (fibre reinforced polymer) material, allowing easy installation in a wide range of locations.
- Being modular, toilet facilities can either be installed as standalone units or assembled to desired configuration based on space and footfall with minimum masonry work.
- Time frame for installation is 2 months, making it ideal to install in response to immediate demands.
- Toilet system allows for ample overhead water storage (2000 L), water efficient cisterns (9 L), sensor based solar powered automated LED lights (3 W) for use during nights, qualifying for an environmentally sustainable toilet.
- Made of composite material, maintenance is easier in areas with high footfall and requiring frequent maintenance.
- Contracting can be bifurcated - a) for maintenance with the manufacturer for structural issues and b) for operations, paid for by ULB or CSR funds or user charges. Operations nevertheless require stringent monitoring by ULB.

SPARC Toilets Model

- The SPARC (Society for the Promotion of Area Resource Centers) model was implemented in Pune and Mumbai as collaboration between three Indian NGOs (SPARC, National Slum Dwellers Federation NSDF, and women's organisation Mahila Milan).
- Under the SPARC model, community toilets (each seat serving about 50 people) are constructed by ULB and managed by NGOs with close community involvement.

E-Toilet Model

- E-Toilet or electronic toilet system is a modular, pre- fabricated public toilet fabricated using Cold Rolled Steel (CRS) with powder coating or steel. These are sophisticated unmanned, automated toilets integrated with user-friendly electronic interfaces to support remote monitoring capabilities tracked over web.
- The sensor systems tracks water usage and supports automated water pumping from sump to OHT.

- The flushing system is sensor controlled - Pre Flush, Auto flush, automatic platform cleaning mechanism to clean the toilet before and after usage. This self- cleaning facility eliminates full time presence of caretaker or cleaner.
- The system can be integrated with sewer connections or with Bio Digester tank containing Bacterial Inoculum to decompose waste.
- As part of energy savings, the system can be integrated with roof solar panel along with battery to handle power cuts. LED lights are vandal proof and offer lighting at night thereby enhancing user safety. They are also used to notify the user about the status of the system.
- Revenue collection is through a coin validator system and eliminates need for full-time caretakers / cleaners.
- Display boards where instructions in Hindi and English can be written for the aid of the user. Voice Guidance to help the user to operate the toilet without manual assistance.
- The separator panels and walls of the toilet can be used to fix advertisement panels on which public messages, corporate advertisements can be displayed to generate revenue.
- GPRS Connectivity helps in the monitoring the functional and usage status of the unit. When any of the systems mal-function the system is programmed for remote shut down mechanism to prevent misuse or wrong usage.

Pink Ladies Toilet, Delhi

On the occasion of International day for the Girl child, National Commission for Protection of Child Rights (NCPCR) in association with South Delhi Municipal Corporation has developed a model toilet for girls, women and children. This one of its kinds and first Pink Toilet had been inaugurated in PVR Vikaspuri area of Delhi on 12th October 2017. The pink colour is easily identifiable for women and hence Pink Toilets.

Facilities at the Pink Toilet

- Separate toilet facility only for women, adolescent girls, children
- Pink coloured for easy identification by women
- Clean washrooms with both Indian and Western toilet facilities
- Low height toilets and basins for children
- Basin with running water and hand-washing facility
- Easy signage
- Bright and vibrant with proper lighting
- Availability of lady caretaker 24/7
- Sanitary napkin Vending Machines for women (napkins available for marginal cost)
- Instruction for care of toilet and usage of napkins to be put up in board
- Helpline numbers to be placed in boards
- Disable friendly; availability of ramps
- Private area for child care inside toilet campus
- Seating area outside the pink toilet
- Feedback mechanism to share inputs about experience of usage
- Availability of toilet location in the app

Moves like the Pink Toilet will give boost to the ambitious Swachh Bharat Mission.

Annexure 3 : Public / Community toilets: User Feedback Format

User gives ranking (1 to 5, with 1 for worst, 5 for highest) on the following about the toilet:

Sr. No.	Parameters	Ranking (Tick as appropriate)				
		1	2	3	4	5
	General					
1	Access of toilet from outside					
2	Condition of toilet seats					
3	Condition of urinals					
4	Condition of bathing units					
5	Cleanliness					
6	Water availability					
7	Smell (Ventilation)					
8	Lighting					
9	Water logging					
10	Amenities (bucket, cups etc.)					
11	Wash basins					
12	Condition of floor and walls					
13	Condition of doors					
14	Timings					
15	Waiting period					
16	User charges					
17	Behaviour of caretakers and cleaners					
18	Complaint mechanism					
	Gender					
19	Safety					
20	Privacy					
21	Usability for children					
22	Garbage bin for napkins					
	Differently abled					
23	Ramps & Rails					
24	Space for movement					
25	Facilities					

Additional remarks (by the user) for improvement of toilet block: .....

.....

.....

Annexure 4 : Public / Community toilets: Inventory format

Use the indicative format for existing toilets blocks, building asset inventory, while transferring assets from one agency to another.

Section A: General Questions

1. Location:
2. Ward Number & Name:
3. Nearest landmark:
4. Brief Description of toilet (4 to 5 sentences and photographs):
5. Construction year:
6. Constructed by (indicate agency):
7. Toilet visible from (indicate relevant): Main road / Lane from the main road
8. Signboard for the public leading to the toilet from the main road (indicate relevant): Yes / No
9. Clear access to toilet (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 (indicate relevant): Public toilet / Community toilet
15. Structure type (indicate relevant): Brick & mortar / pre-fabricated / e-toilet / urinal
16. Entrance characteristics :
    a. Common entrance for women & men: Yes / No
    b. Main door available: Yes / No
    c. For main door, specify the issues (select all that apply, multiple responses possible): No door / Door broken / No Latch / Door is stuck and not moving / Others (specify)
    d. Differently abled provisions: Ramps / rails / space for movement
17. Floor type (indicate relevant): Mosaic / Tiles / Cement / Others (specify)
18. Floor condition (indicate relevant): Good condition / broken / cracked / uneven surface / tiles or flooring has come out / Others (specify)
19. Roof type (indicate relevant): Cement concrete / tile / asbestos / thatched / no roof / Others (specify)
20. Roof condition (indicate relevant): Good condition / leaking / broken / damaged / needs full repair

21. Type of toilet units (Check availability and indicate numbers):

Men's toilet	Women's toilet	Differently abled
Indian toilet without flush (Nos.) Indian toilet with pour and flush (Nos.) Western toilet with flush (Nos.) Western toilet without flush (Nos.)	Indian toilet without flush (Nos.) Indian toilet with pour and flush (Nos.) Western toilet with flush (Nos.) Western toilet without flush (Nos.)	Western toilet with flush (Nos.)

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

a. Mens-toilets (Nos.)	b. Mens – urinals (nos.)	c. Womens toilets (Nos.)
a.1: Fully working	b.1: Fully working	c.1: Fully working
a.2: Units broken	b.2: Units broken	c.2: Units broken
a.3: Unit doors without latch	b.3: Unit 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		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

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

Mens	Nos.	Womens	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.

24. 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.

25. Light availability (indicate Nos. for following): Inside Mens section / Inside Womens section / Inside the toilet / outside the toilet / all

26. Caretaker room (indicate relevant): Available on ground floor / available on first floor / 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):
    e. Number of floors:
28. Paint condition (internal) (indicate relevant): Fresh and neat / Needs full painting / Needs painting with plastering / Needs partial painting
29. Toilet owned by (indicate relevant): ULB / Private (mention name) / NGO (mention name):
30. Operated and maintained by (indicate relevant): ULB / Private (mention name) / NGO (mention name):

Section C: Toilet Usage Details

31. Toilet used as indicated (indicate relevant): Yes / No
32. How long is the toilet not in use (indicate relevant):..... months
33. Toilet satisfies to needs (indicate relevant): Men / Women / Both
34. Toilet timings (Specify AM / PM)

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

35. Fees collected: (Ask caretaker) (put zero if no fee collected):
    a. Urination
    b. Defecation
    c. Shower
36. Signboard with user fees available on public display (indicate relevant): Yes / No
37. User fee mentioned same as the collected fee (indicate relevant): Same / Higher / Lower
38. Mode of fee collection (indicate relevant): None / Weekly card / Monthly card / Cash payment / any other (specify)
39. Daily amount collected (average) (in Rupees):.
40. Advertising done (indicate relevant): Yes / No
    a. Possibility of using space for advertising: Yes / No
    b. Space available for advertising (in sqft):
41. Advertising area:

Bill board : Available Yes / No	If yes, Area in sft:
Outside wall : Available Yes / No	If yes, Area in sft:
Side wall : Available Yes / No	If yes, Area in sft:
Any other (specify) : Available Yes / No	If yes, Area in sft:

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

	Morning	Forenoon	Afternoon	Evening
Men (Toilet)				
Men (urinal)				
Women (Toilet)				
Men (shower)				
Women (Shower)				

43. What is the daily peak hour (specify AM / PM):
44. Seasonal variations in footfall (indicate relevant):

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

45. Type of users (indicate relevant): Tourists / pilgrims / Slum-dwellers / General public / traders / vendors / Others (specify)
46. Daily usage record maintained (indicate relevant): Yes / No

Section D: Water availability Status

47. Physically verify water availability (indicate relevant): Is water available inside complex? Yes / No
48. Source of water (indicate relevant): Water connection from Municipality / Own bore well / Water tankers
49. Storage availability (select applicable; 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
50. Water supply frequency (indicate relevant): Continuous supply / Few hours per day / alternate days
51. Seasonal variation in water supply frequency (indicate relevant): Affected in summer / affected in winter / affected during monsoon / other events (please specify)

Section E: Issues related to monsoon

52. During monsoon (indicate relevant):
    a. Water easily drained away: Yes/No
    b. Time taken for water to drain: Less than 1 hour / 1 to 3 hours / 3 to 5 hours / 5 hours to 12 hours / More than 12 hours

Section F: Sewerage & Waste disposal

53. Connectivity to wastewater disposal (indicate relevant): UGD System / On-Site Treatment – septic tanks or leach pits / road side drains / roads / no specific mechanism
54. If not connected to sewer network, distance from sewer network (in m)
55. If septic tank, frequency of cleaning septic tank (number of times / year)
56. Who is responsible for cleaning of septic tanks (indicate relevant): ULB / Private / Owner

Section G: Electricity Details

57. Toilet complex has electricity (indicate relevant): Yes/ No
58. Electricity availability (indicate relevant): Continuous / Limited (No. of hours per day)
59. Electricity board number available (indicate relevant): Yes / No
60. Electricity is used for (multiple answers are to be allowed): Lighting / Water sump / Cleaning / Misused
61. Electricity charges are paid by (indicate relevant): ULB / Contractor / No payment is made

Section H: Details of the caretaker

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

	Men	Women
Cleaner		
Caretaker		

64. Caretaker employed by (indicate relevant): Contractor / Community / ULB / Self-employed
65. 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:

66. Salary details of caretakers and cleaners (indicate relevant): Daily / Weekly / Monthly
67. Responsibility for cleaning toilet (indicate relevant): Cleaner / Caretaker / Both
68. No. of times toilet is cleaned per day (indicate relevant):..... Nos.
69. Cleaning time each day (indicate relevant):
    a. Morning
    b. Forenoon
    c. Afternoon
    d. Evening
    e. Night
70. Is there a cleaning timesheet / record sheet issued (indicate relevant): Yes / No
71. Cleaning process (indicate relevant): Manual / Mechanized / Mixed / Not cleaned
72. Complaint redressal mechanism (indicate relevant):
    a. Telephone number
    b. Complaint register
    c. Others (please specify)
    d. None available

Section I: Gender Related

73. Is there a woman caretaker for the Toilet (indicate relevant): Yes / No
74. If yes, what is the timings (indicate relevant): Full time / Part-time
75. Work timings (specify time):

76. Prominent display of help-line number (in case of emergency for women) (indicate relevant): Yes / No
77. Bins for disposal of napkins (indicate relevant): Yes / No
78. Separate dress changing area available (indicate relevant): Yes / No
79. Toilet location close to (multiple choices possible) (indicate relevant):
    a. Forest / fields
    b. Bar / wine shops
    c. Accessible from nearest road
    d. Visible from nearest road
    e. street light outside the toilet
    f. Others (specify) .....
80. Is the toilet cubicle size convenient (indicate relevant): Yes / No
81. Incident / accident on women at toilet (indicate relevant): Yes / No

Section J: Monitoring of services

82. Monitoring responsibility (to be verified from caretaker) (indicate relevant): Supervisor / ULB / self / No monitoring
83. Monitoring sheet (To be physically checked) (indicate relevant): Available / Not available
84. Self-monitoring done once in (indicate relevant): Every one hour / 1 to 3 hours / 3 to 5 hours / Twice a day / Once a day / Weekly
85. Monitoring done by ULBs (indicate relevant): Twice a day / Daily / Weekly / fortnightly / Monthly/ Not done
86. Items monitored (select all that apply): Cleanliness / Availability of caretakers / Availability of cleaners / Availability of supplies (water, electricity etc.) / Working condition of lights, taps / Water clogging

Section K: Geography and Appearance

All pictures shall be geotagged

Picture 1: Front view (with sign)

Picture 2: Back-side view

Picture 3: Inside toilet (for each toilet unit and urinal)

Picture 4: Approach to women entry

Picture 5: road to toilet, the road and street light

Picture 6: advertisement board, if any

Picture 7: information board on user charges

Picture 8: water storage tank and wastewater outlet

Annexure 5 : Public toilets location identification / siting

ODF declaration reckoner mandates maximum distance to a nearby toilet as 1 Km in case of PTs (mandatory for commercial areas) and 0.5 km in case of CTs. In case sufficient land is not available in a single place to design for all the users, ULBs shall explore the possibility of segregating the footfall or user numbers (men alone or women alone or combined) to arrive at smaller toilet facility sizes compatible to space available in multiple locations while adhering to the distance criteria. The following table can be used as a reckoner to arrive at siting decisions.

S No	Questions / Steps
1	**Verify if additional land is available adjoining existing toilets, for increasing the capacity to meet footfall demand but meeting distance criteria**
2	**Explore sharing of existing institutional toilets for public use at**
	a) Transit uses (bus stations / railway stations / metros / fuel stations / taxi or auto stands, etc.)
	b) Commercial areas like shopping malls / theatres / convention centres / markets / restaurants / hotels / shops, etc.
	c) Public uses (Recreational spaces, places of religious or historical importance)
	d) Privately owned & managed toilets (like temple trusts, SHGs, CBOs, private trusts, etc.)
3	**Check for land availability for construction of new toilets at**
	a) ULB owned lands
	b) Roads, with adequate street widths (availability of footpaths, space) for providing additional infrastructure
	c) Land below / adjacent to advertisement hoardings built on stilts
	d) Adjacent to railway stations / bus stops or shelters / informal auto stands / important junctions, etc.
	e) In and around markets (vegetables / grains / other commodities / warehouses / truck terminals, etc.)
	f) Parking lots / commercial areas
	g) Recreational spaces like public parks, playgrounds, exhibition or convention centres, marriage halls, etc.
	h) Slum areas, low income areas proposed for redevelopment / upgradation
4	**Acquisition of private land or open plots where development is not happening (for ex. those who are paying vacant land tax for more than 3 years)**

Annexure 6 : Land requirements for public / community toilets

For every new project, land requirement has to be estimated based on the demand for toilet facilities. Given the varied conditions in ULBs, a single land parcel might or might not be available, accordingly, the structure can be suitably designed for smaller footfalls.

Space requirement for different units

a. Norms for number of seats as per CPHEEO manual (*Table 2.3*)

b. External dimensions of each WC = 1.20 m x 1.50 m, Internal dimensions = 0.9 m x 1.2 m (*Table 2.5*)

c. Internal dimension of urinal space = 0.575 m x 0.675 m, external dimension incl. dividing wall = 0.60 m x 0.70 m (*Table 2.5*)

d. Add backspace of 2 m width for drainage of black water, space for movement of person for cleaning drains, inspection, boundary wall and 2 m along length for WC.

e. Minimum internal dimensions for persons with ambulant disability = 2.2 m x 2.2 m

f. Area for one shower = 1.3 m x 1.5 m

g. Cloth washing space = @4-5 sqm per 10 WCs

h. Free space = 1.5 m space in front of WC of whole length, including gate opening space

i. Hand wash space = 1 sqm. per hand wash

j. Caretaker space, including storage space = 15 sqm

k. Bore well space = ~10 sqm. (In case of continuous water supply, this space can be omitted)

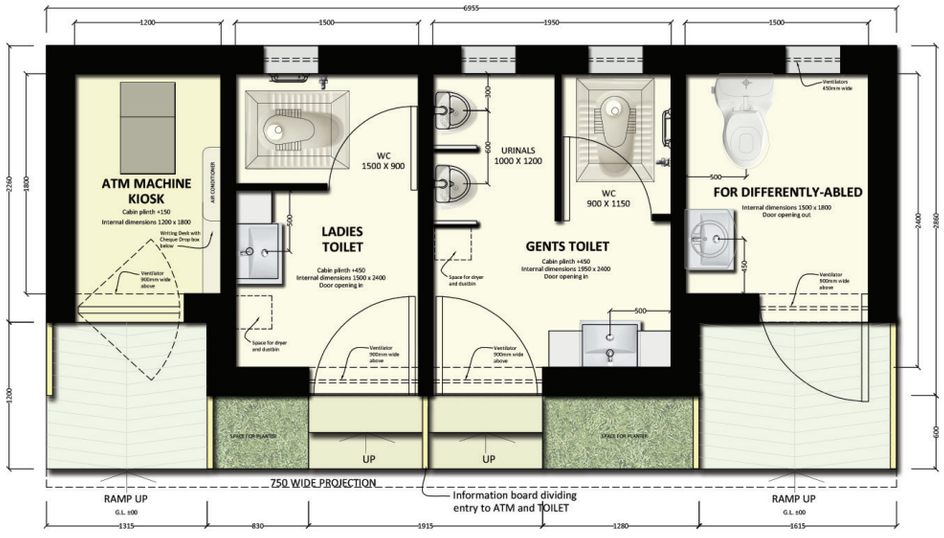
l. Space for caretakers for collection of user's charges = merged along with space in front and gate space

m. Waiting / circulating space = 25 sqm.

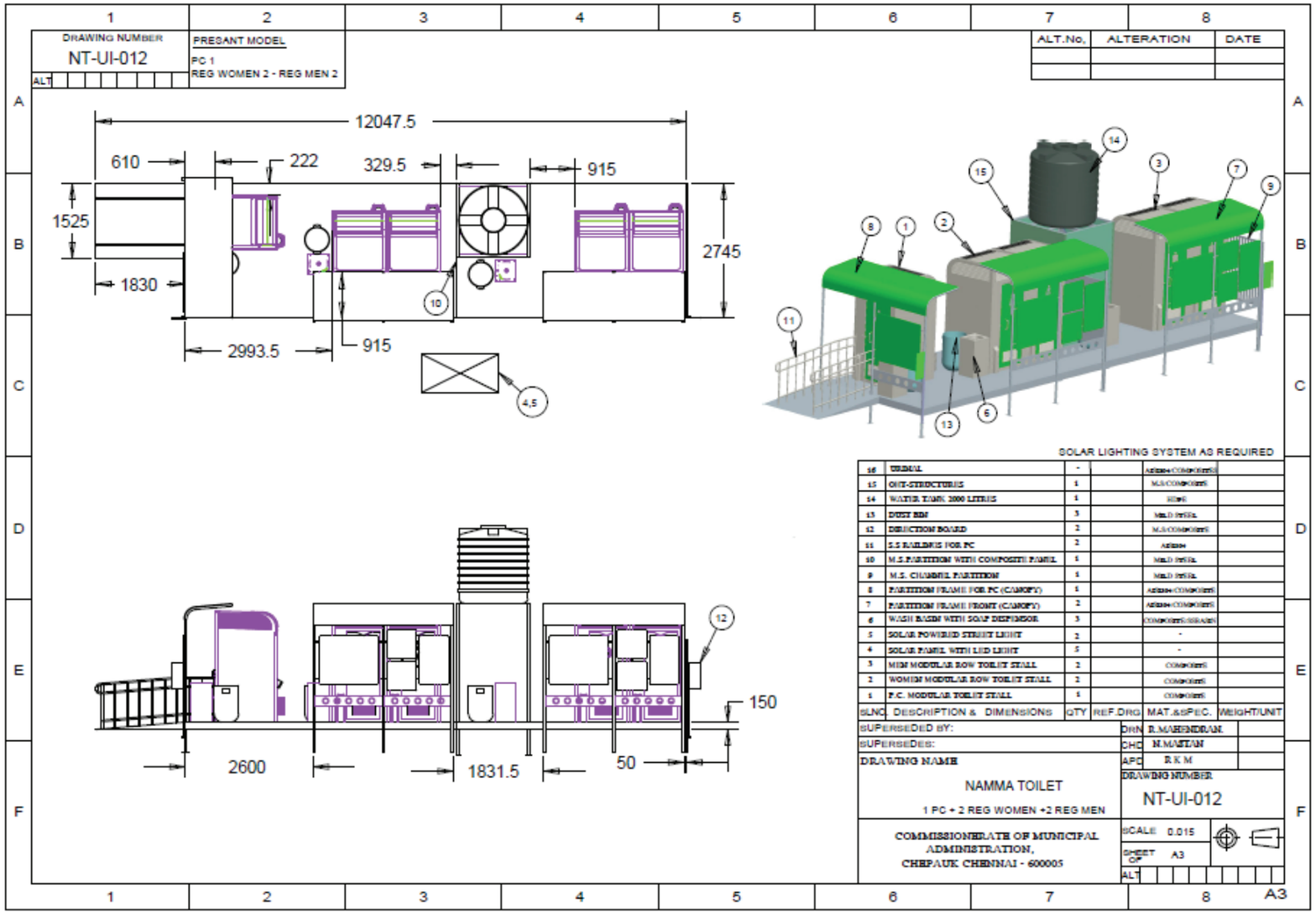
n. Proportion of men users = 50%, women users = 50%

o. As per the CPHEEO manual (*Table 9.8*), a space of 15 m x 4 m (60 sqm.) is required for treatment of waste water through septic tank for daily users of 300 in a housing colony.

Land requirements for typical DUAC Smart Toilet and Namma Toilet is provided below



Layout plan of a DUAC Smart Toilet with ATM (Covered Area: 18 sq.m)



Layout plan of Namma Toilet (2 Men + 2 Women + 1 Disabled)

Annexure 7 : Grouping public and community toilet projects

Given that many toilet projects are commissioned at the same time, it is pertinent to explore if toilets are grouped into different groups / clusters / packages to benefit from economies of scale. This grouping will also create interest for private investors to positively consider investment as against single projects. This also helps in formulating an easy operational model to help monitoring, achieve efficiencies and best unit prices. The city toilet inventory database forms the basis for this grouping. The data of individual toilets is aggregated for each package to identify the most operationally viable and financially economic project package. The identified project package is used for requesting bids form operators.

Provided below are various criteria for grouping of various toilet projects.

S.No	Basis for project package	Grouping of toilets (option 1)	Grouping of toilets (option 2)
1.	Spatial distribution (geography / location)	Based on administrative jurisdiction, for ex. wards, zones	
2.	Revenue potential from toilet usage (total revenue generated from footfall alone)	Categorize toilets based on High / Medium / Low revenue potential and accordingly group into like packages	Categorize toilets based on High / Medium / Low revenue potential and suitably mix to ensure cross subsidization between toilets within a package
3.	Extent of rehabilitation / new construction required	Combine projects which are taken for renovation / new construction alone as a single package	Combine projects suitably so that effort for renovation / new construction is same in each package with existing contracts
4.	City institutional structure and capacity	Ability of ULB to administer and monitor the contracts (single contracts or group of contracts)	
5.	Type of construction / installation	Based on the materials used or type of construction / installation. For ex. Prefabricated toilets / coin operated toilets / civil structures / mobile toilets, etc.	

Annexure 8 : Comparison of various types of contracts

Conditions	Service Contract	Operate Maintain Transfer (OMT)	Rehabilitate Operate Maintain Transfer (ROMT)	Design Build Operate Transfer (BOT variants)
Definition	Toilet already constructed and maintained by ULB / other agencies, requires only operation, requiring no financing by operator	Toilet already constructed by ULB / other agencies, requires minor repairs prior to O&M, requiring full financing for O&M by operator	Toilets already constructed by ULB / other agencies, but require major structural rehabilitation in the same location, O&M, and requires part or full financing for both rehabilitation and O&M by operator	Newly constructed / installed toilets, requires complete new design, construction in a new location, O&M, requiring complete financing by operator
Land requirement	Already existing	Already existing	Already existing, land adjacent to structure could be used	Normally made available by ULB and / acquired from market
Funds required by ULB to undertake proposed toilet projects	High	Medium to High (for construction alone)	Low to Medium (no / partly for rehabilitation and / O&M)	No to Low (neither construction or O&M)
Financing by operator	Compensated by ULB for pre -defined manpower services	ULB to finance minor improvements. Complete financing for O&M by operator	Requires complete financing for both rehabilitation and O&M by operator or partly compensated for rehabilitation alone	Requires complete financing for construction and O&M
Revenue augmentation options for operator	None	User charges and / advertisements revenue	User charges and / advertisements revenue	User charges, advertisement revenue and / space for shops (for ex. ATM, kiosks)
Possibilities to make changes in existing contracts clauses	High	High	Medium	Low
Typical type of operator / agency	Individual / group of households / manpower agency / SHG / ULB contracted staff	Company / contractor / manpower agency / SHG	Company / contractor	Company
Operator financial capacities required (ability for mobilizing debt for capital expenses and working capital)	Not applicable	Low	Medium	High

Conditions	Service Contract	Operate Maintain Transfer (OMT)	Rehabilitate Operate Maintain Transfer (ROMT)	Design Build Operate Transfer (BOT variants)
Operator skillset required – construction related	No	No	Medium	High
Operator availability in the market for providing services	High	High	Medium, depending on the financial structure	Low, normally seek long concession periods
Typical evaluation criteria of bids (only after technical qualification)	Not applicable, technical competency to deliver manpower	Highest premium paid to ULB or lowest subsidy sought	Same as OMT model if ULB funds rehabilitation / same as BOT model, if operator funds rehabilitation	Concession period
Typical concession period	Annual (1 year, extendable)	Short (3 to 5 years)	Medium to long (5 to 7 years)	Long (7 years plus)
Performance based phasing of contracts	Renewable every year based on performance, similar to employment	Block based for a period and further extendable based on performance, for ex. 3 + 1 years	Block based for a period and further extendable based on performance, for ex. 3 + 2 + 1 years	Block based for the whole period, for ex. 7 years

Annexure 9: Essential components of Contracts

Standard contract documents are available for procurement of services for different infrastructure sectors, which are comprehensive (scope, role, legal and contractual perspectives) covering all aspects for a fair transaction and equitable sharing of risks. Given the early stages of professionalism in PT / CT facility management services; a strong intent to encourage such engagements in small and medium towns, the maturity of such operators rendering services (in unorganized / semi-organized set-ups), the scope and level of complexity of contract documents needs to be revisited. Some key aspects are service mandates, performance benchmarks, penalties, etc. Typical table of 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.

I Typical contents for OMT contract

a. Agreement between parties
b. Definitions and interpretation
c. Rights – grant of rights, agreement period, acceptance of rights
d. Project asset – handover of asset (including details of asset normally annexed), rights and conditions to use the asset
e. Operator obligations – performance security, financing arrangement, O&M schedules and manpower deployment, self-reporting, change of scope, repairs (major / minor), exemptions to performance, insurance and indemnity
f. Obligations for the ULB
g. Payment terms – Obligations, payment of premium, payment of O&M fee, damages
h. Handover and handback conditions of asset – to operator, to ULB
i. Monitoring mechanisms - procedures, review meetings, agreement reviews, defaults, penalties
j. Termination – force majeure, account of defaults
k. Dispute resolution – resolution, arbitration
l. Others – representations and warranties, assignment and charges for both ULB and operator, governing law and jurisdiction, survival, amendments, notices.
m. Annexures or Schedules
    - O&M Requirements, Performance Standards and Penalties
    - Facilities, supplies, equipment to be procured as part of O&M
    - Obligation towards women users
    - Fee disbursement (premium and O&M)
    - Inspection card
    - Monitoring parameters
    - User fees
    - Description of project asset – inventory, designs, cost estimates and other relevant information for transparent decision making

II Typical contents for ROMT contract

While broad content of the contract agreement in the OMT is valid for this type of contract, the annexures are different to account for specifics related to rehabilitation and O&M. The indicative annexures section alone is provided below for reference:

a. Operator obligations – performance security, financing arrangement, general obligations, project implementation (renovation), operation and maintenance, change of scope, exemptions to performance, insurance and indemnity

b. Renovation expenses – aspects, handling mode, responsibilities, failure, insurance

c. Annexures or Schedules
   - Description of the project asset – inventory and other relevant information for transparent decision making
   - Renovation requirements – general, installation standards, fittings and fixtures, electrical and lighting, wash basins and mirrors, disposal bins, suggestion box, doors, signage
   - Obligation towards women users
   - Facilities, supplies, equipment to be procured as part of O&M
   - 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

III Typical contents for BOT contract

While broad content of the contract agreement in the OMT is valid for this type of contract, the annexures are different to account for specifics related to construction and O&M. The indicative annexures section alone is provided below for reference:

a. 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

b. 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 and joinery works, fittings and fixtures, electrical, support infrastructure, safety, gender needs and construction guidelines.
   - Project completion schedule
   - O&M Requirements, Performance Standards and Penalties
   - Facilities, supplies, equipment to be procured as part of O&M
   - Obligation towards women users
   - Fee disbursement (premium and O&M)
   - Inspection card
   - Monitoring parameters
   - User fees

Annexure 10: Typical O&M service requirements

1. The Project Asset (including toilets / urinals / floors / walls / other structural elements / etc.) shall be serviced, cleaned and maintained as indicated below, without exceptions on all 7 days of the week, 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. The Operator shall carry out the following cleaning operations for each cleaning cycle 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 inside and outside the building, including entrance path and/or steps, subways which service the toilet, any shrubbery / garden area within 2m beyond these features. All litter / refuse / debris shall be removed and disposed of at sites agreed between the Operator and the ULB.
        ii. Ensure all toilet seats are clean and dry. To maintain the acceptable standard, check sanitary ware, floors, etc., clean all soiled areas using the approved cleaner / descaler / hard surface cleaner as appropriate. Disinfect around all sanitary wares, washbasins and disposal bins.
        iii. Replenish toilet paper, soaps, paper towels and other consumables, as necessary. Refill soap dispensers where required and wipe clean. Empty all disposal bins.
        iv. Spray air freshener throughout interior of the building sufficient to mask unpleasant odour (optional).
    b. **Daily**[1] [Preferably twice a day, at start and 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 twice, at 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.
        iii. Clean advertisement boards and ensure all fittings (electrical / mechanical / civil) are functional and apprise responsible agency.

1 *Operator may carry out all the daily activities between 6 AM – 8 AM everyday*
2 *Operator may carry out all the weekly activities on Saturdays*

d. **Monthly**[3]

i. Wash windows, ventilators and frames both inside and outside.

ii. Remove all unwanted articles that do not contribute to toilet O&M.

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.

3. Infrastructure

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

b. The Operator shall ensure all plumbing, wastewater connections up to septic tank / sewer connections, are functional.

c. The Operator shall ensure electricity is available during the operations period and all fittings are functional.

4. Management of complete operations

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

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

c. The Operator shall furnish names of the persons who have been appointed as cleaner/ caretaker for the toilet facilities and their names should be registered with the ULB. The said cleaner/caretaker of the Operator shall not allow any other person to occupy the toilet facilities.

d. The Operator shall 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 caretaker/cleaner at each toilet facility to ensure continuous service.

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

f. 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.

3 Operator may carry out all the monthly activities during first week of every month

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

5. Consumables/disinfectants/equipment
    a. Provide following material of good quality:
        i. The liquid soap/soap cakes of standard quality and make, provided in wash basins.
        ii. The condition of hand driers, if any shall be maintained in proper condition.
        iii. Phenyl, acid, naphthalene balls, brooms, coir brush, scraping sheet, baskets, mugs, bleaching powder and lime powder.
        iv. The toilet paper and paper towel shall be of standard quality and make.
    b. Availability of consumables and stock to be available at all times and replaced soonest, as required. This should include:
        i. Enough stock of consumables for at least a week shall be made available at all times and replaced when required.
        ii. Clean and dry consumables for each user.
        iii. Repair of any defective fixture before next use and replacement thereof to the original specifications and design.
6. All electrical fixtures shall be working during the Agreement period. The Operator shall ensure timely replacements of electrical fixtures on need basis.
7. The Operator shall maintain all plumbing, floors, pump etc. in good working conditions on regular basis and undertake repairs or replacement as and when required.
8. 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. Ramps, when provided shall have clean stable railings, without problems for users.
9. 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 the ULB about the same and get it rectified.
10. Ensure proper disposal of drainage up to the pitfall and any choking of drainage should be attended promptly.
11. Maintenance of records
    a. Record on number of users using the toilet
    b. Attendance register of its employees
    c. Complaint register always available for the users
    d. Books of accounts of the advertisements displayed from time to time. Submit details at time of making payment of advertisement tax, 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 exclusively used for indicated purpose only.

Annexure 11: Performance standards, time limits and penalties

Project Utility	Minimum Service Level	Permissible Time Limit for repairs / rectifications
Toilet floors	Kept clean, dry without any litter, stains etc.at all time Smooth and free from cracks, chipping or any other similar damage	Debris / garbage / other litter shall be removed immediately Upon detection repaired / rectified within 7 days
Plumbing fittings	All plumbing fittings shall be functional as per the generally accepted standards	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	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	Operator to ensure availability of water within 12 hours
Complaint register	At all times available and accessible to users during operational hours	-
Closure of toilet	Shall be kept open at all times during operational hours	-
Consumables	Enough stock (atleast for 30 days) should be maintained at all times	Consumables which are out of stock shall be replaced within 1 hour
Hygiene condition around the toilets	No waste shall be dumped No wastewater shall stagnate Water shall not overflow	To be removed or rectified immediately upon detection.
Information boards/ signage / display of user fees applicable / advertisement boards	Visible, legible and functional	Upon detection obstructions shall be removed immediately Dirty information boards / signage shall be cleaned immediately Damaged information boards /signage shall be repaired / replaced within 24 hours
Electricity availability	At all times during operational hours	Operator to ensure availability of electricity within 12 hours
Toilet blockage	Functional sewer connection at all times or septic tank cleaning organised	Within 12 hours for cleaning and repairs

Typical penalties for lapses / shortfalls in service

The operator would be required to pay penalties to the ULB for any indicative lapses / shortfall listed below or mutually agreed upon in the contract O&M schedule. 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.

Time	Description of typical lapses / shortfalls	Indicate penalty per lapse / shortfall for 1st & 2nd occurrence of default
At interval of every two hours	Failure to clean toilets seats, urinals and wash basins	
	Failure to replenish toilet paper, soaps, paper towels and other consumables as necessary. Refill soap dispensers where required and wipe clean. Empty and clean all disposal bins	
	Failure to spray air freshener throughout interior of the building sufficient to mask unpleasant odour	
On daily basis	Continual activities (like collecting litter, refuse, leaves, other debris) not carried out	
	Failure to check operation of taps and pipework for leaks and repair leaks immediately	
	Failure to clean off all fittings, surfaces of sanitary ware using sanitary cleaner / descaler with particular attention to reduction of any encrustations found. 'Standing areas' of urinals shall be treated with sanitary cleaner / descaler and washed down	
	Failure to wash down all walls and partitions using hard surface cleaner. Damp wipe doors using a diluted disinfectant solution	
	Failure to sweep any entrance ways, subways and / or steps / ramps	
	Failure to wipe clean any ledges, fittings, pipework and any other surfaces where dust / dirt may accumulate	
On weekly basis	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	
	Failure to remove cobwebs and obvious dust collections from ceilings	
On monthly basis	Failure to wash windows and frames both inside and outside	
On 6 monthly basis	Failure to apply approved polish to hardwood doors and fittings and polish	
	Failure to undertake white washing and painting of the toilets	
More than 3 consecutive days	Closure of the any toilet or toilet cubicle in the Project Asset, unless it's a force majeure event or with the prior approval of city	
	Non availability of consumables in any toilet / Project Asset	
Mandatory	Caretaker/cleaner absent (per day at each toilet)	
	On receipt of any genuine complaint from the user(s)	
	Non availability of water during operational hours	
	Non-compliance to any performance standard for more than twice the permissible time limit specified for repairs / rectification	
	Non-compliance to advertisement norms at any time	

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 de-fault. For example, where the operator fails to comply with the advertisement norms, it shall be liable to pay Rs. 500 for the first and 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.

Annexure 12: Cleanliness Protocol for Public and Community Toilets

Government of India's (GoI's) Swachh Bharat Mission (SBM) was commenced on October 2nd, 2014 with the target, inter-alia, of making India open defecation free (ODF) by October 2nd, 2019, on 150th birth anniversary of Mahatma Gandhi. Apart from providing toilets in households, the ODF status is dependent upon providing adequate number of community and public toilets for slums, informal settlements and for floating population. The maintenance of the Community and Public Toilet facilities with high standard of cleanliness is critical to sustain its regular use. Considering the need for a yardstick for enhancing such public toilets, a cleanliness protocol has been prepared for Urban Local Bodies, in line with SBM objectives, to set and achieve desired service and maintenance levels for Community/ Public toilet facilities. This protocol can be made applicable to all community and public toilets being used by general public including differently abled person.

This cleanliness protocol on Public & Community Toilets has been developed considering two broad aspects (i) range of services available and (ii) Level of cleanliness.

Toilet Cleanliness Protocol for Public and Community Toilets based on range of services available and level of cleanliness													
Sl No	**Indicators (Range of Services)**	**Maximum Marks**	**Option 1**	**Marks**	**Option 2**	**Marks**	**Option 3**	**Marks**	**Option 4**	**Marks**	**Score received (A)**	**Weight (B)**	**Final score (A*B)**
MANDATORY SERVICE INDICATORS (MAXIMUM SCORE – 100)													
M1	All toilet seats and urinals clean and usable at all times	20	>75% seats are clean	20	50-75% seats are clean	15	25-50% seats are clean	10	<25% seats are clean	0		20%	
M2	Wash basin(s) clean and usable at all times	5	100% clean	5	Partially clean	3	Not clean	1	Not available	0		6%	
M3	Availability of water	20	Water is available in all cubicles	20	Water is available in <50% cubicles	15	Water is available in/ around the premises	10	Water is not available	0		20%	
M4	Adequate ventilation facility (vents, slanted glass slats and/ or exhaust fan)	15	Exhaust Fan available	15	Slanted Glass available	10	Natural Ventilation	5	Ventilation not available	0		15%	

M5	Premises are well lit at all times, both within and outside, with each seat having its own light point, and all light points functional	15	Yes (Functional light points available both outside the premises and within the toilet cubicles	15	Yes (Functional lights available inside the premises)	10	Yes (Functional light points outside the premises)	5	No (No light points available)	0		15%	
M6	Functional bolting arrangements on all doors of all toilet seats (ladies toilets will be assessed separately)	10	>75% doors have functional bolting arrangements	10	50-75% doors have functional bolting arrangements	8	25-50% doors have functional bolting arrangements	5	<25% doors have functional bolting arrangements	0		9%	
M7	Untreated faecal sludge/ septage and sewage from the toilet is not discharged and/or dumped in drains, open areas or water bodies	15	Yes	15					No	0		15%	
ESSENTIAL SERVICE INDICATORS (MAXIMUM SCORE – 100)													
E1	Toilet floor is dry and clean at all times	20	Very Clean	20	Clean	15	Partially clean	10	Not clean	0		22%	
E2	Mirrors, if available, are clean and polished	5	Very Clean	5	Clean	3	Partially clean	1	Not clean	0		12%	
E3	Available and regularly cleaned (covered) litter bins, with bins available with each toilet seat (to be checked only in female seats)	12	>75% cubicles have litter bin and are regularly cleaned	12	50-75% cubicles have litter bin and are regularly cleaned	10	25-50% cubicles have litter bin and are regularly cleaned	5	<25% cubicles have litter bin and are regularly cleaned	0		12%	
E4	Available soap / operational soap dispenser	9	Soap Dispenser available and functional with liquid soap / soap bar available	9	No dispenser, but hand-washing Soap Available	6	Detergent soap bar available, not suitable hand-washing soap	3	Soap not available	0		8%	

E5	Usable taps and fittings, with no leakage OR water tank in or outside the structure with water available in it at all times during opening hours	10	>75% cubicles have usable taps with no leakage	10	50-75% cubicles have usable taps with no leakage	8	25-50% cubicles have usable taps with no leakage	6	<25% cubicles have usable taps with no leakage	0		6%	
E6	Gender-segregated, separate entrances for males and females, if both facilities available in single block	12	Yes (separate entrances for males and females)	12					No	0		12%	
E7	Entrance/ accessibility (like ramp, stairs) to toilet block is barrier free, including those for specially abled persons	12	Yes	12					No	0		8%	
E8	Premises are visible to passersby, with clear signage, and the area within 3 m from each direction of the structure is not encroached by unauthorized construction and vendors	11	Signage Available within every 100 m in each (min 5 signage)	11	Signage Available within every 300 m (min 3 signage)		Signage Available within every 500 m (min 1 signage)		No Signage Available	0		8%	
E9	Staff is provided with necessary supplies of consumables, cleaning equipment, protective gear and inventory, and there is no stock out for longer than 24 hours	9	Yes all 3 available	9	Yes 2 available	7	Yes 1 available	5	Not available	0		12%	
DESIRABLE SERVICE INDICATORS (MAXIMUM SCORE – 100)													
D1	Roster being maintained for regular cleaning and maintenance and a caretaker is on duty at all times during open hours	25	Yes (Roster and Caretaker both available)	25	Yes - (Caretaker available but roster is not maintained)	15	Yes- (only roster/register available)	10	No (None available)	0		20%	
D2	Public/Community Toilet is visible on Google Maps toilet locator as 'SBM Toilet'	25	Yes	25					No	0		20%	

D3	Name and contact details of the following are displayed prominently - Toilet identification number, name of ULB under whose jurisdiction toilet is covered, ward number and maintenance authority prominently displayed for each toilet block Supervisor, Supervisor's agency and area Sanitary Inspector(Contact number will be checked whether it is working or not)	20	Yes	20					No	0		20%	
D4	Complaint registration and redressal mechanism (Swachhata App/local app/ other ICT-based media such as whatsapp, Swachhata helpline 1969) is in place and is functional, with all complaints, maintenance issues or incidents resolved within 24 hours of registration	20	Yes	20					No	0		20%	
D5	Air freshener (Odonil) applied	10	Yes	10					No	0		20%	
ADDITIONAL / ASPIRATIONAL SERVICE INDICATORS (MAXIMUM SCORE – 100)													
A1	Walls and floors are stain / graffiti free	15	Yes	15					No	0		15%	
A2	Low height toilets/Indian toilets for children	15	Yes	15					No	0		15%	
A3	Plants / shrubs in the vicinity of toilet complex are well maintained	10	Yes	10					No	0		15%	
A4	Space earmarked for advertisement for revenue generation(Even if advertisement is not available marks will be awarded)	10	Yes	10					No	0		10%	

A5	Hand dryer / paper napkin available	10	Yes	10					No	0		10%	
A6	Ladies' toilets have vending machine for sanitary napkins	10	Sanitary napkin vending machine is available and functional	10	Sanitary napkin vending machine is available but not functional	5			Not available	0		10%	
A7	Incinerator facility available for disposal of used sanitary napkins for toilet having > 10 seats and also to the toilets adjacent to women college and hostels	10	Incinerator is available and functional	10	Incinerator is available but not functional	5			Not available	0		10%	
A8	Functional floodlights / halogen vapour lamps outside the toilet premises during the night, without any dark, shadowy areas in the vicinity of the toilet	5	Yes	5					Not available	0		5%	
A9	SMS /any other ICT based feedback system (with number displayed on which SMS has to be sent)	10	Available	10					Not available	0		5%	
A10	Structural audit of toilet block done	5	Yes	5					No	0		5%	

IMPORTANT NOTE: Should any of the mandatory service indicators fall in the 'poor' category, the toilet will be categorized as "UNUSABLE" irrespective of its scores received in the other indicators.

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