

DEMONSTRATION AND MAPPING OF PUBLIC AND COMMUNITY TOILETS SANITATION SERVICES USING THE SANITATION MAPPER

Abstract

Ensuring cleanliness in Indian cities is a daunting task due to various obstacles. Insufficient toilet or bathroom facilities are experienced by nearly 60 million urban dwellers. Land and water pollution is aggravated as most of the dirty water is not purified before being released into the environment. To combat environmental and public health concerns, Indian cities must ensure the availability of toilets for all citizens and prioritize the safe sanitation practices. The purpose is to prevent individuals from relieving themselves outdoors and improve hygiene and overall health. The choice of sanitation methods is influenced by factors such as population size, economic status, housing conditions, cultural norms, and the existing sanitation infrastructure in the region. This choice has implications for both the implementation of sanitation measures and the prevalence of illnesses. The primary focus of this investigation is to comprehend the reasons behind people's preferences for specific toilet designs and evaluate the subsequent implications on disease proliferation. The analysis relies on the application of Sanitation mapping for studying this. Furthermore, an estimated price for the repair and enhancement of toilets can be obtained by utilizing the Government e-Marketplace (GeM) website. The research reveals that public and community toilets are heavily influenced by factors encompassing people's lifestyles, financial position, and cultural environment. The findings of this research suggest that the cleanliness of the vicinity around a toilet has an impact on people's susceptibility to illness. The article proposes that strategies to enhance sanitation should address various aspects such as the improvement of the environment, enhanced accessibility of sanitation facilities, and the promotion of superior hygiene practices.

Keywords: Sanitation; Public toilet; Community Toilet;Public health;Sanitation Mapping tool.

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I. INTRODUCTION

Throughout the last two decades, India has actively implemented various strategies to promote cleanliness and improve overall health within its borders. The Total Sanitation Campaign, Nirmal Bharat Abhiyan, and the latest initiative known as Swachh Bharat Mission (SBM) are among the plans being implemented. The second rephrasing plan showed a noteworthy enhancement in the number of toilets provided [1]. People's overall health and satisfaction must have proper water availability and sanitary toilet facilities. India is focusing on enhancing its water, sanitation, and hygiene system through the construction of a robust infrastructure in these domains and shaped by social and cultural practices, as well as disparities in geographical factors. The task of allocating and overseeing resources is hindered by the differing demands of multiple communities. It has come to attention of the groups of individuals encounter obstacles in obtaining water and accessing clean bathrooms for diverse reasons. A plan called Universal Sanitation Coverage was established by the Swachh Bharat Mission (SBM) in 2014. This plan seeks to ensure that sanitation services are accessible to everyone in a fair manner and to improve how these services are delivered [2]. A study conducted in 2015 suggest that individuals consider going to the bathroom outside cleaner than using toilets, possibly due to concerns about inadequate toilet cleanliness and improper waste treatment [3]. A study done in 2015 found that people think it is cleaner to go to the bathroom outside instead of using toilets because the toilets are not properly clean, and the waste is not treated properly. It is imperative to improve and sustain the availability of toilets as a means of preventing Indian communities from returning to unhygienic practices. To effectively manage WASH services, we need a detailed plan and enough resources to make it work well. The ability of municipalities to effectively monitor their service performance and use that knowledge to formulate plans is highly vital. The creation of this tool was a joint effort between the Urban Management Centre (UMC) and the US Agency for International Development, India (USAID, India). The extent to which public and community toilets adhere to the ODF+ guidelines can be evaluated using this tool. The tool helps with an important part of planning for cities [4]. The number of Indians with mobile phones exceeds the number of those with access to toilets. An extensive program named Swachh Bharat Mission (SBM) has recently been launched. Using an intensive public campaign, the focus is on advocating for cleanliness and sanitation. The importance of sanitation is now being recognized and properly valued. To effectively combat environmental and public health challenges, urban areas in India must prioritize not just the construction of toilets, but also the comprehensive sanitation process. This paper highlights significant procedures and preferences for addressing and enhancing public and community washroom amenities [5].

II. SANITATION MAPPING TOOL

- 1. Brief Information:** Maintenance problems are discovered through surveys and mapping techniques employed by the Sanitation Mapping Tool. Its main aim is to pinpoint any concerns regarding cleanliness and the condition of seats in public transportation or community toilets. It also provides an approximate computation. The GeM portal will be utilized by the government to distribute a budget specifically for the repair and enhancement of toilets.

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- 2. Salient features:** By implementing the SBM-U, India has effectively prevented individuals from defecating in the open in all its urban areas. Introduced by the Indian government, the Swachh Survekshan is a yearly assessment that ranks the cleanliness of Urban Local Bodies. Checking if public and community toilets adhere to the ODF+ guidelines can result in ULBs receiving higher scores. With the support of USAID, the Urban Management Centre (UMC) devised a tool for this specific task. The Sanitation Mapping Tool assists cities and communities in verifying that their public and community toilets fulfill the prerequisites for obtaining ODF+ certification. This tool enables you to carry out the following tasks.

You can use the tool by going to this website: <https://sanitationmapping.com/> It contains basic information, installation process, troubleshooting, and customer satisfaction. The survey can be accessed easily on any device, and it is designed to be easy to understand and use for all users. It includes a total of 130 questions related to the PT/CTs, which cover various aspects such as general details, setting up, fixing problems, and how satisfied customers are with their experience [6]. The survey is accessible on multiple devices and has been made simple for everyone to understand and complete.

These are the types or groups of things that come after each other.

- Determine what parts of the infrastructure need fixing and create a plan to repair and improve it. Estimate how much it will cost using the Government e-Marketplace (GeM) portal
 - Check and clean PT/ CT regularly, either every day, every week, every month, or every quarter
 - Check and maintain the condition and cleanliness of public facilities at the state or city level
 - Geotagged PT/CTs evaluation done using geographic information technology
 - Keeps a special code for each building
 - Give each public and community toilet a different identification number
 - Show the locations of surveyed PT/ CTs on Google Maps
 - The Google Toilet Locator app can receive information from different sources.
 - A dashboard that changes with time, showing graphs and charts for 20 measurements of all buildings
 - User registration and logging into accounts with OTP, users do not need to remember passwords
 - Easy-to-use, online interface that works on all types of mobile devices and tablets, including Android, IOS
- 3. Objectives of the assignment:** To evaluate the problems within the current sanitation system, one can analyze the condition and tidiness of toilets, conduction of a comprehensive evaluation of CT/PT, utilization, mandatory, essential, desirable, & aspirational performance benchmarks and calculate the cost involved in refurbishing a toilet

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4. Expected outcomes: Effectiveness and efficiency in task performance are encompassed by the concept of functionality. For a facility to have a functional toilet seat, five checks must be conducted: proper faucet operation, absence of seat damage, clear drainage, functional door latch, and a functional light bulb in the bathroom stall, Facility's performance score is determined by evaluating how well it meets the criteria for mandatory, essential, desirable, and aspirational performance, according to ODF++ guidelines. The state or status of the entire place or facility [7]. The existing operational conditions will be thoroughly examined and documented in a detailed report, shedding light on various aspects like the adequacy of the water supply, the cleanliness measures implemented, and the state of the infrastructure. The monetary resources are necessary to revamp a space. The condition of the buildings and facilities needed for areas designed for children and people with disabilities along with the status of revenue model [8].

III. METHODOLOGY

The baseline survey conduction across the city by the designated team, enabling the efficient geo-tagging of all the existing toilet complexes. Further, a list of operational & non-operational facilities creation through a brief survey [9]. The research method utilized in the study is represented by the flow chart displayed in Figure 1.

Familiarization with the functionalities of the Sanitation Mapping Tool, using the Sanitation Mapping Tool User Manual with an account creation on the Sanitation Mapping Tool Login page (<https://sanitationmapping.com/auth/login>), to gain access to the survey questionnaire(Figure:2).

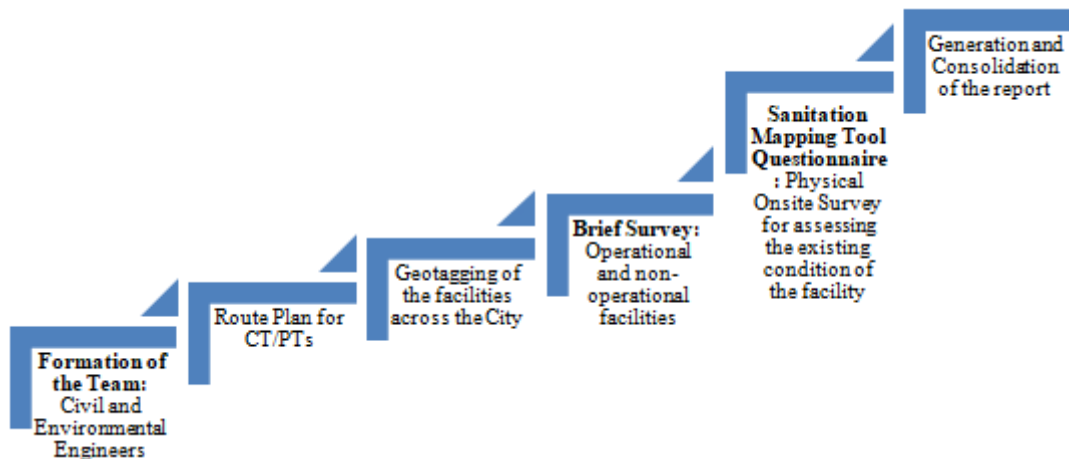


Figure 1: Methodology adopted

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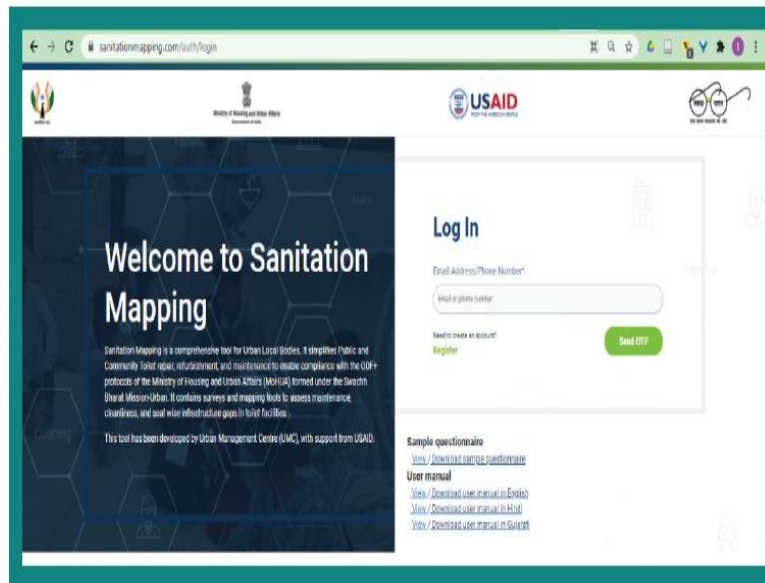


Figure 2: Sanitation mapping tool Portal Login

IV. ASSESSMENT

Sanitation mapping apparatus evaluate the condition of the open toilets based on the Cleanliness Convention for Open and Community Toilets depicted within the Counseling for Community and Open Toilets, 2018 [10]. The mandatory and essential service indicators are depicted in below **Table:1**.The cleanliness rules for toilets were developed with the range of available services varies in terms of the degree of tidiness or hygiene they offer

In depicted **Table: 2**, the cleanliness protocols are depicted. Here in assessing the toilets care should be taken the protocols being followed are executed in the way depicted in the manual. For this very purpose, the designated team has been deployed and well-versed with the sanitation value chain. The tables mentioned below are being referred to in the CPHEEO manual [12].

Table 1: Mandatory and Essential service indicators(Source: CPHEEO Manual)

Mandatory Service Indicators	Essential Service Indicators
All toilet seats and urinals clean and usable at all times You can always count on our toilet seats and urinals to be clean and accessible.	The bathroom floor is consistently free from any moisture or dirt.
Make sure to regularly clean and keep the wash basin(s) in working condition.	If mirrors exist, they will be in a clean and polished state.

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Availability of water	There are litter bins available that undergo regular cleaning and have covers. Every toilet seat is equipped with a bin, but only the ones in the female restrooms are regularly checked.
A good ventilation system with vents, angled glass slats, and/or an exhaust fan.	Available soap / operational soap dispenser

Table 2: Cleanliness Protocol (Source: CPHEEO Manual)

Indicators (Range of services)	Max Marks	Option 1	Max Marks	Option 2	Marks	Option 3	Marks	Option 4	Marks	Score Received (A)	Weight (B)
Users can always find clean toilet seats and urinals that are ready for use.	20	>75% seats are clean	20	50-75% seats are clean	15	25-50% seats are clean	10	<25% seats are clean	0		20
The sink must be kept in a state of cleanliness and readiness at all times.	5	100% clean	5	Partially clean	3	Not clean	1	Not available	0		6
Water scenario	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

V. CONCLUSIONS

1. While it is commendable that the media and government have recently prioritized cleanliness, it is crucial to address all dimensions of cleanliness to enhance public health. It is necessary to consider more aspects beyond the disposal and cleansing of wastewater
2. it is important to consider overlooked factors, such as inadequate construction and improper maintenance of Public and community Toilet facilities along with the finding strategies to ensure as many households as feasible have access to suitable sanitation systems is imperative
3. According to this paper, using a sanitation mapping tool to enhance, and renovate public and community toilets along with the financial modeling is recommended. Additionally, it is vital to understand that providing sanitation is essential for the urban underprivileged. Not only is this advantageous for them, but it is also imperative for accomplishing the ultimate objective of ensuring sanitation citywide

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4. Access to sanitary services is crucial for everyone, as cleanliness holds significance for every individual. Cleanliness has advantages only when it is accessible to all through sanitary services. Everyone must have access to sanitation services, as cleanliness is significant for all
5. Providing services to people living in urban areas who are poor presents a difficult set of problems. One of these problems is ensuring that people have secure rights to the land or property they live on, which is more than just about money

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