

# **Report on Gender Monitoring Survey of Public Toilets: Tirupathi and Shimla**



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## **Executive Summary**

Sanitation is an important aspect with regard to quality of life. The vision of National Urban Sanitation Policy is to make all cities and towns in the country sanitized, healthy and liveable and ensure good public health and environmental outcomes for all their citizens with a special focus on hygienic and affordable sanitation facilities for the urban poor and women. An important element of the Swachh Bharat Mission is to ensure women's participation – right from strategizing about Public or Community Toilets, identifying local needs and addressing the same, to appointment of caretakers in own gender. Tirupathi and Shimla being prominent religious and tourist places respectively call for an exhaustive urban sanitation plan to address the demand of users.

GIZ in this regard has been rendering support to the respective municipal corporations for a comprehensive urban sanitation strategy. This includes preparation of city sanitation plan, technology-driven asset inventory plan for community and public toilets at Tirupathi and Shimla using Geographic Information System (GIS) for effective monitoring, city-wide preparation of public toilet management plan and technical implementation of select projects, both at Tirupathi and Shimla.

The need for gender monitoring survey is to understand if the PTs address gender-specific parameters like safety, privacy, hygiene and accessibility. Gender needs are addressed both through the infrastructure put in place and support services, with both aspects complementing each other. Thus, for a holistic view on gender needs, the users and infrastructure have to be surveyed.

The survey was carried out at three types of structures at Tirupathi – a civic structure, an e-toilet and a pre-fabricated structure, the purpose of doing was to account for differences in structure and its bearing on user perception. At Shimla, survey was carried out at public toilets near Ram Mandir and Totu Chowk – the locations were chosen to capture the perception and ratings of tourist and residential users, respectively. All the five locations have received support from GIZ for technical implementation.

At each PT, the proposed sample size for each gender was two hundred and forty five users; however, due to low turnout at Medical College PT and E-toilet PT, the sample size could not be met.

The gender monitoring survey consists of inventory survey and user survey, both containing questions addressing gender dimensions. The purpose of having both inventory and user survey is to corroborate and arrive at a holistic picture as to whether a PT address gender needs. A detailed questionnaire is administered to the users to understand user perceptions with respect the concerned public toilet.

Asset inventory ratings captures parameters with respect to infrastructure put in place, provision of electricity and water, addressing of emergency issues and infrastructure specific to women needs – these have implications with respect to women users' safety, privacy and hygiene. It can be seen that, on infrastructure front, all the surveyed PTs had adequate infrastructure provision with respect to working doors with latches, buckets and mugs; presence of continuous supply of electricity, as verified from the inventory survey acts as



positive factor with respect to safety of women users. With regard to operations and maintenances, post rain, slush is immediately is dealt with.

The user survey captures users' perception with regard to performance of the PT on various parameters like access, design (inside and outside the PT), cleanliness; to enhance understanding, the same are translated into ratings to assess and compare performance of PTs under consideration. Across all the locations, the major profile of users, in the context of age consists of users aged between twenty to forty; as regards user perception on sufficiency of toilets, majority of users at Tirupathi responded positively; however, at Shimla a section of users pointed out to issues like working of nearby public toilets and other usage issues. With signboards and pointers put in place, users did not report issue with regard to difficulty in identifying the public toilet.

With establishment of ratings and checking their statistical validity, issues are identified for each PT locations. Recommendations based on issues persisting at each location are listed to enhance the improvement the performance of the PTs. Presence of a full-time women caretaker across locations would help addressing safety issues, especially for women users. Demand estimation for public toilets at important tourist spots, both at Tirupathi and Shimla is warranted to understand the potential and feasibility of mobile toilets.



## Abbreviations

CT	Community Toilet
CTC	Community Toilet Complex
GIS	Geographic Information System
FCG	Focus Group Discussion
Gol	Government of India
IMF	International Monetary Fund
NSSO	National Sample Survey Organization
PT	Public Toilet
RCC	Reinforced Cement Concrete
SBM	Swachh Bharat Mission
SNUSP	Support to National Urban Sanitation Policy
SQUAT	Sanitation, Use, Quality and Trend
WHO	World Health Organisation



## Chapter 1 – Background

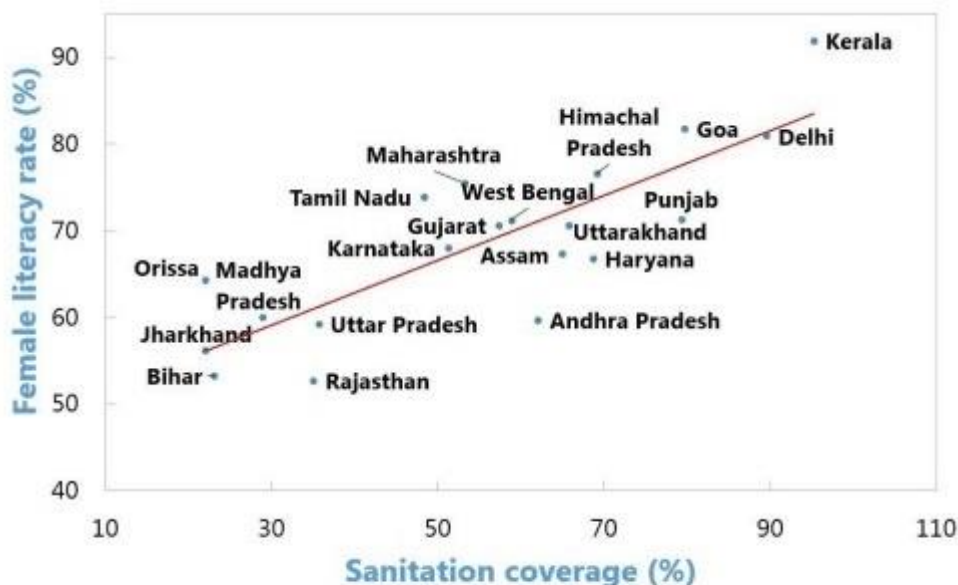
### 1.1 Importance of sanitation

It is a widely established fact that improvement in access to sanitation leads to betterment of healthcare. However, access to sanitation has other major impact on the lives of people, especially women – the below graph shows the relationship between sanitation coverage (%) and women literacy rate (%).

It can be seen from the analysis that states with higher sanitation coverage have higher women literacy rate, this positive impact leads to increase in participation of women in work force thereby leading to financial independence and improvement. It is reported by various systematic reviews that access to sanitation can reduce the diarrhoeal rates by 32 to 37%, the reviews were based on studies conducted in less-developed countries studying the relationship between water, sanitation and hygiene intervention on diarrhoea.

Thus, from the above analysis it can be generalized that positive impacts emerging from having sanitation facilities are multi-fold – it can be seen in health and nutrition levels; education levels.

**Chart 1: Relationship between women literacy rates and sanitation coverage across different Indian states**



Sources: Census of India (2011), and IMF staff estimates.

According to the Rapid Survey on Swachhta Status, conducted during May-June, 2015 by the NSSO, it was found that 89% of households reported having toilets in their houses, it is to be noted that 99.8% of households in Himachal Pradesh reported to have sanitary toilets. As regards the usage statistics, 99% of households which reported to have sanitary toilets use the household / community / public toilet; more specifically 99% women members aged 15 to 60 of households which reported a positive on sanitary toilets use household / community / public toilet.





In urban areas, 46% of households which do not have sanitary toilets use community / public toilets, more specifically, 48% women aged 15 to 60 years belonging to households which do not have sanitary toilets use community/public toilets; 49% men aged 15 to 60 years belonging to households which do not have sanitary toilets use community / public toilets.

With regard to open defecation, it is estimated that 7% persons undertake the said activity in urban areas; 6% are women aged 15 to 60 years undertake open defecation.

In the 2907 sample UFS sample blocks surveyed in urban areas, it is found that 42% wards reported to have community/public toilets. However, 2% wards which had reported a presence of community / public toilets were not using the same. Out of 42% wards in urban areas which have community / public toilets, only 39% have reported to have a proper liquid waste disposal system.

## **1.2 Policies related to Gender in India with focus on Sanitation**

### **1.2.1 National Urban Sanitation Policy, 2008**

The vision of National Urban Sanitation Policy is to make all cities and towns in the country sanitized, healthy and liveable and ensure good public health and environmental outcomes for all their citizens with a special focus on hygienic and affordable sanitation facilities for the urban poor and women.

### **1.2.2 Swachh Bharat Mission, 2014**

An important element of the SBM is to ensure women's participation – right from strategizing about Public or Community Toilets, identifying local needs and addressing the same, to appointment of caretakers in own gender. As per SBM, menstrual hygiene should be focussed in the realm of Public Toilets/Community Toilets. As regards, it emphasises space for proper disposal of sanitary napkin. As regards the behavioural impact, SBM emphasizes the aspect of using a public or community toilet – this is essentially done in the form of posters addressing users to avoid open defecation.

Under Swachha Bharat Mission (Urban), the states will ensure that a sufficient number of Public toilets are constructed in each city. All prominent places within the city, attracting floating population, should be covered. Care should be taken to ensure that these facilities have adequate provision for men, women, children and the disabled (e.g. ramp provision, braille signage, etc.) wherever necessary. Urban Local bodies should ensure that all Public Toilets being constructed under SBM (Urban) are built in tandem with water supply arrangements.

### **1.2.3 National Policy for Women (Draft, 2016) – Focus on Water & Sanitation**

As per draft National Policy for Women (Ministry of Women and Child Development, GoI, 2016), it is imperative to create accessible and operational Public Toilets (Community Toilets), and universalize the same. It is stressed that provision for water and sanitation facilities, especially provision for disposal of sanitary napkins must be adhered to in Public Toilet/Community Toilet projects.



### **1.2.4 Guidelines for Public & Community Toilets Management by Cities for AP State (2017)**

As per guidelines for Public and Community Toilets Management, it is mandated to have separate blocks for men and women. This has implications in both safety and privacy of women users.

From safety perspective, adequate lighting, both inside and outside the units should be made available.

The guidelines highlight the importance of gender-sensitiveness of PTs and CTs – the need for adequate lighting, working of doors and latches, provision for continuous supply of electricity and water are to be addressed.

As per the CT PT guidelines, a gender-sensitive toilet can be defined as *“one which is easily accessible for women; has the provision of basic facilities such as water and electricity; is clean and adequately maintained; the design elements ensure privacy and dignity for women; it is safe for women to use the facility at all times (with lighting and adequate security provisions in terms of caretakers etc); and has provision for child care and menstrual hygiene management.”* (CT PT Guidelines, Dec 2016).

## **1.3 Review of studies related to gender and sanitation**

### **1.3.1 SQUAT Study**

This section provides an overview of literature pertaining to surveys and (or) other studies conducted to understand public toilet usage. Important observations, discussion points are mentioned in this section.

Sanitation Use, Quality and Trends (SQUAT) Survey, 2014 administered by the Research Institute for Compassionate Economics (RICE), is a comprehensive survey on issues concerning sanitation and auxiliary issues in rural India – the underlying aspect is to understand trends and factors influencing rural defecation. However, being a comprehensive survey, takeaways from this survey can be adopted to study sanitation issues in an urban context.

The SQUAT Survey, 2014 administered separately both to women and men through separate questionnaires fields a wide range of questions – perception/beliefs on how sanitation impacts health; respondents’ knowledge in locating sanitation, or its absence as a causal factor of diarrhoea; rating of latrine facilities in the village ; interviewers’ observation on the status of latrine (at respective households) based on which the respondents are questioned for its non-usage, the options range from security, privacy, considering usage of toilets impure, lack of facilities, etc., ; behavioural patterns concerning latrine usage; usage of public/community latrine – factors influencing the same; questions to understand activities pertaining to open defecation; awareness about sanitation programmes.

### **1.3.2 Bhopal Study**

A survey conducted in Bhopal, Madhya Pradesh to study patterns of use of communal latrine facilities fielded questions on rating of facilities in the community latrines, reasons for using community latrines – three important factors identified



were convenience, privacy and safety from animals; also, questions very fielded on the most-disliked aspects of using community latrines – important factors identified were foul smell/odour, presence of que and lack of water; questions prodding if the fee charged for usage of public toilets elicited a response that about 85% of the users found the fee to be ‘about right’.

As per Community Toilet Complex Management (CTC) Management Report, a study conducted for two urban poor areas: a slum and a resettlement colony. The survey studied the usage pattern – temporal vis-a-vis purpose of visit. More specifically, points emerging from Focus Group Discussion (FCG) of users regarding issues in usage of public toilets points to factors like need for appointment of women caretakers to save embarrassment; participants pointed out to issue of safety in accessing community toilets; caretakers find it difficult to manage women complexes due to improper disposal of sanitary waste.

#### 1.4 GIZ Approach to gender and public toilets in Tirupathi& Shimla

GIZ has been supporting both Tirupathi and Shimla Corporations since 2010 under it Support to National Urban Sanitation policy Project across both phases. The various subjects supported explains the step by step process of panning to logical generation of benefits on account of infrastructure and service improvements.

**Table 1: GIZ Approach to SNUSP and Support to Tirupathi and Shimla**

Tirupathi corporation	Shimla Corporation
1. City Sanitation Plan	1. City Sanitation Plan
2. Preparation of online GIS asset inventory of all public and community toilets	2. Preparation of online GIS asset inventory of all public and community toilets
3. Preparation of city wide public toilet management plan	3. Preparation of city wide public toilet management plan
4. Development of contract and procurement documents for different engagement models for PT & CT management	4. Development of contract and procurement documents for different engagement models for PT & CT management
5. Technical Support to procurement of operator services	5. Technical Support to procurement of operator services
6. Technical implementation of 3 select projects (Namma toilet in front of Railway Station, civic structure at Medical College and E-toilet in front of Railway Station)	6. Technical implementation of 3 select projects (Totu Chowk, Ram Mandir and Sikh Line)
7. Guidelines for public and community toilets management by cities in Andhra Pradesh	7. Preparation of design and estimation for rehabilitation of 3 toilets on a sample basis

The current gender monitoring survey is a culmination of series of support to both cities and aimed to evidence the level of preparedness to meeting gender needs in public and community toilet services taken up on its own as well as under Swachh Bharat Mission.

##### 1.4.1 Tirupathi

Tirupathi Corporation has been implementing public toilet projects in an incremental manner in reaction to needs, traditionally and a computed overall demand under SBM. Around, 30 public toilet structures have been installed and in use in Tirupathi.



With a focus on improved quality of service, recent structures installed are of pre-fabricated nature – blocks and units. GIZ has supported Tirupathi Corporation in preparing a city wide plan for management of public toilets. Under this support, they have also developed templated project documents with focus on the women’s needs. The plan was used to develop detailed engineering designs, procurement of operator services for 2 selected locations and accordingly implemented (details refer Annexure 2). The 2 toilets supported by GIZ should be checked for gender needs results.

#### **1.4.2 Shimla context**

Shimla Corporation is currently managing close to 140 public and community toilets. With a need to improving its service delivery uniformly across all toilets, the Corporation has attempted a clear categorization on the 140 toilets into 3 clusters (high footfall, low footfall and medium footfall). Accordingly, GIZ supported in the procurement of operator services for each cluster with tendering and procurement processes. Multiple efforts were made to identify an operator(s) and currently, one operator has been identified to manage the toilets (instead of suggested 3 clusters, toilets were categorized into 2 clusters – public & community). With a mandate to demonstrate working models, GIZ has selected 3 toilets on a sample basis (reflecting the varied types of toilet types in Shimla) and currently supporting their refurbishment and management. The processes for improvement works are currently initiated with the Corporation and the toilets will be in full operation by Feb 2017. The 3 toilets supported by GIZ should be checked for gender needs results.

### **1.5 Need for Gender Monitoring Surveys**

The need for gender monitoring survey is to understand if the PTs address gender-specific parameters like safety, privacy, hygiene and accessibility. Gender needs are addressed both through the infrastructure put in place and support services, with both aspects complementing each other. Thus, for a holistic view on gender needs, the users and infrastructure have to be surveyed. The surveys in both cities tried to capture issues when toilets are constructed, installed or rehabilitated.

#### **1.5.1 Tirupathi context**

Tirupathi, an important tourist and religious place of India, footfall of users are perennially high in all seasons. Thus, sanitation is an important urban problem faced. To counter this, there are high numbers of public toilets in Tirupathi, which are spread well across the city. More number of public toilets is stationed near important places where crowd congregates. To assess and understand gender needs and how the same have been addressed – a gender monitoring survey was conducted in three toilet locations which are different in construction style, user conditions and operational modalities.

- Namma Toilet PT sees a mix of tourist-cum-regular users, those who frequent to Tirupathi (by train) for religious tourism; general tourists, who get to use the structure for first-time also consist of a major user base; with Vishnu Sadan being less than 100 metres away, users frequenting the said place also visit the



Namma Toilet PT; passengers availing bus facility also represent an important user segment.

- SV Medical College PT (Civic Structure), user profile consists of regular users from nearby residential areas who use the structure early morning; visitors on their way to Tirumala by road also visit the PT; workers, especially, women labourers in shops nearby frequent the PT during afternoon (lunch session).
- E-toilet situated opposite to the parcel office and positioned close to subway sees a mix of users ranging from workers or public reaching the parcel office (railway station) or general public approaching bus stand from railway station (Main Bus Stand).

Each toilet represents a different type of public toilet –first, public toilet opposite to Railway Station (Main) entrance, which is a pre-fabricated structure, locally referred to as Namma Toilet; second, a public toilet opposite to SV Medical College, which is a civic structure. The purpose of undertaking survey in two toilet locations is to understand and capture the differences the structures bring in place with regard to gender needs. Areas which are important from a gender perspective, viz., safety, privacy, access among others were captured.

Also to capture impact of time on user ratings, the survey was structured across three principal sessions – Morning (5 AM to 10 AM); Afternoon (10 AM to 3 PM); Evening session (3 PM to 8 PM). This location-wise impact is detailed in the report – with regard to ratings of users.

### 1.5.2 Shimla context

In Shimla, most of the toilets were rehabilitated and the nature of rehabilitation included elements required for addressing gender needs. The surveys here are aimed at learning when rehabilitation (this has certain limitations unlike construction of new toilets) is taken and consequent utility.

- Ram Mandir PT sees a mix of regular and first-time users due its proximity to Sood Dharamshala and Ram Mandir; apart from visitors to the above mentioned places, general public engaged in shopping at the lower bazar visit the PT due to its centrality of location. The structure is well connected by flight of stairs – used as a public space by general public using it for walking and reaching Shahi Theatre, this makes it safe for women users and they do not find the structure cut-out from public eye. Shopkeepers, both men and women use the PT due its centrality of location.
- Totu Chowk PT is located besides a local bus stand which is frequented by workers using the same to board buses for work, therefore general public use the PT during the visit to the bus stand or when waiting for a bus; women users engaged in shopping in the nearby market frequent the PT.

## 1.6 Objectives of the Survey

The objectives of the study are:

- a) Identification and tracking achievement of gender mainstreaming elements in Public Toilet projects – both at Tirupathi and Shimla.



- Gender mainstreaming elements here refer to aspects pertaining to sanitary infrastructure.
- Identify usage characteristics – ensure if the said toilets are used and understand issues with regard to non-usage, if any.
- Study safety and hygiene on the following:
  - To study **accessibility aspects**, with emphasis on gender – captured by addressing parameters like access path, adequate lights, locational positioning of the PTs (centrally located, with adequate visibility, ease in access (distance to reach)
  - To study and place emphasis on aspects pertaining to **safety, privacy**, toilet unit characteristics, convenience issues, disposal of sanitary napkins (provision to, or lack thereof)
  - To study safety aspect inside the premises of the PTs – by capturing information on attendant, visibility to public eye, deterrent to usage, if any
- b) Conduct a representative survey to address the above mentioned points, and capture essential information in the form of a ratings scale.
- c) Based on reports from the field, from the inventory survey conducted to capture sanitary infrastructure and user survey – recommendations to improve the PTs, development of standard instruments for further gender related studies pertaining to PTs.

## 1.7 Organization of the Report

The report is organized as follows:

Chapter 2	Introduces the survey process and methodology adopted, the asset-inventory frame, user-survey frame, methodology of ratings and representativeness of the sample is discussed.
Chapter 3	Deals with results of asset-inventory frame, its ratings based on the results obtained and wide reaching implications.
Chapter 4	Deals with the results of user-survey; it presents the results with the context of inventory survey, linking both to arrive at a holistic picture of the public toilets under consideration.
Chapter 5	Discusses the reliability of the results arrived from user survey.
Chapter 6	Deals with comparison of results obtained from the user survey; the comparison is done at various levels – gender-wise, time-wise and day-wise for understanding user perceptions from different dimensions.



## Chapter 2 – Survey Process and Methodology

### 2.1 Survey process

The Gender Monitoring survey is done with the help of user survey responses which is survey of users of the said Public Toilets. The purpose was to understand the implications of the responses elicited from the users – an inventory survey too was conducted – information about the infrastructure, cleaning cycles, usage details were canvassed from the caretaker and contractor of the said public toilets. Below sections provide a brief on the survey process by providing a snapshot on the questions canvassed – both from the user and inventory survey.

**Table 2: Survey Process and Methodology - Overview**

Reconnaissance	Understanding of footfalls and pattern, cleaning and operational mechanism, sample collection time frame mapping
Inventory	Canvas inventory survey format to identify the level of gender sensitivity the public structure offers, canvas operations and maintenance service charter followed
User perception survey	Reaction of users to aspects pertaining to comfort, convenience, privacy, safety, etc.

#### 2.1.1 Reconnaissance

The enumerators were trained a day before alongside the survey in-charge and were taken on a tour of the toilets to acclimatize with regard to usage pattern, footfall and so on. Greater emphasis, during the training process, was to ratings and how the ratings are to be canvassed during the survey.

#### 2.1.2 Asset Inventory

The inventory questionnaire was divided into nine sections as follows

- a) General questions consisting information about the location, approach road and related issues of the toilet
- b) Infrastructure related questions
- c) Toilet usage details
- d) Water availability status
- e) Issues related to emergency
- f) Electricity details
- g) Wastewater details
- h) Details of caretaker
- i) Gender related questions each containing a minimum of six questions related to the specified field. This survey was carried out in both the toilets and the results were obtained.

The User questionnaire consisted of 28 questions (exclusive of sub – questions) and was divided into three parts namely,



### 2.1.3 User Perception Survey

This set consisted of questions pertaining to the details of the respondent such as the name of the respondent, his age category, whether the user accompanied a child or otherwise, his/her employment status, sector of employment if employed, resident or non-resident, regular user or first-time user and related questions.

At a high level overview of location, cleanliness, safety and privacy, the users were asked if they felt that these elements were present in the toilet to which the respondents had to choose between “Yes” or “No”. If the user reported “No”, he/she was asked to report the reason for the same. However, some users had felt that these attributes were present and at the same time had a few complaints with respect to the same issues. Sufficiency of toilets in the particular locality, space for queuing up, waiting time were the other factors covered in this section.

**Table 3: Overview questions and related sub-questions**

Overview questions	If no, related problem faced
Ease in location	<ul style="list-style-type: none"> <li>• Lack of Signpost</li> <li>• Lack of reference/assistance in locating the toilet</li> </ul>
Toilet clean	<ul style="list-style-type: none"> <li>• Water clogging</li> <li>• Bad Odour</li> <li>• Previous user leaving toilet unclean</li> </ul>
Safe and Private	<ul style="list-style-type: none"> <li>• Lack of doors</li> <li>• Lack of lighting</li> <li>• Lack of provision of bags</li> <li>• Toilet visible from outside</li> <li>• Lack of own gender caretaker</li> </ul>

This structure of questions facilitates in capturing how the toilet fares in the specified areas simultaneously allowing us to record the complaints. Apart from these, if the user had faced other issues, they were separately made note of in the remarks section.

## 2.2 User’s Ratings

The users, post – usage, were asked to rate the Location, Cleanliness, Privacy, Safety, Entrance, Availability of Signpost and the Sanitary Napkin Disposal Mechanism (For Women Users only) on a scale of 1 to 5 where,

- 1 indicates that the toilet fares “**Very Bad**” in the specified field
- 2 indicating “**Bad**”
- 3 indicating “**Good**”
- 4 indicating “**Very Good**”
- 5 indicating “**Excellent**”

In depth information about the ratings are provided in the table below.

Of the seven parameters that are common to both the sexes, five parameters – Location, Separate Entrance, Cleanliness, Safety and Privacy - were selected to build a composite index. The composite index is an average of the ratings given single respondent across the specified parameters. The index facilitates getting an overall picture with respect to user





experience and allows for comparison between toilets, across time zones and other likely comparisons.

**Table 4: Ratings' scale and their implications**

Ratings	Location centrality	Direction signs / Signpost	Separate Entrance to toilet	Cleanliness of toilet	Safety to access & use toilet	Privacy to use toilet
5	Accessible from all roads.	No signpost need.	Separate entrance with no connection between men's / women's section.	All elements including toilet seat clean and mugs clean.	Free access to toilet during the working hours of toilet	All doors are proper with functional bolts inside, with space for changing, windows not exposing toilet interiors.
4	Nearby landmarks and easy to locate.	Signpost available yet unclear.	Men happen to cross women's toilet.	Wash basin clean.	Natural vegetation outside; steps or ramp broken.; No adequate lighting inside.	Toilet or changing room visible from outside.
3	Accessible from some roads only.	Identification signpost needed to identify.	Common entrance	Walls & storage & seating space clean.	Cross heavy traffic & wide road to cross; Slippery steps.	Lighting inadequate or women cannot leave children in changing room or women cannot attend to children in changing room.
2	Have to enter many lanes or areas to reach.	Direction signs needed; few available.	Women have to pass men's toilet to use women's toilet.	Waiting space alone is clean.	Bus & auto stand; no support for climbing.	Ventilators & windows offer view from outside or storage cabinets broken or not available.
1	Not accessible	Direction signs needed; not available at all.	Same access to enter men & women section.	The whole / some toilet elements not cleaned.	Commercial area; No steps or ramp. People using wine shop	Caretaker is not of own gender.



Ratings	Location centrality	Direction signs / Signpost	Separate Entrance to toilet	Cleanliness of toilet	Safety to access & use toilet	Privacy to use toilet
					causing trouble	

### 2.3 Analysis of ratings and statistical reliability of user perceptions

As regards reliability of the results, to ascertain the same, Chi-Square Test for checking association between gender, age, employment status, regular user and their corresponding ratings for parameters like Location, Separate Entrance, Safety, Privacy and Cleanliness. The reported p-values would show if the relation between the said classifier and the ratings have an association or not.

Chapter 5 deals with reliability of user perception survey results. First, an introduction of reliability analysis is discussed. This is followed by presentation of ratings across toilet locations, the same are analysed by employing various classifiers, based on the user profile and differences in rating, if any, are studied. The classifiers according to which the ratings are understood are gender (overall, pertaining to different rating indicators), employment status, age-group wise, regularity of usage and users accompanying children-wise. To understand the context, the first comparison done is by analysing the structure of the toilets – this sets in place a set of reasons to understand ratings for different indicators and differences, if any.

In analysing the information given by the respondents we engage in testing a hypothesis based on which the questions are outlined to the respondents. In this context, we specifically seek to understand if an opinion is reliably validated through data obtained in the survey. In order to achieve this, we group the respondents into different classifications, namely:

- Gender
- Employment type
- Residential status (tourists, traders, resident)
- Frequency of usage (regular, one-time)
- Age group

Questions are asked to objectively understand the user experience – for each of the above category in terms of various parameters that can impact the user experience. These are obtained as “rating” from the users. Rating is obtained for each of the following parameters:

- Location
- Availability of separate entrance for men & women
- Cleanliness
- Safety
- Privacy

Now, having obtained the responses, we have two major questions to be answered:

1. Overall, are users satisfied with the public toilet?
2. Specifically, how have the experiences of women user been different from the men users in each of the above parameters? If the experiences have been different, how significant have they been as revealed in the numbers?



3. If there is a perceptible difference in the rating among different classes of users and particularly for the women users, in which of the parameters have the difference been stark?

Based on the responses to the above queries, we could decide on any policy changes or provide an objective evaluation of the toilets and their usage by the public. The answers to these queries are arrived through a statistical methodology called Hypothesis testing. To understand the difference in experiences of different classification of the users we use a method called the chi-square analysis. The analysis seeks to find and establish if the perception, reflected on the rating varies across the classifier, and is the same statistically significant.

The pitfall in not using a robust statistical test of association is that on occasions a difference in experiences registered by two category of users could be random occurrence. A hypothesis test can tell us if the difference we see in the percentages is statistically significant, and whether the ratings and gender variables (or any other classifier like employment/age/regular user/category of respondent) are independent or not.

To evaluate the statistical significance of cross tabulation results, we use a hypothesis test called the chi-square test. This test compares the counts observed in the data we've collected to the counts we would expect if there is no relationship between the variables.

- Null and alternative Hypotheses: The null hypothesis is that the variables are independent and there is no association between the classifier type to which they belong to and the ratings accorded; the alternate hypothesis is that there is significant association (dependence) between the classifier type to which the respondent belongs and the experience had (which reflects in the ratings).
- Each chi-square test provides two statistics that indicate if the variables are associated or independent: a chi-square statistic and a p-value. The p-value considered for our survey is 0.05 (95%) level of significance:

If the p-value is less than or equal to alpha, the variables are associated.

If the p-value is greater than alpha, you can conclude that they're independent.

- So, if p-value obtained in chi-square analysis and on comparison with an alpha level of 0.05 (less than or equal to), we can conclude that there is a significant association between classifier (gender/age group/employment/category of user) and their ratings.

In the following sections, the results of the statistical tests are presented with their interpretation.

## 2.4 Sampling Process and Representativeness

Based on the margin of error that was anticipated to be 5%, the sample size was fixed at 245 women observations per toilet which worked out to be 35 observations per day, spread across 7 days. The reason for choosing the said number is to approximate the results to the population – as the sample size, being above 30 (normal distribution), can approximated so. To understand gender implications and to compare gender-wise perception, a similar number of men observations too were decided to be studied.



Two enumerators – men and women – were stationed in each of the location. The enumerators were in charge of conducting surveys wherein the enumerators personally interviewed the users in both the locations and filled in the survey questionnaires.

Along with this activity, they were also in charge of conducting Inventory surveys. The aim of the inventory survey was to capture all possible details regarding the construction, maintenance and functionality of the two toilets. It involved interviewing the caretakers, surveying the toilets and so on.

As regards, representativeness of the sample, the users captured belong to the different categories – viz. tourist, residents, people visiting for work or trade – this was done by conducting survey at canvassing samples across different time frame – this was done so at Railway Station. At Medical College, the survey was stretched the entire day – to accommodate different use profiles, as, unlike railway station – a set timeframe for different user profile cannot be identified.

## 2.5 Survey days

The survey, as discussed earlier was scheduled in a manner to accommodate 245 women users. To ensure consistency in the answers and check for day-wise ratings, the survey was conducted over a seven day period. But, given a fall in the number of users in the survey, due to various reasons, there was a mild difference between the estimated number and the actual number in the Namma toilet.

The purpose of spreading the survey for seven days is to account for and check consistency of results. Also, to understand the dynamics of the type of day – weekend or weekday, and its implication on ratings.

**Table 5: Day wise break-up of users surveyed**

Days	Namma toilet, Tirupathi		Medical college toilet, Tirupathi		E-toilet, Tirupathi		Ram Mandir toilet, Shimla		Totu chowk toilet, Shimla	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Day – 1 Sunday	24	30	25	9	37	8	35	36	35	35
Day – 2 Monday	35	34	35	12	23	9	35	35	35	35
Day – 3 Tuesday	35	38	35	21	27	10	35	35	35	35
Day – 4 Wednesday	34	36	35	16	28	15	35	35	35	35
Day – 5 Thursday	35	35	35	20	17	13	35	35	35	35
Day – 6 Friday	35	35	35	21	11	6	35	35	35	35
Day – 7 Saturday	35	35	35	22	22	14	35	35	35	35
Total	<b>233</b>	<b>243</b>	<b>235</b>	<b>121</b>	<b>165</b>	<b>75</b>	<b>245</b>	<b>246</b>	<b>245</b>	<b>245</b>

Ram Mandir PT is located at a central place close by place of worship, Ram Mandir. Apart from the the temple, the public toilet is located near Shahi Theatre – a famous entertainment place at Shimla; Sood Dharamshala, a prominent place of stay for devotees is also situated nearby.

The public toilet at Totu Chowk (Totu Chowk PT, henceforth) is centrally located – on the main road with shops lined; it is to be noted that the local bus stand is very proximate to Totu Chowk PT. As a consequence of centrality of the location, a regular stream of users, both women and men visit the PT; the peak timing of women usage are morning – which primarily consists of shoppers and office-goers; the same office-going crowd use it during evening post work, upon reaching the bus stand.



In total, 930 women respondents were surveyed across all the five locations. In Shimla, as targeted, 490 women respondents were surveyed, however, at Tirupathi, in SV Medical College and E-toilet, the women count was low, against the targeted 245 women respondent count. Main reasons for low count of women in medical college is due to limited hours of operations (not being a 24\*7 PT), also due to operation of a local liquor shop in the vicinity of the PT complex. In the case of e-toilet, the structure as such sees a limited footfall due to novelty factor – the unit still being new to public; strict requirement of two rupees (as change) and structural issue (steel), as the survey coincided with a very harsh summer.

## 2.6 Survey time

As far as the *Namma* toilet is concerned, since there was a regular inflow of users, it was decided that the survey would be conducted at different time sessions in the seven days survey period. Sessions are grouped as – Session 1 (5AM to 10AM), Session 2 (10AM to 3PM) and Session 3 (3PM to 8PM). This was done in the view that the experience of the users across the entire time frame that the toilet is under use can be captured.

**Table 6: Session-wise split-up of user survey**

Location	Session	Day – 1 Sunday	Day – 2 Monday	Day – 3 Tuesday	Day – 4 Wednesday	Day – 5 Thursday	Day – 6 Friday	Day – 7 Saturday
Namma toilet, Tirupathi	1	-	Yes	-	-	Yes	-	Yes
	2	Yes	-	-	Yes	-	-	-
	3	-	-	Yes	-	-	Yes	-
Medical college toilet, Tirupathi	1	-	Yes	Yes	Yes	Yes	Yes	Yes
	2	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	3	-	-	-	-	-	-	-
E-toilet, Tirupathi	1	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	2	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	3	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ram Mandir toilet, Shimla	1	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	2	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	3	Yes	Yes	-	Yes	-	-	-
Totu chowk toilet, Shimla	1	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	2	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	3	-	Yes	-	-	-	-	Yes

The toilet located at SV medical college did not have a regular inflow of users and therefore, there was no luxury of conducting surveys at different time sessions as desired. The civic structure toilet was typically opened at 0600 hours and was closed not later than 1730 hours. It was located in a residential area and the caretaker experiences inconveniences in operating the toilet as the toilet is located close to a liquor shop. As a result, the toilet is shut early. And due to a low footfall, the sessions in this toilet were longer as compared to those of the Namma toilet.

The spread of users is predominantly above twenty years; with most women users aged between twenty to forty years of age.

From the age profile of users it can be seen that majority of both women and men users fall under the age category of twenty to forty. Next to the said category, it is followed by users from forty to sixty age group.



## Chapter 3 – Asset Inventory and Results

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### 3.1 Type of structure, materials and advantages

#### 3.1.1 Namma Toilet, Tirupathi

The *Namma toilet* is a fabricated structure with walls, roof and floors of the cubicles being made out of Fibre reinforced plastic (FRP). The closets all Indian style are made of stainless steel. The structure had four urinals (two on each side) and had three toilet cubicles in each section for men and women. The toilet was built elevated one foot from the ground level. The advantage in using such material was it is highly cost-efficient and capable of assembly at site, savings in construction time are envisaged compared to other type of structures. In this context, the location centrality, pedestrian & vehicular traffic has limited the choice of material. The linear layout of the toilet is equipped to handle higher footfall as well.

#### 3.1.2 Medical College Toilet, Tirupathi

This toilet block is built of Reinforced Cement Concrete (RCC). The walls and floors are well finished with ceramic tiles and the closets are made of ceramic. Given its longevity in life (>25 years) and the residential area where it is located, RCC has been preferred over other materials. The toilet location and the surrounding conditions were amenable to constructing a RCC structure.

#### 3.1.3 E-toilet, Tirupathi

The e-toilet is an electronically operated toilet unit, which leverages a full life cycle approach – right from entry of the user to the exit, cleaning process with a complete monitoring framework to monitor each stage of the usage. It is built using steel (complete structure) and other lower grade material also for cost optimisation. There is no difference in the usage for urinals or toilets. Given the handling of the toilet unit is limited, multiple units are to be lined up and can be customised as per demand. The e-toilet is situated opposite to the parcel office of the Tirupathi railway station and caters to users who frequent the parcel office, workers from nearby shops.

#### 3.1.4 Ram Mandir Toilet, Shimla

This structure is a rehabilitation of an existing structure, which is situated between two streets, and accessible from streets. Given this PT is close to Ram Mandir and Shahi theatre, the toilet was redesigned as a multi-level facility, with segregated access to men and women. The structure is built using cement and brick with ceiling on top constructed using cement.

#### 3.1.5 Totu Chowk Toilet, Shimla

This structure is also a rehabilitation of an old structure with usage on both levels (originally women climbing stairs to the first floor to use toilets or urinals). The reorganization of spaces included making women units on the ground floor along with men's urinals and men's toilets on the first floor. Totu Chowk PT is a multi-level



facility and built using cement structure and the roof is built using prefabricated sheets, these can withstand rains, therefore safety of users during rains is met.

### 3.2 Infrastructure Asset Inventory: Status

Though a full-fledged asset inventory of all elements was conducted, this section limits to explain those aspects pertinent to women / gender and their implications. The complete inventory sheet as a database is separately available for reference.

*Pic: Namma toilet opposite to Railway Station, Tirupathi*



*Pic: Public toilet opposite to Medical College, Tirupathi*



*Pic: E-toilet @ Parcel Office, Tirupathi*



*Pic: Rehabilitated Public Toilet @ Totu Chowk, Shimla*



*Pic: Rehabilitated Public Toilet @ Ram Mandir, Shimla*





### 3.2.1 Tirupathi

The PT/CT guidelines discuss in detail the external and internal infrastructure of the toilet. The façade of the toilet should have an aesthetic appearance and should have boards in both the local language and English indicating that the structure is a toilet. Internally, the toilet should be properly ventilated and should allow natural lit taking into consideration that the doors or windows do not comprise safety. In the inventory survey it was observed that both the toilets were in compliance to most stipulations except. An area of concern in the civic structure toilet, was that insides of women toilet was visible from the outside and the natural lighting was not enough.

### 3.2.2 Shimla

The PT/CT guidelines discuss in detail the infrastructure and facilities required in toilets. The façade of the toilet should have an aesthetic appearance and should have boards in both the local language and English, indicating that the structure is a toilet. Internally, the toilet should be properly ventilated and should allow natural lit taking into consideration that the doors or windows do not comprise safety. As per the SBM norms, the number of women to men units meet the standards. There is presence of 1000 litres tank on top of each toilet complex – both men and women.

In the asset inventory, it was found that both the toilets were in compliance to the PT stipulations. However, information was not available in the local language at Ram Mandir PT; whereas, in Totu Chowk PT, information and board was not available in English. It is observed that the safety aspect is met with in the public toilets; however, open main door at Totu Chowk was an issue pointed out in user surveys. As regards privacy and safety at Ram Mandir PT, the presence of a slab in addition to the grill door puts the women users at a better position; visibility behind the slab from shops downstairs is not there thus women users were not apprehensive of using the public toilet.

**Table 7: Infrastructure – Asset Inventory**

Infrastructure Details	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
Toilet type	Public Toilet	Public & community Toilet	Public Toilet (e-toilet)	Public Toilet	Public & community Toilet
Common / separate entrance for ladies/gents *	Separate	Separate	Separate	Separate	Separate
Main door available for toilet *	No	Yes	Not Applicable	Yes	Yes
Doors in working condition *	Yes	Yes	Yes	Yes	Yes
Floor type	Plastic Fibre	Tiles	Steel	Granite	Granite
Floor condition	Good	Good	Good condition	Good	Good
Roof type	Plastic fibre	Cement concrete	Steel	Cement concrete	Cement concrete
Roof condition	Good	Good	Good condition	Good	Good
Natural light inside the building	Yes	No	No	Yes	Yes
Windows available for cross ventilation *	Yes	Yes	Yes –embedded within structure	Yes	Yes
If Windows available, do they compromise on women safety?	No	No	No	No	No
Lights *	Available	Available	Available	Available	Available
Exhaust fans	No	Yes	Yes	No	No

**Note:** \* Asset elements having a bearing on women / gender usage is highlighted





### 3.3 Water availability

#### 3.3.1 Tirupathi

The AP PT/CT guidelines mentions the average amount of water used for a single toilet use is 7 litres (including flushing, ablution, cleaning) and for urinal flushing is 0.2 litres. Given these numbers and the amount of water stored in the toilet complexes, the Namma toilet and the civic structure toilets are equipped to handle about 250 users and 70 users, respectively on a daily basis. This means that current storage and availability is sufficient to handle higher footfall also. E-toilets require multiple fillings daily and the system will not function in the absence of low / no water, rendering this very vulnerable unlike other toilets. Except for Medical College toilet all toilets are vulnerable for water related issues, though they are currently not affected.

#### 3.3.2 Shimla

Both the PTs faced issue related to water during evening timing or at the time of closing. At Totu Chowk PT, any delay of water supply creates issues for users the following day early in the morning, as pointed out the caretaker.

**Table 8: Water facility – availability, source, storage profile**

Water availability	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
All units have water access *	Yes	Yes	Yes, subject to storage	Yes	Yes
Source of water *	Municipality	Municipality	Municipality	Municipality	Municipality and through Tanker
Connection in a unit *	Pipeline in each toilet	Pipeline in each toilet	Pipeline in each toilet	Pipeline in each toilet	Pipeline in each toilet
Water collected from *	Municipal / Private tankers	Municipal supply	Municipal supply	Municipal supply	Municipal supply
Water collected by	Caretaker	Caretaker	Automatic	Caretaker	Caretaker
No of times water collected *	Daily	Once in 2 days	Multiple times in a day	Daily	Daily
Storage type	Overhead tank	Underground Sump (10000 lts)	Underground sump (5000 lts)	Overhead tank	Underground Sump
OHT capacity	1000 lts	1000 lts	250 lts	1000 lts	1000 lts
Seasonal variation in water availability	Not affected	Not affected	Affected	Affected	Affected
Toilet usage pattern during summer / winter	Same as usual	Same as usual	Affected (water usage limits usage cannot be used) overheating of unit prevents usage	Closed earlier in winter	Closed earlier in winter

**Note:** \* Asset elements having a bearing on women / gender usage is highlighted

### 3.4 Electricity

#### 3.4.1 Tirupathi

According to the PT/CT guidelines, electricity should be available 24\*7 in the toilet. The toilet cubicles and the common area in the toilet should be well lit. Except that there is no back-up mechanism to notify the issue in the event of electricity failure, there were no safety issues observed during electricity failure in both the toilets.



### 3.4.2 Shimla

The toilet cubicles and the common area in the toilet are well lit naturally and by electricity. The specifications in PT guidelines are met with in both the PTs. However, electricity complaint through a dedicated contact number or back-up mechanism was missing at both locations.

*Pic: Electricity Meter exposed @ Ram Mandir Public toilet, Shimla*



**Table 9: Electricity Status - Inventory**

Electricity Issues	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
All toilet units have electricity *	Yes	Yes	Yes	Yes	Yes
Electricity availability (hours/day) *	Continuous, power cuts in summer	Continuous, power cuts in summer	Continuous, power cuts in summer	Continuous	Continuous
EB number available *	No	No	No	Yes	Yes
Electricity used for lighting of unit	Yes	Yes	Yes	Yes	Yes
Electricity used for pumping OHT	No	Yes	Yes	No	No
Electricity used for cleaning units	No	No	Yes (Automatic Flushing)	No	No
Are all light fixtures functional *	Yes	Yes	Yes	Yes	Yes
In case of electricity failure, issue is notified to *	No back-up mechanism	No back-up mechanism	No back-up mechanism	No back-up mechanism	No back-up mechanism

**Note:** \* Asset elements having a bearing on women / gender usage is highlighted

### 3.5 Wastewater Details

#### 3.5.1 Tirupathi

Since the toilets are located as part of the old city which had complete UGD coverage, wastewater is connected by a sewer connection to this network.

#### 3.5.2 Shimla

All the toilets are located in the vicinity of a UGD system, hence connected to them.

*Pic: Cleaning of Stairs after a spell of rain @ Ram Mandir Public Toilet, Shimla*



### 3.6 Emergency issues

#### 3.6.1 Tirupathi

It was observed during the inventory survey that there was water clogging in the floors outside the toilet units in the common space and there was no water clogging



inside the toilet. However, no complaints have been registered with regard to the same, since there are no formal mechanism yet.

### 3.6.2 Shimla

Water clogging on the floors outside the toilet units in the common spaces was observed. However, no complaints have been registered with regard to the same. So, we are unable to track and study the efficacy of the redressal mechanism.

The caretakers at both the location ensure any stagnation due to rains or wet floors are immediately dealt with. As a case in point, a picture illustrating cleaning post-rains is shown above.

**Table 10: Emergency issues – Inventory**

Emergency Issues	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
Water drain away during rains	No	No	Yes	Yes	Yes
Time taken for water to drain	3 to 5 hours	< 1 hour	< 1 hour	< 1 hour	< 1 hour
Water clogging outside toilets	Yes	No	No	Yes	No
Complaints registered *	No	No	No	No	No
Helpline / escalation *	NA	NA	NA	NA	NA
Time taken to fix the problem (days) *	NA	NA	NA	NA	NA

**Note:** \* Asset elements having a bearing on women / gender usage is highlighted

### 3.7 Summary of infrastructure ratings

The asset inventory tables have been highlighted for aspects that directly or indirectly influence the availability in the first place and consequently their usage of toilets by women. The presence of absence of specific infrastructure elements have been coded either 1 or 0 values and the ratings are computed for each sub-heading. This is undertaken to exemplify the importance of design and implementation for women's needs and how the toilets currently fare.

The ratings clearly indicate all the 5 toilets are in the range of 19 to 21 out of max. 30 points. The reasons / combination thereof for shortfall are different in each case and also location centric. While the basic elements for a clean working toilet have been achieved, nuanced gender focussed elements require careful attention. The overall shortfall of elements across all 5 locations provide an overview of provision elements from city side that still require attention; for ex. water availability at all times, backup for electricity failures & functional fittings, storm water & wastewater management, women's caretaker, space inside toilet & storage facilities, complaint & redressal mechanisms. It can be summarised that gender elements are completely catered to in different contexts in all the toilets, a fact corroborated in the user ratings. An elaboration of micro-elements is discussed below.



**Table 11: Infrastructure Ratings out of a scale of 5**

Aspects considered	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
<b>INFRASTRUCTURE</b> (Entrance type, main door, working doors, windows, lighting)	4 out of 5 [Structural design]	4 out of 5 [main door exposed]	4 out of 5 [system access completely controlled]	5 out of 5	5 out of 5
<b>WATER AVAILABILITY</b> (Availability, source, supplied, connection, collection responsibility, sufficient storage)	4 out of 5 [requires daily filling]	5 out of 5	3 out of 5 [requires daily filling, repetitive and dependent on electricity]	4 out of 5 [requires daily filling]	4 out of 5 [requires daily filling]
<b>ELECTRICITY</b> (Authorised connection, supply, concealed wiring, functional lights, backup arrangements)	3 out of 5 [authorised connection, no redressing mechanism]	3 out of 5 [authorised connection, no redressing mechanism]	3 out of 5 [authorised connection, no redressing mechanism]	3 out of 5 [authorised connection, no emergency set-up]	3 out of 5 [authorised connection, no emergency set-up]
<b>WASTEWATER, DRAINAGE</b> (Sewer connection, storm drainage connection, mixing of black & grey water)	3 out of 5 [no storm drainage, sewer blockage]	3 out of 5 [no storm drainage, sewer blockage]	3 out of 5 [no storm drainage, sewer blockage]	3 out of 5 [no storm drainage, sewer blockage]	3 out of 5 [black & grey water mixing, sewer blockage]
<b>O &amp; M</b> (Woman caretaker, timings, helpline, waste bins disposal mechanism, space for changing)	3 out of 5 [no helpline, no space for dressing]	2 out of 5 [no bins, fewer functioning hours, sanitary napkin disposal]	3 out of 5 [no helpline, no space for dressing]	3 out of 5 [no woman caretaker, sanitary napkin disposal]	2 out of 5 [no woman caretaker, fewer functioning hours, sanitary napkin disposal]
<b>EMERGENCY</b> (complaint redressal, mechanism for redressal)	3 out of 5 [long drainage of rain / storm water, redressal mechanism]	4 out of 5 [redressal mechanism]	4 out of 5 [redressal mechanism]	2 out of 5 [long drainage of rain / storm water, redressal mechanism, winter issues]	2 out of 5 [long drainage of rain / storm water, redressal mechanism, winter issues]
<b>Cumulative</b>	<b>20 out of 30</b>	<b>21 out of 30</b>	<b>20 out of 30</b>	<b>20 out of 30</b>	<b>19 out of 30</b>

### 3.7.1 Infrastructure Ratings

A clear trend is observed under this rating wherein rehabilitation in Shimla has been used to correct some essential design elements, hence rated 5 out of 5 as against Tirupathi toilets who are rated 4 out of 5. The implication of the ratings can be seen in the user-survey results. The lack of main door – a door for the entire structure or direct exposure of toilet units to outside view is an important aspect to be considered with regard to safety and privacy. Similarly, windows for ventilation are an important aspect with regard to overall user experience.

### 3.7.2 Water Ratings

A critical element for good toilet is a well cleaned toilet, and water being an important element ensuring this. Continuous availability of water, storage and pumping capability influence this element. Implication of water-related ratings are felt in the overall user experience and convenience; regular availability of water also influences cleanliness rating indicator. While medical college toilet is perfectly positioned, absence of sump in other cases results in depending on daily municipal supplies &



direct pumping to the OHT, both being high uncontrolled elements for the operator. Hence, a rating of 4 out of 5 all other toilets. Shimla is more vulnerable to this parameter given the higher production cost of water & a possible lower priority given by city water suppliers.

### 3.7.3 Electricity Ratings

It can be observed that all toilets are in the similar rating range for this parameter despite have different locational advantages and limitations, 3 out of 5. Important implication of electricity is with regard to safety of users, especially women users. As regards all the locations have continuous supply of power and lighting at the individual units; however, lack of redressal mechanism and display of EB (Complaint) number is an issue if the operator representative wants to lodge a complaint and a back-up mechanism. The electricity backup is important for air ventilation / odour removal and operational safety for users.

### 3.7.4 O&M Ratings

Operations have a direct impact on the user satisfaction given the limitations of the infrastructure. The PT guidelines lays emphasis of sex of the caretaker managing the respective units. While Tirupathi toilets had women in this function, Shimla were completely manned by men. Another aspect that needs attention is the disposal mechanism in each toilet unit and the block as a whole for safe sanitary napkin disposal. This is seen as a lacunae across all toilets. It is to be

*Pic: Contact & user fee details @ Ram Mandir toilet, Shimla*



noted that absence of emergency contact numbers, at Totu Chowk PT has serious implications with regard to safety, more so due to the centrality of the location. However, Ram Mandir PT scores only with regard to display of emergency number. Nevertheless, availability of the person to take complaint and trigger action is as important to the display of the number(s).

### 3.7.5 Emergency Ratings

This rating can be categorised at 2 levels – one nature caused emergencies like rain, winter, snow, extreme summer, landslides, etc. and second being human caused like vandalism, misbehaviour with women, accidents while accessing toilet, etc.

Bad structural design could also cause accidents at or inside the toilets requiring immediate attention for both normal as well as differently abled persons. Lack of space for changing dresses has important implication with regard to privacy. Men having easy & uncontrolled access to women section of toilet also impinges on women safety and privacy. It is to be noted that absence of emergency contact numbers has serious implications with regard to safety and redressal.



### 3.8 Lessons learnt from infrastructure provision from Gender perspective

Based on the above listed parameters, five crucial infrastructure-related parameters with implication on sanitary aspects are chosen to arrive at sanitary infrastructure score for each PT. Factors chosen are as follows:

- Timings (Open for 24\*7)
- Display of helpline number for emergency
- Provision of bins in every cubicle
- Bins for disposal of napkin
- Private space for changing dress

List of Factors considered for Sanitary Infrastructure pertaining to women users	Implication(s)
Is there a women caretaker?	Presence of women caretaker improves safety aspect
If yes, part-time/full time?	Presence of caretaker full-time adds to the safety aspect; during odd hours, women user would feel safe to use the PT
Timings	A 24*7 PT is very essential with respect to safety and privacy of women user
Help line number displayed for emergency	Display of phone number(s) for redressal shows a positive sign to prospective user that gender needs are being met in the PT
Bins in every cubicle	Important aspects of infrastructure which have a bearing on multiple aspects
Bins for disposal of napkins	
Separate Mechanism for Bin waste	
Private space for dress change	Need for private space to dress change with doors and lock is essential for women safety
Toilet location closed to	PTs close to public spaces address aspect pertaining to location and safety

The ratings of the users on these specific items provides the justification for the importance the users pay for availability of such critical elements.

**Table 12: Ratings – Sanitary Infrastructure**

Rating Parameters*	Namma toilet, Tirupathi		Medical college toilet, Tirupathi		E-toilet, Tirupathi		Ram Mandir toilet, Shimla		Totu Chowk toilet, Shimla	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Sanitary infrastructure*	3	-	1	-	4	-	1	-	0	-
Number of respondents	243	233	121	235	75	165	245	245	245	245



## Chapter 4 – User Survey Results

### 4.1 Footfall characteristics and implications

The assessment of footfall was taken up based on the recall accuracy of operator and the survey team perception during the days of the survey. While it is not an exact count that was made during the entire toilet operation period, it nevertheless provides a snapshot of the average daily utilization in each toilet unit.

Based on this rough assessment, three toilet usage patterns are observed given the survey was conducted during the off-peak part of year (summer).

- Namma Toilet and Ram Mandir PT are similar structures receiving high footfall of 200+ toilet users (urinal users are not accounted for since the usage is free of cost at all locations).
- Totu Chowk PT sees a constant footfall of over hundred users daily.
- Medical college toilet and E-toilet have lower footfalls on account of their location and the user catchment nature (<100 users per day).

The number increases during the weekend. In Tirupathi, location of toilets in the vicinity of 50m to each other affect the usage and consequently the business dynamics.

**Table 13: Estimated daily footfall at the survey locations**

Days	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu chowk toilet, Shimla
Day – 1 Sunday	250	45	50	225	125
Day – 2 Monday	225	55	30	250	150
Day – 3 Tuesday	225	75	30	175	125
Day – 4 Wednesday	225	65	30	255	125
Day – 5 Thursday	225	65	30	275	125
Day – 6 Friday	250	55	30	275	150
Day – 7 Saturday	250	60	40	325	125

#### 4.1.1 Namma Toilet, Tirupathi

The footfall at the *Namma toilet* was high as it was located closer to the railway station. There was a high influx of users if and when trains arrived / departed. Therefore, the cleaning of the toilet had to be done at more frequently. As has been explained earlier, the toilet was sufficiently equipped to handle the high influx.

#### 4.1.2 Medical College Toilet, Tirupathi

Located in a residential area, there were a good number of residents using the toilet in the morning hours. The footfall recorded ranged between low and medium. The early morning sessions usage was mostly by the auto rickshaw drivers using the auto stand located adjacent to the toilet. Similarly, the post lunch usage was mostly by women and workers in nearby shops. Given the proximity of toilet to a wine shop and



associated issues, it was closed before 06PM daily. Therefore the low usage did not warrant the caretaker, to clean the toilet much frequently, unlike in *Namma toilet*.

#### **4.1.3 E-toilet, Tirupathi**

E-Toilet, located at a main road, opposite to the parcel office of Tirupathi Railway station has a mixed user profile – ranging from tourists to users crossing the road. The footfall was ranging from low to medium. Being a 24\*7 structure, the influx of users happened at wide spread of time. However, due to limited or no residential area, regular household users are not a part of the user base of the e-toilet.

#### **4.1.4 Ram Mandir Toilet, Shimla**

The footfall at Ram Mandir is high during afternoon and evening with regard to women users; there is a constant flow of men users, especially between 10.00AM & 11.30AM due to opening of offices and shops nearby. Majority of men users visit the toilet for urinals. Due to sufficient number of urinal units, there is no stress on usage; however, there is a need to clean the men unit frequently. In the case of women unit, the usage is spread across the day, there is a gap between one user and another – therefore implication of odour is felt less at this PT.

#### **4.1.5 Totu Chowk Toilet, Shimla**

Located next to a bus stand, the PT sees high inflow of users from both genders at any given point. Peak timings for the PT is between 09AM to 10/10.30AM consisting of office goers using the local bus stand; and in the afternoon/evening those visiting the local market. When demand for urinals is high, usually the case in morning to noon, it has implications for men users and there is no proper space to wait outside the public toilet.

### **4.2 User profile**

It is essential to track the user profile of the respondents in order to analyse if differences exist in the experiences of the respondents belonging to different age groups, gender groups, different sectors (in employment) and so on. The knowledge about the same can give us insights on whether the toilet can be constructed in a more inclusive manner to accommodate and enhance the experience of users across all sections.

#### **4.2.1 Age of the respondents**

The respondents at all toilets were a mix of all age groups, though the distribution was not uniform. Bulk of the users fell under the 20 years to 40 years age category. This is important since they could significantly bridge the balance of satisfaction from the traditional mode of saturation planning versus the new age service quality planning. The spread across age groups in Medical College was not significantly different at the civic structure – peaking, for both genders, at the 20-40 years age category and negatively skewed.

#### **4.2.2 Physically challenged users**

Except for 7 physically challenged women users interviewed at the Namma toilet, there were no physically challenged users interviewed at the survey. This leaves us



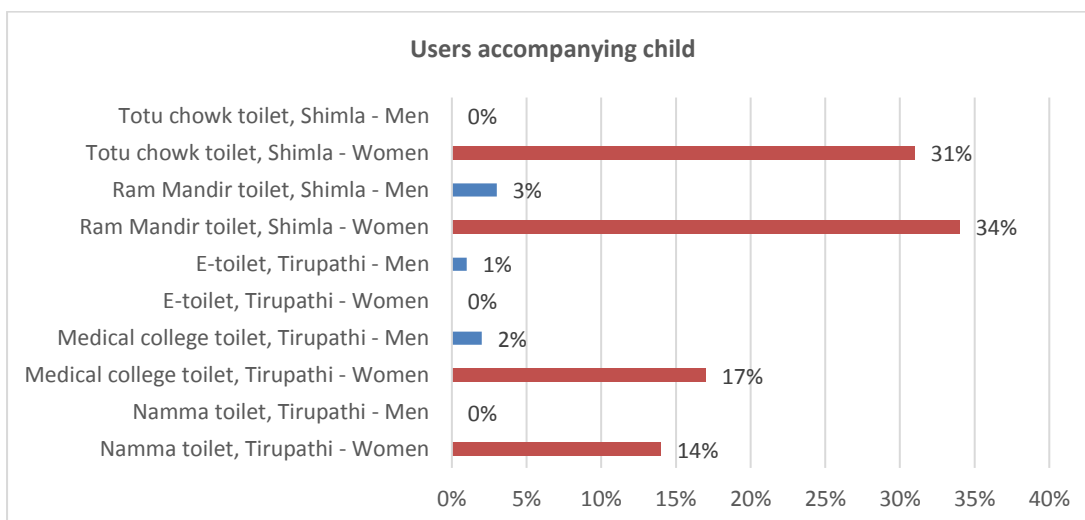


uniformed responses about the ratings / difficulties faced by physically challenged users while using public toilets. Given the limited number of such users, the unavailability of ramp access or disabled-friendly toilet units in Shimla or poorly designed units in Tirupathi serves as an example, purely from compliance perspective rather than utility, let alone satisfaction.

### 4.2.3 Users accompanying children

Women users are significantly expected to access toilets accompanied by children than men. The proportion ranges from a fifth to a third across all toilets, except e-toilets. The toilet usage becomes difficult with this added responsibility and desire of safety from a women's perspective. This data point helps us in capturing the experiences and the difficulties faced by users accompanying children, irrespective of the type of toilet unit or city. This aspect requires careful consideration given that the facilities available broadly at various toilets are basic and this particular situation desires a more refined thinking in terms of design.

Chart 2: Users accompanying children



### 4.2.4 Employment and Employment type

The employment status and the type a respondent works with provides an insight into the user expectation across various strata of the society. Therefore, the employed respondents were questioned on what category (in the given classification) they fall with respect to employment.

While the users at Namma toilets were predominantly unemployed, those at Medical College and E-toilets were employed. While the catchment around the medical college is an influence, only people aware of the toilet or exposed preferred e-toilets. Given the exposure to the toilet structure civic / prefab unit, there are higher users who are seasonal users.

Users profile at Ram Mandir PT are predominantly employed seasonally or full-time (men being 80% and women 65%). As regards the profile of seasonal or casual workers who work during season or specific time, 35% of women users reported to represent the said category. While employed women were from all types of employment, men were from public sector employment.



At Totu Chowk PT, classification of users based on employment yield mixed results – 49% women were seasonally employed and 58% men employed full-time. This is in line with the nature of the user catchment. The proportion and type of women users is a reflection of the importance of the toilet unit and its service to local people who frequenting the unit. Type of full-time employment among men / women indicate the locational importance as transit hub.

#### 4.2.5 Category of Users (Tourists/Residents/Work related visitors)

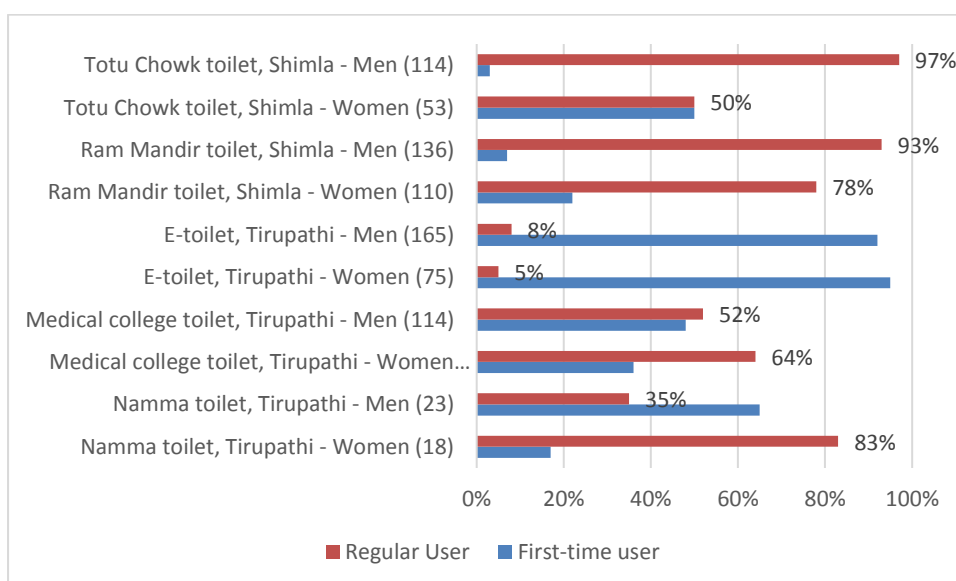
At Tirupathi, 44% of women users reported to be residents in Medical College PT, whereas only 7% of women users belonged to resident category in Namma Toilet PT. At E-Toilet PT, tourists and workers/traders dominated the usage profile compared to residents.

At Ram Mandir PT, 45% of women users were residents whereas 56% of men users reported to be residents. Out of residents, 78% and 93% of women and men users were regular users of the public toilet – having used it frequently. At Totu Chowk PT, as a consequence of centrality of the location and due to the user profile, a high proportion of users, both with women and men users belong to the category of residents. Due to the concentration of shops in the nearby areas, 16% of women users belong to the worker or trader category.

#### 4.2.6 First time user/Repeat users

The following chart give us a snapshot of whether users are first time users or repeat users to the unit. The experiences of repeat users can help us track if the maintenance of the toilet has improved or not. Further, the suggestions and the ratings of the repeat users are, for obvious reasons, refined as compared to those of a first time user.

**Chart 3: User profile based on regularity** [number of respondents in brackets]



Except for e-toilet PT, the other locations are frequented by repeat users – at Namma Toilet PT, 83% of women users have used the toilet unit more than once; at Namma Toilet PT, 64% of women users have used the toile unit more than once.



As regards consistency of results, due to a high proportion of regular users, the ratings would capture the effect of rehabilitation of the structure.

### 4.3 Gender sensitive framework for user-survey

As per Gender Checklist (GIZ), gender needs are to be identified from five steps of usage; they are as follows:

The Gender checklist highlights user-perception to be tracked and understood from five levels of usage. They are:

- Location of the toilet
- Design outside the toilet
- Design inside the toilet
- Supporting services
- Management of the toilet
- Knowledge about toilets

Location of the toilet has implication on access to toilets and safety – these are addressed in the user-survey through questions pertaining to ease in identification, centrality of the location with least walking distance, visibility issues (adequate lighting).

As regards Design outside the toilet, issues addressed are separate entrance (for each gender), adequate waiting space/area and access issues like bushes or any hindrance to access the PT under consideration – these factors have bearing on access to toilet, safety and privacy of women users. Design inside the toilet refers to presence of doors with latches, provision of bins for disposal of sanitary napkins, presence of windows for adequate ventilation – these are captured in inventory survey as these are infrastructure-related.

As regards support services and management of toilet which includes caretaker in own gender, display of emergency services and continuous supply of electricity are capture from the inventory survey.

### 4.4 User perceptions on the utility of toilets

#### 4.4.1 Sufficiency of toilets in the locality

In continuation with difficulty in locating the toilet, respondents were questioned if there is sufficient number of toilets in the adjacent area. The table below give us the break up with respect to the same.

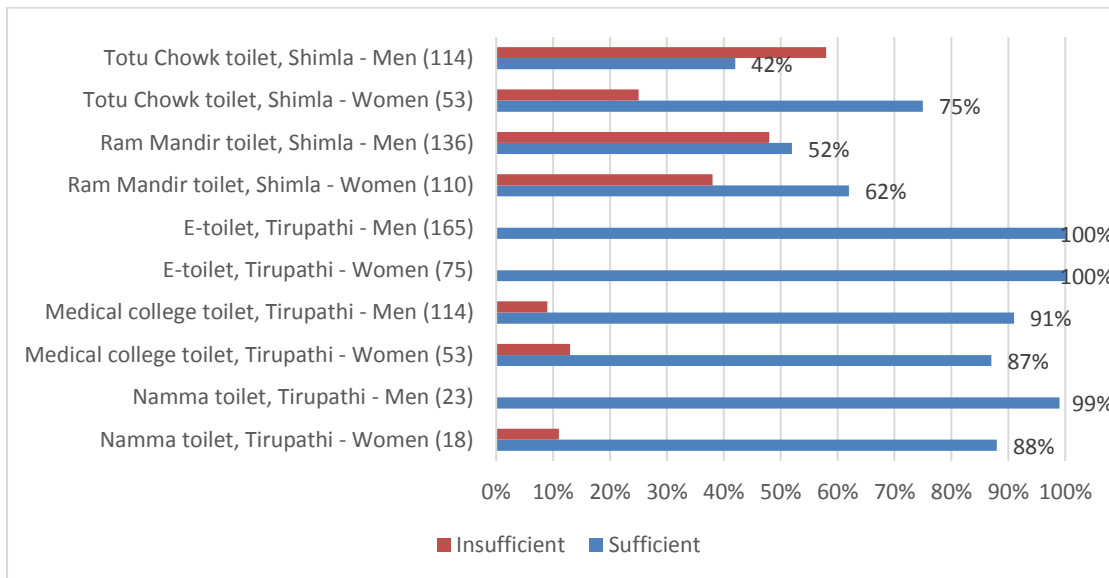
As regards sufficiency of public toilet, 62% of women users said the toilets including Ram Mandir were sufficient enough. In the lower bazar stretch, next to stairs leading to Baljee (a famous landmark), a public toilet acts as a support in addition to the current one. Men users were also of a similar opinion. The proportion of men users citing insufficiency of toilets was due to large number of user base. At Totu Chowk PT, due to paucity of public toilets in the marketplace and in surrounding areas, 20% of women users felt that toilets were insufficient – the user has to approach another



market place, on the way to Indian Institute of Advanced Study (IIAS) to avail toilet facilities.

As regards Tirupathi, due to presence of e-toilets, civic structure PTs, majority of users reported for sufficiency of toilets. At each survey location, within 200 metres, there was another PT in the vicinity, hence the positive response.

**Chart 4: User Perception on sufficiency of toilets in the locality [number of respondents in brackets]**



#### 4.4.2 Location and ease in identification

The PT/CT guidelines clearly specify the importance of the location of the toilet and the measures that are to be taken in helping users locate the toilet at ease. Public toilet blocks should be located within reasonable walking distance of the

*Pic: Signpost showing direction to Ram Mandir (Left, accessed from market path); Direction showing women toilet (Right, accessed from shops situated below the toilet complex) @ Ram Mandir, Shimla*



'activity generating' areas such as transport hubs, commercial areas, retail spaces, playgrounds and picnic facilities. The toilet block should be located close to areas



with heavy footfall to enable women, children, aged and infirm to be able to access them easily.

Therefore, the users, in addition to being asked to rate the location of the toilet, were also asked if they were at ease in locating the same. They were also asked to report the difficulties faced in locating the locating the toilet. Most users reported no difficulty in locating the toilets.

*Namma* toilet PT is located amidst busy streets at a distance not more than 100m from the railway station while the civic structure toilet is located at 10m distance on the arterial road leading to Tirumala, adjacent to a bus stop thus ruling out the possibility of the users having any difficulty in locating them.

Majority of users belonging to both gender responded with a positive with regard to signpost and access – reference or assistance from public. As regards issues pertaining to location, majority of women users responded positively for signpost indicating there were adequate signposts leading to the PT; similarly, with a high proportion of regular users and residents, majority of women users did not face any issue with regard to assistance from public to access the PT.

#### **4.4.3 Access and approach road**

The access to the toilet must be devoid of any bushes with clean access path and proper roads. A public toilet not meeting these criteria could cause inconveniences for users in entering the toilet, sometimes to an extent that the toilet may become unusable. As far the toilets under this survey are concerned, at least 80% and above users experienced no such difficulties.

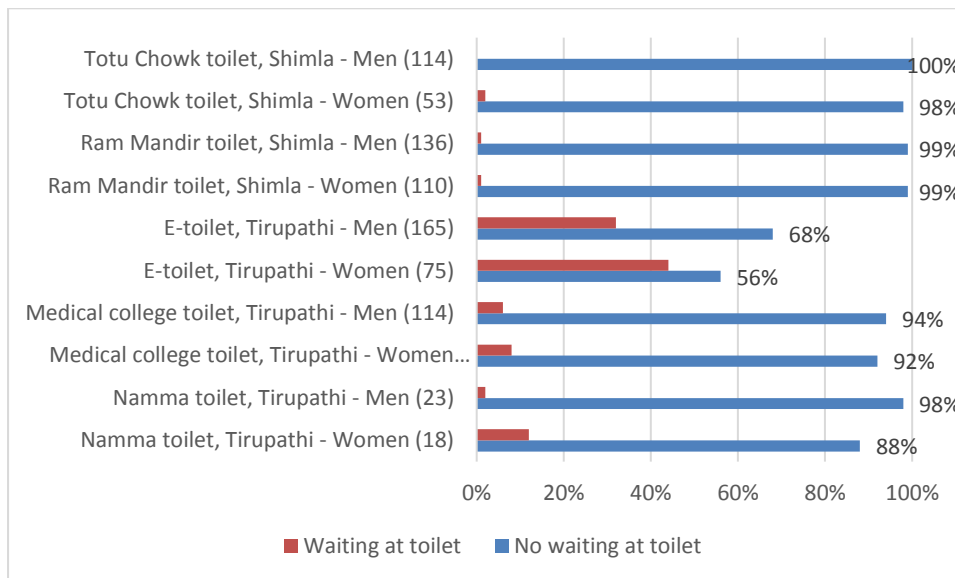
As regards issues pertaining to access, a major issue with Totu Chowk PT is the presence of vegetable waste from the local market that is left before the entrance until it is cleared. As a consequence, leftovers after clearing of waste act as an access issue.

#### **4.4.4 Waiting time**

Waiting Time is an important driver for public toilet usage. These can be analysed from a gender perspective, too. Thus, users were asked to respond on the waiting time in public toilets. There were 7% of women users who waited for more than five minutes in the railway station toilet. And, most users at both the toilets did not wait as can be seen from the table. At e-toilet waiting time is to be understood from usability perspective that is users were not able to figure out the operations and some faced issues with the opening of door. This had resulted in waiting time at e-toilet PT.



**Chart 5: User perception on waiting time at toilets [number of respondents in brackets]**

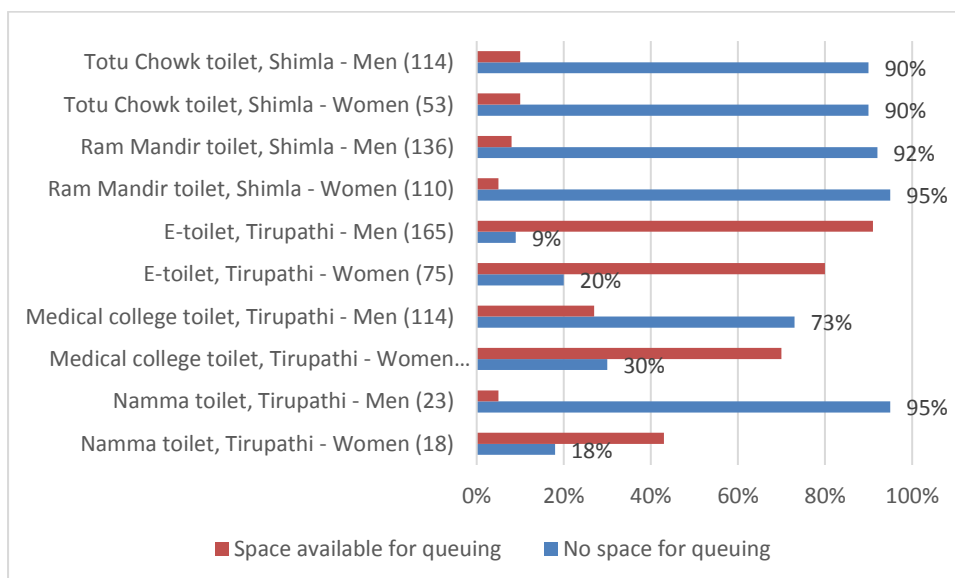


#### 4.4.5 Waiting space

At Tirupathi, the respondents, as explained in the previous section, did not have to wait for in the queue. However, more than at least 15% users, across all sections in both the toilets felt that there was no space for queuing. The *Namma* toilet is located in a busy area making it impossible for expanding the toilet for providing a space for queuing. The civic structure, on the other hand, is located next to an auto stand providing no space for queuing.

As regards e-toilet PT, in spite of space available for queuing, due to presence of taxi stand beside the unit, it makes it inconvenient for users to wait.

**Chart 6: User perception on space for queuing at toilets [number of respondents in brackets]**



At Shimla, as regards queuing, majority of men users reported no space for queuing; this was due to the flight of stairs leading directly to the entrance of the unit. During rains, all men users had to wait outside the entrance and flight of stairs.

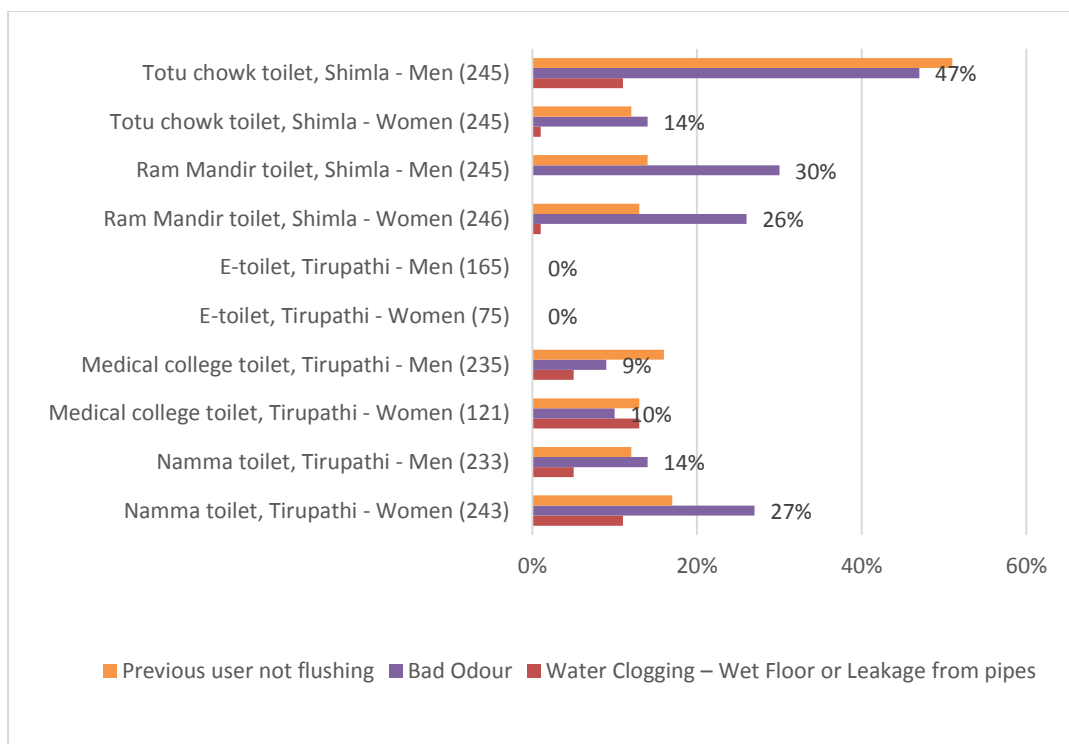


At Totu Chowk PT, as regards space for queuing, both men and women users complained of lack of space for queuing. The men urinal is situated on road-side, therefore users do not have space inside the unit to form a que; similarly, women users situated besides a flight of stairs leading to men's latrine units do not have a marked area to wait. The issue with pathway to men's latrine is reflected as 10% of women who had reported for presence of space yet faced problems with regard to queuing.

#### 4.4.6 Cleanliness

It is most important to ensure that a toilet is well maintained and clean. Cleanliness is a function of maintenance. And, we know that both the toilets have employed full-time caretakers and the toilet is cleaned if and when there is a need. As a result, most users, as can be seen in the table rated that the toilet is clean. Yet, every respondent was quizzed if they confronted any cleanliness related issue. Water clogging (including wet floor, leakage from pipes), bad odour and the previous user leaving the toilet unclean are the three perceivable reasons that could cause cleanliness related problems. However, it is worth noting that any such issue is addressed immediately by the caretaker.

**Chart 7: User perception on cleanliness [number of respondents in brackets]**



As regards issues pertaining to cleanliness, majority of both women and men users faced no issue pertaining to water clogging/wet floor or leakage from pipes. However, 23% women users reported an issue with regard to bad odour at Namma Toilet PT.

#### 4.4.7 Safety and Privacy

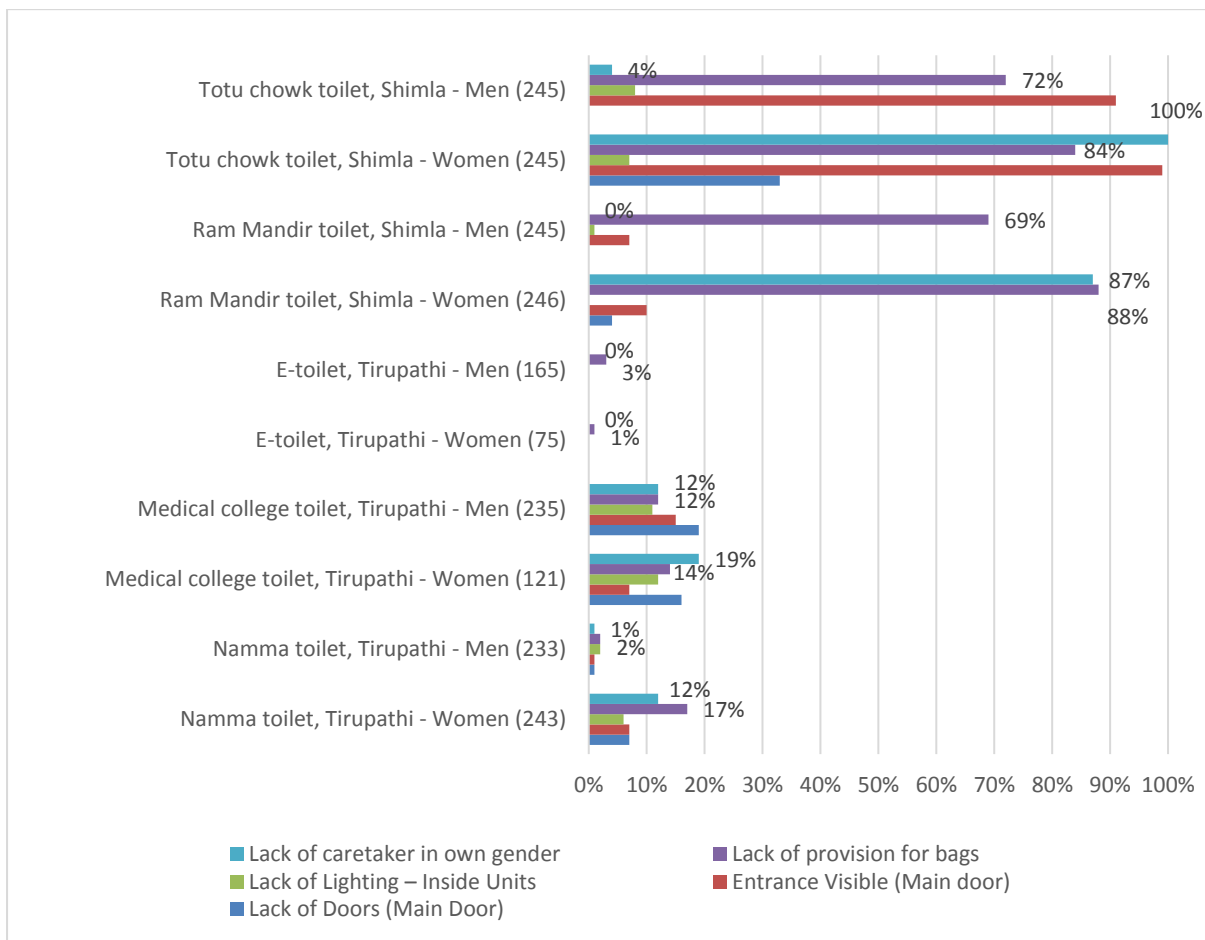
**Safety** - Toilet blocks should not be located close to unsafe places for women such as liquor shops, areas without street lighting etc. The path must be well lit to ensure



that the user’s personal safety is not compromised, this is extremely crucial for ensuring the safety of women and adolescent girls. Special attention should be given to areas prone to vandalism. Lights must be operational especially during night time to ensure that women and adolescent girls aren’t at a risk of sexual assault while using the facility. The inside of the toilet, urinals and so on cannot be visible from outside. The doors should not be broken and vents or windows should be such that they do not compromise on the privacy of men and women users.

**Privacy** - In the *Namma* toilet, the respondents reported that there no provision for them to keep their bags. The toilet, being located close to the railway station, is prone to get users who carry their baggage along with them. It is, therefore, essential that there is a provision for the users to keep their bags.

**Chart 8: User perception on safety and privacy [number of respondents in brackets]**



The civic structure had more issues with respect to safety and privacy. The entrance of the toilet had doors facing a street. Particularly, the men users had inconveniences using the urinals in the toilet due to the same issues. The toilet was functional mostly in the morning and the caretaker kept the electric bulbs mostly switched off while the toilet was open. Further, the building did not allow natural light into itself. As can be seen from the table users were confronted with lack of provision for bags too. The men caretaker was mostly present while the woman caretaker was not available outside the toilet all the time.





As regards issues pertaining to location, safety and privacy, majority of women users did not report any issue with regard to lack of door (main door) nor with regard to lighting – adequate safety and privacy provisions were set in place, from an infrastructure point of view. However, both men and women users complained of lack of provision to keep bags, thus safety with regard to users' belongings are not met in the public toilet. As regards operation and maintenance – especially from a gender point of view, 87% of women users complained of lack of caretaker in own gender.

As regards issues pertaining to operation and maintenance, 33% of women users reported for lack of main door ; three important parameters which have a bearing on safety and privacy are provision to keep bags/luggage, visibility of entrance (main door) and caretaker in own gender. Women users at Totu Chowk PT reported presence of issues in the three important parameters listed. 99% of women users reported that the entrance to the toilet unit was visible to public eye; 84% of women users reported issue pertaining to provision to keep bags/luggage.



## Chapter 5 – Analysis of Ratings, Reliability of Results and Implications

### 5.1 User perceptions on the toilet infrastructure versus inventory

From Table 14, it can be seen that women users across the five PT locations have rated 3 and above, on an average for accessibility (signpost and direction), especially higher at Namma toilet PT at Tirupathi and both the locations at Shimla. This could be due to the centrality of the location and also the aspect of shopkeepers guiding users to the nearest PT; in addition, signposts close to the PTs influence users and inform them of a potential PT in the vicinity.

**Table 14: Infrastructure Ratings – User Survey**

Rating Parameters*	Namma toilet, Tirupathi		Medical college toilet, Tirupathi		E-toilet, Tirupathi		Ram Mandir toilet, Shimla		Totu Chowk toilet, Shimla	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
<b>INFRASTRUCTURE RATINGS</b>										
<b>Accessibility (Signpost/Direction)</b>	3.83	3.74	3.62	3.24	3	3.21	3.82	3.55	4.13	3.21
<b>Sanitary Napkins</b>	2.48	-	1.32	-	3.05	-	3.26	-	3.07	-
<b>Woman attendant</b>	3.3	3.92	3.42	3.47	-	-	1.28	4.9	1.2	4.8
<b>Sanitary infrastructure*</b>	3	-	1	-	4	-	1	-	0	-
<b>Number of respondents</b>	<b>243</b>	<b>233</b>	<b>121</b>	<b>235</b>	<b>75</b>	<b>165</b>	<b>245</b>	<b>245</b>	<b>245</b>	<b>245</b>

**Note:** \* The ratings are obtained from users directly on the different physical infrastructure components

The sanitary infrastructure score obtained by taking into account factors like continuous operation, display of emergency numbers, availability of bins for disposal, caretaker in own gender (maintenance and operations) are low in Medical College PT, Totu Chowk PT and Ram Mandir PT. This is corroborated in the user-survey results too – however, for sanitary napkin parameters, the users have rated above three, on an average at E-Toilet PT, Ram Mandir PT and Totu Chowk PT due to presence of a common bin (for the entire women toilet units) for napkin and one bin for disposal of other waste. The same was not available at SV Medical College PT, therefore a dip in average ratings.

### 5.2 User perceptions on the toilet infrastructure elements by regular users

#### 5.2.1 Ratings by regular users - Signpost parameter

As can be seen from the above table, average of rating for signpost indicator – which deals with access issues and identification issues by regular women users is less than 4 out of 5; similarly, the same for first-time users too is less than 4 out of 5. More display of signposts and information board in local language will add to ease in identification.

Regular users' rating – overall and taking into account gender-wise split-up is high for signpost indicator for each public toilet type. This reflects in sufficiency of the said



services with regard to access; as can be seen, women first-time users at each public toilet have rated higher compared to their men counterparts – at Totu Chowk PT the rating average of signpost rating is 4.08 signalling that access indicators are sufficient and in-place. As regards Ram Mandir PT, a possible factor causing a dip in the rating could be signboard outside the unit only in English and not in the regional language.

### **5.2.2 Ratings by regular users – Woman attendant parameter**

Both, at Ram Mandir PT and Totu Chowk PT, the average of women ratings for women attendant parameter is less than 1.5. On one hand, there is no women attendant which has contributed directly to the dip in the ratings; at Ram Mandir PT, the attendant is seated next to the men unit, thus no complaints or issues can be directly addressed. However, at Namma Toilet PT, a part-time caretaker is available and at Medical College PT, the men caretaker is cordial and addresses issues both with men and women units.

### **5.2.3 Ratings by regular users – Sanitary napkins parameter**

The sanitary napkins parameter addresses issues ranging from presence of bins at each cubicle. The low average of women ratings at Namma Toilet PT and Medical College PT is due to non-availability of bins; however, at Ram Mandir PT and Totu Chowk PT, there were common bins (positioned below or next to the wash area). The higher average rating at e-toilet is due to presence of disposal facility along with facility for new napkins (vending machine).

## **5.3 User perceptions on the toilet infrastructure elements by users accompanied by children**

### **5.3.1 Users accompanying children - Signpost parameter**

As can be seen from the above table pertaining to rating of signpost indicator, the average of rating by women users accompanying children is above 3 out of 5 at the said locations. This implies that the users accompanying children have referred to the aspect of requirement of directions sign needed and pointing out to inadequacy of signposts, this has reflected in the average ratings.

Across PTs, women users, both accompanying children and others have rated consistently for signpost indicator.

### **5.3.2 Users accompanying children - Attendant parameter**

For users accompanying children, presence of caretaker makes it easy to leave the child under purview. Due to lack of full-time women attendant, the rating across locations is low. However, at Namma Toilet PT and Medical College PT, due to the fact that the caretaker is positioned near to both men and women units marks the safety angle wherein parents can leave their children behind. However, the said positioning of caretaker is not the case with Ram Mandir PT and Totu Chowk PT. In the case of e-toilet, the rating is not solicited as provision for attendant is not applicable.



### 5.3.3 Users accompanying children – Sanitary Napkins parameter

Due to the presence of common bins at Ram Mandir PT and Totu Chowk PT, the average of women users' rating for napkins parameter is above three (out of five). In the case of Namma Toilet PT and Medical College PT, the low average rating is due to non-availability of the said facility.

## 5.4 User perceptions on the toilet infrastructure elements by employed users

### 5.4.1 Employed Women - Signpost parameter

As can be seen from the above table pertaining to rating of signpost indicator, the average of rating by women users accompanying children is above 3 out of 5 at the said locations. This implies that the users accompanying children have referred to the aspect of requirement of directions sign needed and pointing out to inadequacy of signposts, this has reflected in the average ratings.

As seen with regard to location rating, due to the central location, availability of signpost and reference is met at all the five locations. Therefore the average of signpost indicator is similar at the five PTs.

### 5.4.2 Employed Women – Woman Attendant parameter

As regards employed users, need for attendant is combined with the need for storage space to keep work-related belongings; due to the positioning of the attendant at Namma Toilet PT and Medical College PT, employed users have rated higher compared to unemployed users (women). Whereas, at Ram Mandir PT and Totu Chowk PT, the caretaker is positioned next to men unit thus women cannot leave behind work or trade-related belongings.

### 5.4.3 Employed Women – Sanitary napkins parameter

As regards ratings for sanitary napkins parameter, employed women users have rated high when compared to unemployed women users at Namma Toilet PT and Medical College PT. At Ram Mandir PT and Totu Chowk PT, women users unemployed have rated higher when compared to their counterparts.

## 5.5 Gender-wise users' ratings

The composite index constructed out the ratings given by the respondents on Location, Separate Entrance, Cleanliness, Safety and Privacy.

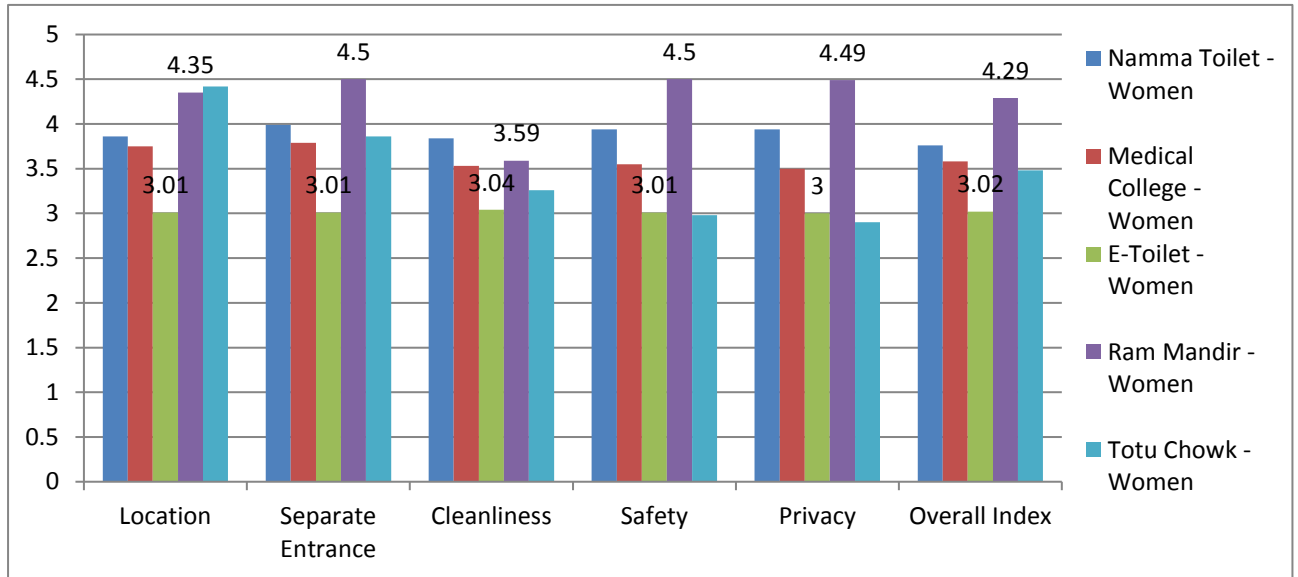
**Table 15: Average ratings for all gender sensitive parameters**

User satisfaction Ratings	Namma toilet, Tirupathi		Medical college toilet, Tirupathi		E-toilet, Tirupathi		Ram Mandir toilet, Shimla		Totu Chowk toilet, Shimla	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Location	3.86	3.69	3.75	3.26	3.01	3.21	4.35	4.11	4.42	3.98
Separate Entrance	3.99	3.88	3.79	3.35	3.01	3.08	4.50	4.85	3.86	4.65
Cleanliness	3.84	3.82	3.53	3.39	3.04	3.07	3.59	4.31	3.26	3.21
Safety	3.94	3.91	3.55	3.32	3.01	3.04	4.50	4.24	2.98	3.56
Privacy	3.94	3.9	3.5	3.32	3.00	3.07	4.49	4.09	2.90	3.58
<b>Overall Index</b>	<b>3.76</b>	<b>3.83</b>	<b>3.58</b>	<b>3.18</b>	<b>3.02</b>	<b>3.09</b>	<b>4.29</b>	<b>4.32</b>	<b>3.48</b>	<b>3.80</b>
<b>Number of respondents</b>	<b>243</b>	<b>233</b>	<b>121</b>	<b>235</b>	<b>75</b>	<b>165</b>	<b>245</b>	<b>245</b>	<b>245</b>	<b>245</b>

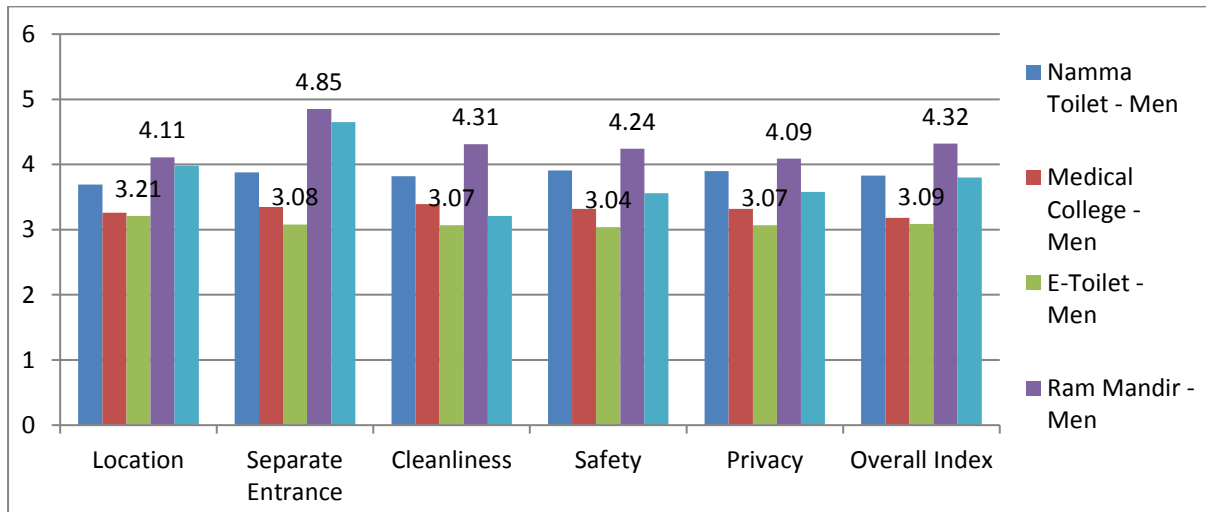


The index is a simple average and would range between 0 and 5. To compare the experiences of the users across gender, the averages of the ratings for the individual parameters as well as the overall index is computed and the differential is observed. The table given below is constructed out of computing these averages.

**Chart 9: Location-wise women users' rating**



**Chart 10: Location-wise men users' rating**



The above graphs refer to the average of index values across all the surveyed locations. As can be seen, location-wise, Ram Mandir PT and Totu Chowk PT, women users have rated four and above on an average. This is due to the centrality of the location and no issues with regard to access. As regards separate entrance, there is a clear demarcation in entrance at Ram Mandir PT, hence the average of women users being above four; whereas at the other locations, there is an element of visibility of public eye.



### 5.5.1 Namma Toilet, Tirupathi

As can be seen from the above table, there is a statistical significance between gender and ratings provided by the users, that is, the median ratings across the gender categories differ, this is reflected in the p-values being less than or equal to alpha (0.05). The differentials were slightly higher in the civic structure meaning that the men users had lesser satisfaction with respect to all the parameters was low.

### 5.5.2 Medical College Toilet, Tirupathi

As can be seen from the above table, there is a statistical significance between gender and ratings provided by the users, that is, the median ratings across the gender categories differ, this is reflected in the p-values being less than or equal to alpha (0.05), except for cleanliness and attendant.

### 5.5.3 E-toilet, Tirupathi

Only Location indicator is found to be statistically significant, thereby the median ratings vary with regard to gender.

### 5.5.4 Ram Mandir Toilet, Shimla

As can be seen from the above table, there is a statistical significance between gender and ratings provided by the users, that is, the median ratings across the gender categories differ, this is reflected in the p-values being less than or equal to alpha (0.05). Therefore, there is indeed a relationship between gender and ratings. This helps in understanding the gender-dimension perspective of the results obtained.

### 5.5.5 Totu Chowk Toilet, Shimla

As can be seen from the above table, there is a statistical significance between gender and ratings provided by the users, that is, the median ratings across the gender categories differ, this is reflected in the p-values being less than or equal to alpha (0.05) for all rating indicators.

## 5.6 Women users' ratings - Repeat users versus first time users

As discussed in the earlier sections, the ratings and the observations of repeat users are more refined as compared to those of the first time users. Yet, in this case we see that the difference between the ratings is marginal and the ratings of the first time user is higher than the ratings of the repeat user.

As discussed in the earlier sections, the ratings and the observations of repeat users are more refined as compared to those of the first time users.

**Table 16: Overall ratings for repeat versus first-time women users**

Ratings	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
First-time user	3.92	3.73	3.01	4.2	3.5
Repeat user	3.69	3.61	3.05	4.37	3.41



### 5.6.1 Statistical validity of results – Regular Users

Both the parameters and the ratings scale are categorical in nature. Therefore, for us to ascertain that there is a relationship between the parameters and the ratings of the users, we may employ chi-square test. The null hypothesis behind the Chi-Square test is that the median rating provided as per the user group – gender/employment category/age group is the same for the chosen indicator rating (from 1 to 5). If the p-value reported is less than or equal to the alpha (i.e, 0.05), we may reject the null hypothesis and conclude that the given classifier, i.e, user group's median rating differs.

Further, we have chosen the level of significance to be 95%. The p – values establish if the relationship exists or not. If the p- value is lesser than 0.05, we can conclude that there is a relationship between the variables. Note that we have achieved significant results only for cleanliness category meaning that there is a statistically significant difference in the ratings given by men and women for Cleanliness.

There were no significant results achieved in the civic structure user survey. But, the implications of these results are not of much significance. Significant results are when there is a confirmable pattern in the dataset. Though there may be a difference in the ratings of the two categories, we cannot claim that the difference can be observed universally and statistically significant, when approximated to a population.

From statistical reliability results, it can be observed that only two rating indicators vary between first-time and repeat user, these are location and separate entrance. The inference derived is such that cleanliness, safety and privacy ratings are common across users, be it first-time or repeat users. User profile has limited bearing on these ratings; however, location and separate entrance indicator are viewed differently based on the user category.

User profile based on repeat and non-repeat user have a statistically significant impact on rating indicators like separate entrance, safety and privacy at Totu Chowk PT.

### 5.6.2 Ratings by regular users - Location parameter

As can be seen from the above table, the average rating pertaining to location indicator is high by regular women users, both at railway station and SV Medical College toilet locations. In fact, first-time users' ratings pertaining to location indicator at the both the locations is high when compared to their men counterpart.

As can be seen from the table below, the average rating awarded by regular users to the indicator of signpost corresponds with that of the first-time users, this pattern is observed at both the locations, especially for women users.

Both regular and first-time users have rated above 4 out of 5 with regard to Location rating scale – this shows that factors influencing location indicator like centrality, distance to reach are met. On comparison with Mall Road PT which is treated as a control location it can be seen that results are comparable; it is to be noted that the public toilet on Mall Road, Shimla scores higher when compared to the other two PTs and this is purely due to the locational advantage.



### 5.6.3 Ratings by regular users - Separate entrance parameter

From the above table, it can be seen that first-time women users at both the locations have rated above 4 for the entrance indicator; whereas, at both the venues, women regular users have not rated above 4. The reason for not doing so, as collected through anecdotal evidence at the civic structure is that, the local auto stand in the vicinity of the toilet premises sometimes park their vehicles close to the women entrance; also, the aspect of a local liquor shop which is on the same street makes the open space near the entrance, a parking lot – at times. At Namma toilet opposite to railway station, overcrowding due to which lack of queuing space at times is reflected in the ratings.

As regards rating for separate entrance indicator regular users rating both men and women were above 4 at Mall Road PT and Ram Mandir PT, at Totu Chowk PT due to the fact that men users have to cross the women unit to access latrine which is positioned in the first level of the PT complex. Therefore this aspect has implication both in access (entrance) and safety for women users. This is vindicated by a lower rating by both regular and first time users at Totu Chowk PT.

### 5.6.4 Ratings by regular users - Cleanliness parameter

As regards cleanliness ratings, the average of ratings by women regular users is less than that of first-time users. This is due to the fact that regular users, who follow on a pattern of time-usage (predominantly, fixed) crowd during peak hours – this is reflected in the ratings.

As regards rating of regular user for cleanliness indicator, women users, both from regular and non-regular category have rated less when compared to men users. A plausible reason was the time and number of cleaning cycles as women users, on an average are low when compared to men users. Due to high stress on men unit, the caretaker is obliged to undertake an exhaustive cleaning cycle.

**Table 17: Comparison of ratings by regular users for cleanliness parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
First time user	Average	<b>3.72</b>	<b>3.50</b>	<b>3.04</b>	<b>3.71</b>	<b>3.19</b>
	Women	3.79	3.59	3.03	3.49	3.26
	Men	3.71	3.48	3.05	4.24	2.81
Regular user	Average	<b>3.67</b>	<b>3.41</b>	<b>3.24</b>	<b>4.08</b>	<b>3.26</b>
	Women	3.63	3.53	3.25	3.69	3.27
	Men	3.88	3.32	3.23	4.33	3.26
Occasional/Rarely used the same structure before	Average	<b>3.97</b>	<b>3.39</b>	-	<b>3.67</b>	<b>3.22</b>
	Women	4.02	3.45	-	3.00	3.14
	Men	3.91	3.37	-	4.00	3.50

### 5.6.5 Ratings by regular users - Safety parameter

As can be seen from the above table, the women regular users at both the toilet locations on an average have rated less than 4 towards the safety indicator.

As can be seen from the above table, women users, irrespective of category have on an average rated when compared to other locations – Mall Road PT and Ram Mandir





PT. As mentioned in comparison with regard to entrance rating, its implication can be seen with regard to safety of women users, especially at Totu Chowk PT.

**Table 18: Comparison of ratings by regular users for safety parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
First time user	Average	<b>3.88</b>	<b>3.41</b>	<b>3.02</b>	<b>4.40</b>	<b>3.07</b>
	Women	4.00	3.55	3.01	4.48	3.09
	Men	3.85	3.35	3.03	4.18	2.96
Regular user	Average	<b>3.75</b>	<b>3.39</b>	<b>3.12</b>	<b>4.37</b>	<b>3.39</b>
	Women	3.70	3.58	3.00	4.54	2.71
	Men	4.06	3.25	3.15	4.26	3.64
Occasional/Rarely used the same structure before	Average	<b>4.03</b>	<b>3.41</b>	-	<b>3.67</b>	<b>3.33</b>
	Women	4.13	3.45	-	3.00	3.29
	Men	3.93	3.39	-	4.00	3.50

### 5.6.6 Ratings by regular users - Privacy parameter

As can be seen from the above table, the women regular users at both the toilet locations on an average, have rated less than 4 towards the privacy indicator. However, the average of ratings accorded by regular users is less than first time users – this could be so due to presence of vehicles plying around at both the locations – that is, an auto stand with predominant men crowd near the civic structure and presence of buses near Namma toilet opposite to railway station.

As regards privacy rating, both regular and non-regular women users at Totu Chowk PT have given rating on a lower scale when compared to women users at Ram Mandir PT and Mall Road PT. As an extension, women users cited lack of doors as a major issue at Totu Chowk PT; read in conjunction with visibility of entrance and entrance rating, women users have on an average have provided low rating for privacy.

**Table 19: Comparison of ratings by regular users for privacy parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
First time user	Average	<b>3.87</b>	<b>3.41</b>	<b>3.04</b>	<b>4.34</b>	<b>2.98</b>
	Women	3.89	3.52	3.00	4.48	2.99
	Men	3.86	3.38	3.07	4.00	2.89
Regular user	Average	<b>3.78</b>	<b>3.36</b>	<b>3.12</b>	<b>4.26</b>	<b>3.41</b>
	Women	3.72	3.52	3.00	4.51	2.68
	Men	4.13	3.23	3.15	4.11	3.67
Occasional/Rarely used the same structure before	Average	<b>4.01</b>	<b>3.38</b>	-	<b>3.67</b>	<b>3.22</b>
	Women	4.12	3.41	-	3.00	3.29
	Men	3.89	3.37	-	4.00	3.00

### 5.7 Women users' ratings - Users accompanying children

Similarly, the difference in average rating of the users accompanying child and users not accompanying child are quite similar.

**Table 20: Ratings for women users accompanied with children – all parameters**

Ratings	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
Women users not accompanied with children	3.92	3.63	3.016	4.28	3.49
Women users accompanied with children	3.9	3.38	NA	4.29	3.45

### 5.7.1 Users accompanying children - Location parameter

From the above table, it can be seen that average rating of women users accompanying children at Namma toilet opposite to railway station is higher compared to the civic structure opposite to medical college. This is perhaps due to the central aspect of the railway station aspect – that is on the front of visibility, the said location can be identified from all directions; even from the foot-over bridge connecting railway station exit to the opposite side of the road. As regards the average of location indicator rating for the civic structure opposite to medical college, the reason for a drop could be attributed to the difficulty in crossing the main road to access at peak times; also the said location is tucked in one end of the roundtana adding to flow of vehicles.

Due to centrality of location, Mall Road PT, the control location's women users' average rating is high – both by users accompanying children and others. This trend is reflected in the other two PTs, as users with children did not have to travel at length to reach the location and due to the central positioning of the PTs. Ram Mandir PT counts women users with children as an important user base, with the toilet unit being proximate to temple, women users did not have to travel at length with children to use the said unit.

### 5.7.2 Users accompanying children - Separate entrance parameter

As can be seen from the above table pertaining to rating of signpost indicator, the average of rating by women users accompanying children is above 3 out of 5 at the said locations. This implies that the users accompanying children have referred to the aspect of requirement of directions sign needed and pointing out to inadequacy of signposts, this has reflected in the average ratings.

As regards rating for separate entrance, at Mall Road PT, women users accompanying children have rated high when compared to other women users – as there is proper area for children to wait until their parent or guardian is back from using the toilet unit; whereas the higher rating from women users not accompanying children at Ram Mandir PT is due to lack of proper waiting area for children; with a lower rating from both category of users at Totu Chowk PT, only a marginal difference is observed between categories.

### 5.7.3 Users accompanying children - Cleanliness parameter

As can be seen from the above table pertaining to rating of cleanliness indicator, the average of rating by women users accompanying children is above 3 out of 5 at the said locations. This implies that the users accompanying children have issues with



cleanliness, as can be inferred from the higher rating of women users who were not accompanying children. Issues pertaining to wet floor, odour and behaviour of previous user (unclean) have an impact.

Cleanliness is an important factor influencing a user to use public toilets, it is factored in when children are accompanying users as children are more prone to infections; when children are accompanying parents or guardian, they are made to wait outside the unit. Thus, if there is a leakage or slush or presence of waste outside the unit, users are made uncomfortable. As the exterior were clean at Ram Mandir PT women users accompanied by children have rated on a higher note, presence of granite flooring and provision to use the stairs during waiting time is an added advantage. Due to leftover from vegetable waste at Totu Chowk PT, the ratings are lower when compared to Ram Mandir PT.

#### **5.7.4 Users accompanying children - Safety parameter**

As can be seen from the above table pertaining to rating of safety indicator, the average of rating by women users accompanying children is above 3 out of 5 at the said locations. This implies that the users accompanying children have issues with safety, as can be inferred from the higher rating of women users who were not accompanying children; the difference is higher at the civic structure opposite medial college. The reason could be due to the locational aspect - how central and visibility from all corners.

Safety rating from a perspective of users accompanying children encompasses both rating scale on an individual level and safety aspect for the child under consideration. At Ram Mandir PT, due to adequate light (both natural and artificial), it is safe to leave a child outside; however, the same is not the case with Totu Chowk PT.

#### **5.7.5 Users accompanying children - Privacy parameter**

As can be seen from the above table pertaining to rating of safety indicator, the average of rating by women users accompanying children is above 3 out of 5 at the said locations. This implies that the users accompanying children have issues with safety, as can be inferred from the higher rating of women users who were not accompanying children; the difference is higher at the civic structure opposite medial college. The reason could be due to the locational aspect - how central and visibility from all corners.

Privacy is an integral factor for users, especially when accompanied by children; as can be seen Totu Chowk PT's privacy rating by women users accompanying children is less compared to other women users. As established earlier, visibility of entrance to public eye and lack of demarcated space for change area contribute to the lower ratings. At Ram Mandir PT, with a wall-like structure to block visibility, women users have rated high with regard to privacy indicator.

### **5.8 Women users' ratings – Employed women**

It can be seen that employed women users have, on an average, rated high compared to unemployed women users at Namma Toilet PT and Medical College



PT, whereas, at Ram Mandir PT unemployed women users have rated high compared to employed users. It can be inferred that provision of attendant and very little room for work or trade related belongings have impacted ratings of employed users.

**Table 21: Overall ratings for women users based on employment status**

Ratings	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
Unemployed women users	4.03	3.57	3.30	4.27	3.5
Employed women users	3.75	3.64	3.31	4.32	3.3

### 5.8.1 Statistical validity of results

As regards difference of ratings, location and separate entrance are two indicators where ratings differ and the difference is statistically significant, based on the demarcation of women users into employed and un-employed.

As observed in results pertaining to Ram Mandir PT, at Totu Chowk PT, statistically significant difference based on employment status can be found with regard to location rating and separate entrance rating, in addition to cleanliness rating.

### 5.8.2 Employed Women - Location parameter

From the above table, it can be seen that average rating of women users accompanying children at namma toilet opposite to railway station is higher compared to the civic structure opposite to medical college. This is perhaps due to the central aspect of the railway station aspect – that is on the front of visibility, the said location can be identified from all directions; even from the foot-over bridge connecting railway station exit to the opposite side of the road. As regards the average of location indicator rating for the civic structure opposite to medical college, the reason for a drop could be attributed to the difficulty in crossing the main road to access at peak times; also the said location is tucked in one end of the roundabout adding to flow of vehicles.

As regards rating pertaining to location from employed women users, the average of both employed and unemployed is similar at all the three PT locations. No glaring differences can be seen due to the central location of the PTs. Thus, the PT locations are situated to satisfy the needs of both employed and unemployed.

### 5.8.3 Employed Women - Separate entrance parameter

As can be seen from the above table pertaining to rating of signpost indicator, the average of rating by women users accompanying children is above 3 out of 5 at the said locations. This implies that the users accompanying children have referred to the aspect of requirement of directions sign needed and pointing out to inadequacy of signposts, this has reflected in the average ratings.

As can be seen from the above table, women users belonging to the employed category at Totu Chowk PT have rated higher compared to their unemployed counterparts; women users at Ram Mandir PT, both employed and unemployed have rated higher for separate entrance indicator.



#### **5.8.4 Employed Women - Cleanliness parameter**

As can be seen from the above table pertaining to rating of cleanliness indicator, the average of rating by women users accompanying children is above 3 out of 5 at the said locations. This implies that the users accompanying children have issues with cleanliness, as can be inferred from the higher rating of women users who were not accompanying children. Issues pertaining to wet floor, odour and behaviour of previous user (unclean) have an impact.

As regards cleanliness rating, both employed and un-employed women users have provided similar ratings at Totu Chowk PT; employed women users at Ram Mandir PT have on an average provided higher ratings than their un-employed counterparts.

#### **5.8.5 Employed Women - Safety parameter**

As can be seen from the above table pertaining to rating of safety indicator, the average of rating by women users accompanying children is above 3 out of 5 at the said locations. This implies that the users accompanying children have issues with safety, as can be inferred from the higher rating of women users who were not accompanying children; the difference is higher at the civic structure opposite medial college. The reason could be due to the locational aspect - how central and visibility from all corners.

Both employed and un-employed users' average of safety indicator rating at Ram Mandir PT is similar. This is due to presence of adequate lighting facilities, access facilities. At Totu Chowk PT, lower rating of employed women users reflect lacunae with regard to factors influencing safety. At an infrastructure-level Totu Chowk PT satisfies criterion set by various guidelines; however, with bus stand nearby and constant flow of men users, in conjunction with entrance visible to public eye, ratings are bound to be on the lower spectrum.

#### **5.8.6 Employed Women - Privacy parameter**

As can be seen from the above table pertaining to rating of safety indicator, the average of rating by women users accompanying children is above 3 out of 5 at the said locations. This implies that the users accompanying children have issues with safety, as can be inferred from the higher rating of women users who were not accompanying children; the difference is higher at the civic structure opposite medial college. The reason could be due to the locational aspect - how central and visibility from all corners.

As seen in safety indicator, a similar pattern is observed with regard to privacy indicator. Employed women users at Totu Chowk PT have on an average provided lower ratings to safety indicator. Visibility of entrance; need for men users to cross women unit to access stairs leading to latrine have a bearing on safety indicator, as observed.

### **5.9 Comparison of day-wise user ratings**

This chapter is structured in a manner so as to facilitate comparison of results from the user survey – seen through the prism of ratings awarded by the users to specific set of indicators.



To facilitate comparison of ratings provided by users, several classifiers are used. They are as follows:

- Day-wise ratings
- Hour-wise ratings
- Ratings of women exceeding 4 & above

The reason for presenting results with respect to day-wise is to understand the impact of weekend versus weekday on user rating – how influx of crowd impacts rating. Hour-wise analysis is performed to understand impact of peak-usage timings on ratings.

**Table 22: Average day-wise user ratings**

Rating Parameters	Namma toilet, Tirupathi		Medical college toilet, Tirupathi		E-toilet, Tirupathi		Ram Mandir toilet, Shimla		Totu Chowk toilet, Shimla	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Day – 1 Sunday	2.91	3.30	4.38	3.65	3.00	3.16	4.29	4.47	3.90	4.38
Day – 2 Monday	4.48	3.30	2.97	3.05	3.11	3.44	4.52	4.39	3.58	4.12
Day – 3 Tuesday	4.50	4.66	3.82	3.16	3.00	3.00	4.56	4.37	3.51	3.73
Day – 4 Wednesday	3.73	4.08	3.15	2.79	3.01	3.01	4.23	4.15	3.49	3.55
Day – 5 Thursday	3.54	4.04	3.66	3.80	3.00	3.00	4.30	4.13	3.10	3.47
Day – 6 Friday	3.97	3.62	3.71	3.55	3.00	3.00	3.84	4.41	3.58	4.02
Day – 7 Saturday	3.06	3.59	3.50	2.39	3.00	3.00	4.27	4.33	3.21	3.31
<b>Overall Index</b>	<b>3.76</b>	<b>3.83</b>	<b>3.58</b>	<b>3.18</b>	<b>3.02</b>	<b>3.09</b>	<b>4.29</b>	<b>4.32</b>	<b>3.48</b>	<b>3.80</b>

As can be seen from the above analysis, the higher ratings for day two and three could be attributed to the fact that the days were Monday and Tuesday, respectively – by not being a weekend, the cleaning cycle being regular and not factoring in the rush thereby leading to an improvement in the ratings provided.

As can be seen from the above analysis, the higher ratings for day two and three could be attributed to the fact that they were weekend and the caretaker takes immense care to maintain the cleanliness of the units; a similar level of rating can be seen across the days.

**Chart 11: Day-wise Overall Index for All Locations - Women**

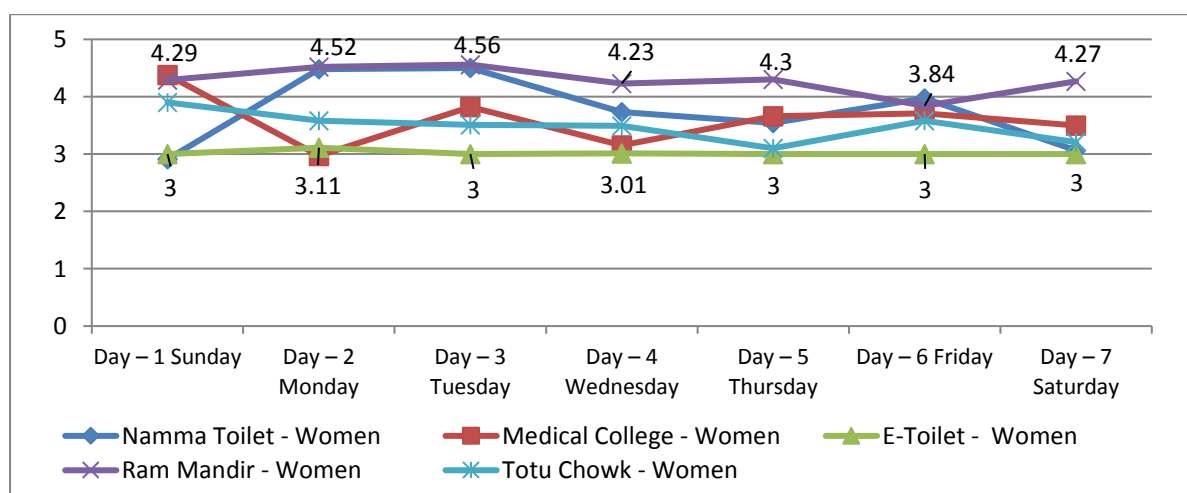
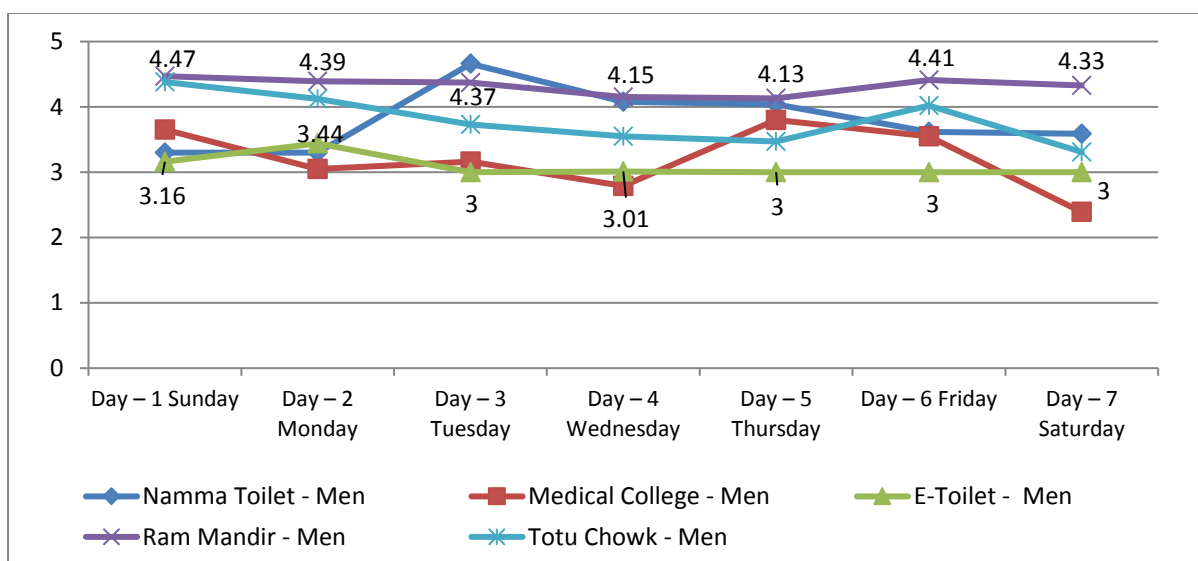




Chart 12: Day-wise Overall Index for All Locations – Women



## 5.10 Comparison of hour-wise user ratings

### 5.10.1 Namma toilet, Tirupathi

Looking at the individual scores for safety, privacy, entrance, access – signpost/reference, cleanliness pertaining to the users is shown below.

As can be seen from the above graph, the location rating dips in the afternoon period – and is high in the morning and evenings, this could be attributed to the reflection of the local weather conditions into the rating offered – that is, by canvassing for the distance travelled, centrality of the location for the location rating, the impact of harsh weather conditions can be attributed to the same. As can be seen from the above graph, the cleanliness rating drops from being around 4 in the morning, after opening of the toilet and succeeding the first set of early morning users to 8 AM and further to 10 AM – the drop could be associated with the rush of users due to arrivals of trains and buses due to which factors like user behaviour, odour, which are factors feeding into the ratings leading to significant drop.

The said ratings are to be seen from the perspective of cleaning and maintenance timing in the said location. As per schedule and observed from field, the first cycle of cleaning takes place morning 6 - 7 AM; the second cycle happens between 11.30AM to 12.00 PM – the rationale for the second cycle is to ease the impact of high usage in morning and to ready the units for users arriving from afternoon trains and post-lunch usage, both by tourists and regular users. The third cycle of cleaning timing is for the evening session, between 5.30 PM to 6.00 PM. It is to be noted that the caretaker does clean the units and pathway based on complaints or suggestion from the users.

The fall in safety and privacy between 1 PM and 2 PM hours can be attributed to buses being parked in front of the toilet. The drop in cleanliness rating is caused by over usage of the toilet during this time period, which in turn is a result of the greater number of people, brought to the toilet by the buses.



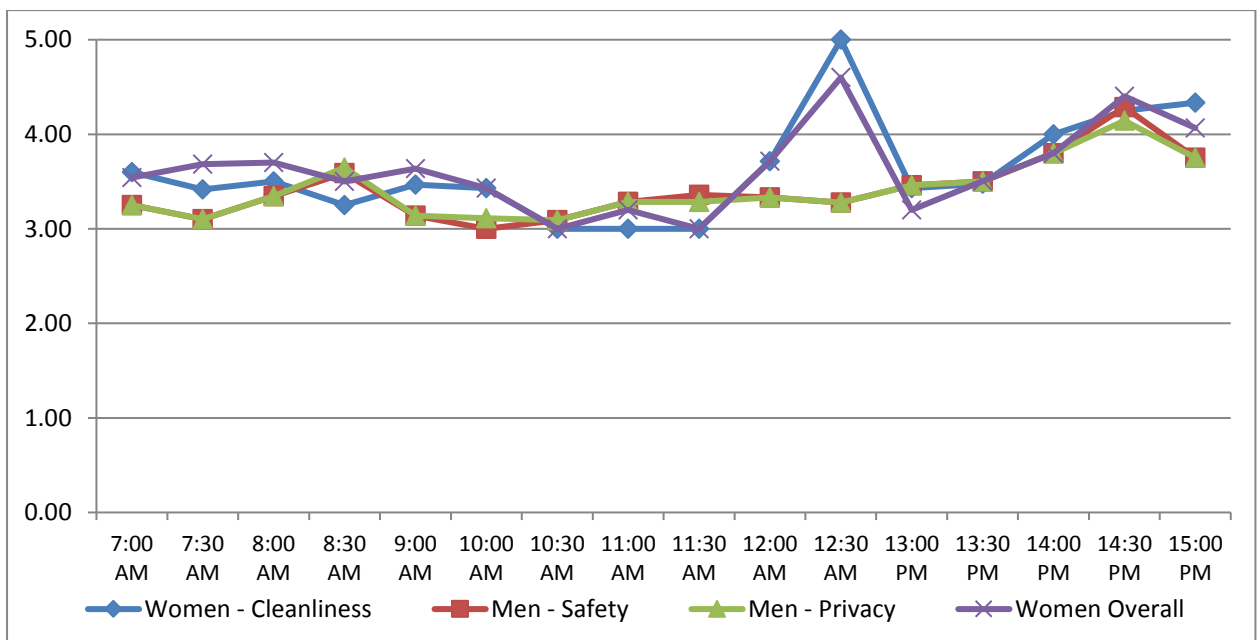
**Chart 13: Time-wise Ratings at Namma Toilet – Women**



**5.10.2 Medical college toilet, Tirupathi**

The fall and rise in cleanliness ratings can be attributed to the cleaning cycle of the caretaker. The ratings for safety and privacy, as can be seen, increases with increase in time. It can be inferred from the field survey and the ratings that the timings of the auto drivers and safety in using the approach road with respect to time have had an impact of users’ ratings.

**Chart 14: Time-wise Ratings at SV Medical College PT – Women**



The said ratings are to be seen from the perspective of cleaning and maintenance timing in the said location. As per schedule and observed from field, the first cycle of





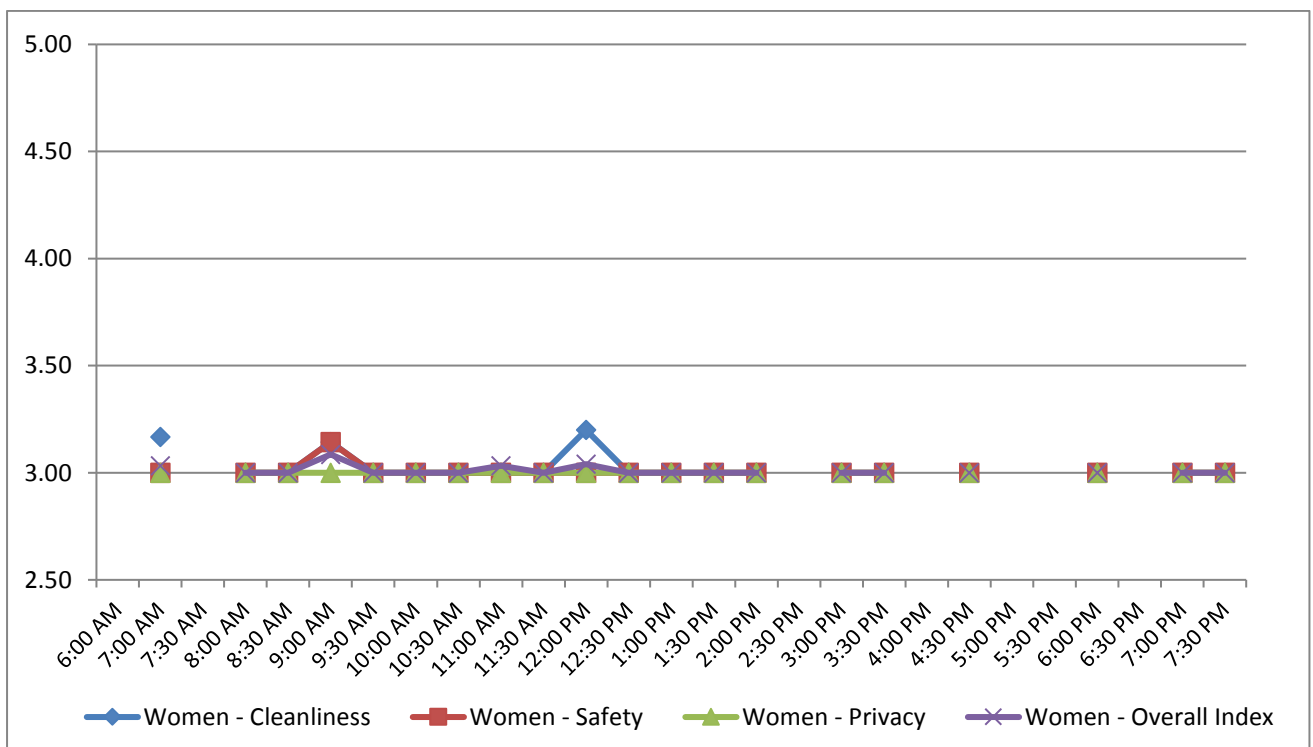
cleaning takes place morning - 7 AM, post first set of early morning users; the second cycle happens between daily around 12.00 PM – the rationale for the second cycle is to ease the impact of high usage in morning and to ready the units for users or visitors reaching medical college or tourists planning to start journey uphill to Tirumala. The third cycle of cleaning timing is for the evening session, and more broadly happens before the closure of the toilet for the day, around 4 PM.

It can be seen from the above graph that the rating for privacy peaks in the afternoon cycle, due to less number of users in both genders, as corroborated from the field; the same starts to decline to start of lunch timings in the nearby shops or work places.

### 5.10.3 E-toilet, Tirupathi

With automatic cleaning put in place – there is no impact of time, as such, therefore on an average it can be inferred that the cleaning process is not up to four and above mark. As regards access, in spite of its centrality of location, an important access issue is availability of exact change (coins) to access the unit – this is reflected in the location rating.

Chart 15: Time-wise Ratings at E-Toilet – Women



### 5.10.4 Ram Mandir toilet, Shimla

Looking at the individual scores for safety, privacy, entrance, access – signpost/reference, cleanliness pertaining to the users is shown below.

The path of safety and privacy rating of women– there is a dip in both the ratings indicators during start of evening; however, the same picks up after 6 PM. The lights on the lamppost (LED) are made operational only post 6 PM at Ram Mandir. As

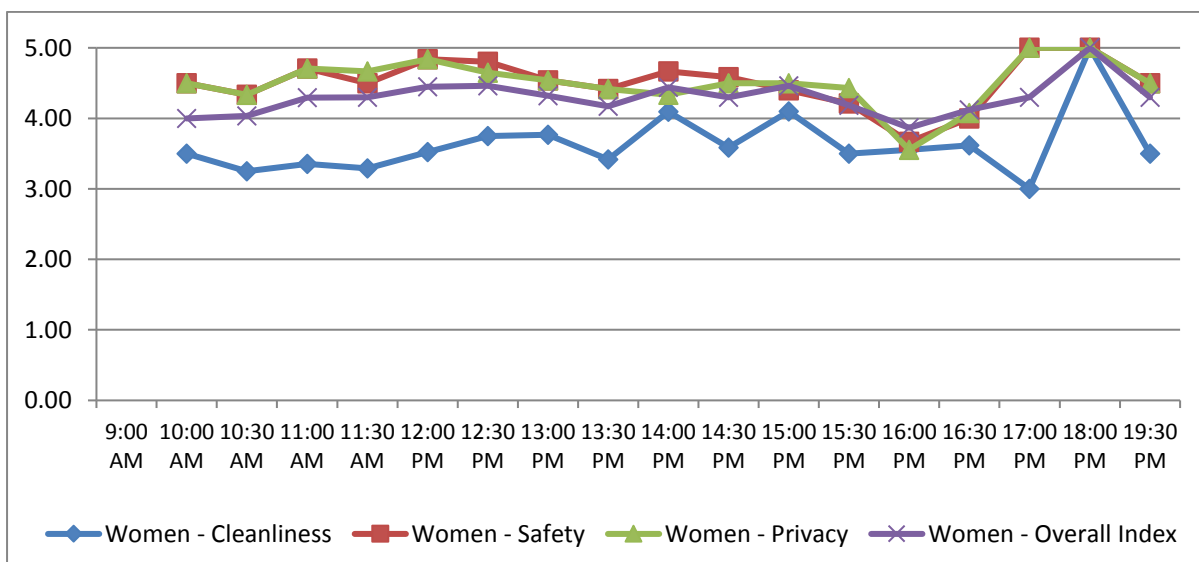


regards cleanliness, two factors influencing the ratings are usage pattern and cleaning cycle.

The said ratings are to be seen from the perspective of cleaning and maintenance timing in the said location. As per schedule and observed from field, the first cycle of cleaning takes place morning 7 AM; the second cycle happens between 10.00 AM to 11.30 PM – the rationale for the second cycle is to ease the impact of high usage in morning and to ready the units for users arriving for afternoon from shops and tourists frequenting the temple. The third cycle of cleaning timing is afternoon session, between 1.30 PM to 2.30 PM. It is to be noted that the caretaker does clean the units and pathway based on complaints or suggestion from the users; in case of rain, the stairs are cleaned immediately post rains. Due to paucity of workforce, that is, a single-caretaker for both the units, the cleaning timings have to be adjusted with non-peak hours. Therefore, the cleaning for women units are done either before the peak usage phase or after, thus, the ratings pertaining to cleanliness is impacted.

The fall in signpost rating in the evening time is due to non-lighting of the signboard – the boards are paint-only instructions, with no light boards attached to it.

**Chart 16: Time-wise Ratings at Ram Mandir PT– Women**



### 5.10.5 Totu Chowk toilet, Shimla

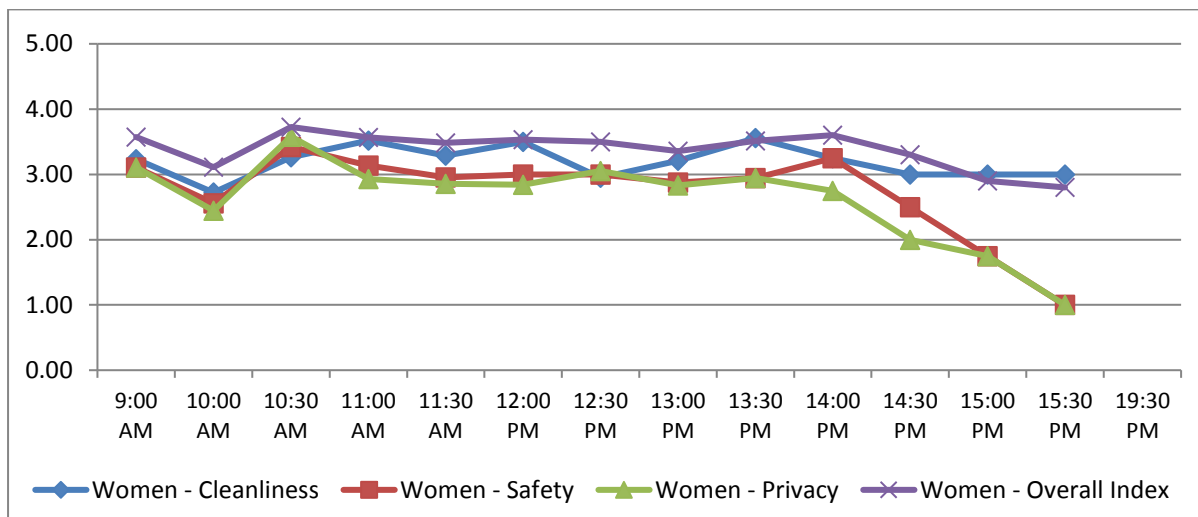
The fall and rise in cleanliness ratings can be attributed to the cleaning cycle of the caretaker. The ratings for safety and privacy, as can be seen, increases with increase in time. It can be inferred from the field survey and the ratings that the timings of the auto drivers and safety in using the approach road with respect to time have had an impact of users' ratings.

At Totu Chowk PT, being proximate to the local bus stand, privacy is a key issue under consideration. As pointed in the earlier sections, the visibility of entrance, and lack of proper queuing space are reflected in lower ratings for privacy and safety indicator. Cleanliness indicator is to be understood in conjunction with cleaning cycle in place. At Totu Chowk PT, the first cleaning session is session is scheduled between 7 AM to 8 AM; the second session is scheduled at 11.30 AM to 1.30 AM;



third cycle in evening is conducted based on water status. Time-wise analysis of cleaning rating is in sync with cleaning cycle. However, due to vegetable leftover near women unit entrance is a factor impacting the overall cleanliness.

**Chart 17: Time-wise Ratings at Totu Chowk PT – Women**



## 5.11 Interpreting Gender results

### 5.11.1 Overall results frame intended through GIZ support

Definition of indicator - *¾ of X users (women and girls) confirm improved hygiene and safety of five supported projects for sanitary infrastructure for girls and women.*

Explanation of indicator –

- “Five supported projects” refer to projects supported by GIZ in two cities - Shimla and Tirupathi.
- “Users” refer primarily to women and girls, among others.
- “Sanitary infrastructure” refers to public toilets complexes / units.
- “Implemented” means that five public toilets complexes / units that are built / installed / improved and actually used.
- “Safe and hygienically” means safe for girls and women as outlined below:
  - Needs list for women and girls identified are across the whole project cycle (separate toilets, separate entrance, privacy, safety, space of toilet / urinal units, convenience issues, disposal mechanism for sanitary napkins, other cleaning wastes etc.)
  - Emphasis is made on the inclusive nature of toilets (surveys, design, construction, contracting, operation & maintenance) and in line with national / state / city guidelines
  - Specific arrangements for maintenance of toilets adhered to, like women cleaners / caretakers employed, where feasible
  - Definition of safety & hygiene (adapted from points i and ii above)



- Confirmation of usability and improvements measured through opinion of women and girls
- f. Verification results are from a **representative survey** with users of public toilets reflected for success as follows “In each project ¾ of user’s rate hygiene and safety on a scale of 4 out of 5 (1 means it doesn’t fulfil their requirements, 5 means it completely fulfil their requirements)”.

### 5.11.2 Discussion of results

With analysis of ratings for different parameters, to understand the performance of each PT, it is imperative to assess PTs against a threshold – factors for which more than 75% of women users have rated four and above.

This helps in understand relative performance and its perception among users which will facilitate to develop and re-think strategies for factors where majority of women users have not rated above four. Identification of factors with respect to the threshold helps in identifying if gender needs are addressed.

**Table 23: Percentage of respondents rating 4 & above for gender sensitive rating parameters**

Rating Parameters	Namma toilet, Tirupathi		Medical college toilet, Tirupathi		E-toilet, Tirupathi		Ram Mandir toilet, Shimla		Totu Chowk toilet, Shimla	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Location	57%	55%	51%	23%	1%	20%	87%	83%	92%	75%
Separate Entrance	63%	67%	55%	28%	1%	8%	94%	98%	69%	98%
Cleanliness	57%	72%	45%	38%	4%	7%	48%	93%	35%	29%
Safety	60%	72%	45%	37%	1%	4%	87%	89%	24%	56%
Privacy	59%	71%	42%	35%	0%	7%	85%	75%	23%	57%
<b>Overall Index</b>	<b>53%</b>	<b>53%</b>	<b>39%</b>	<b>21%</b>	<b>0%</b>	<b>2%</b>	<b>83%</b>	<b>85%</b>	<b>23%</b>	<b>42%</b>
Accessibility (Signpost/Direction)	57%	54%	44%	22%	0%	2%	67%	54%	83%	22%
Woman attendant	37%	66%	36%	30%	-	-	2%	98%	0%	97%
Sanitary infrastructure	27%	0%	0%	0%	47%	-	30%	0%	9%	0%
<b>Number of respondents</b>	243	233	121	235	<b>75</b>	<b>165</b>	246	245	245	245

From the above graph, it can be seen that 83% of women users’ ratings is above four in Ram Mandir PT, with regard to overall index. The overall index consists of Location, Separate Entrance, Cleanliness, Safety and Privacy – comprising factors influencing both inside and outside the PT.

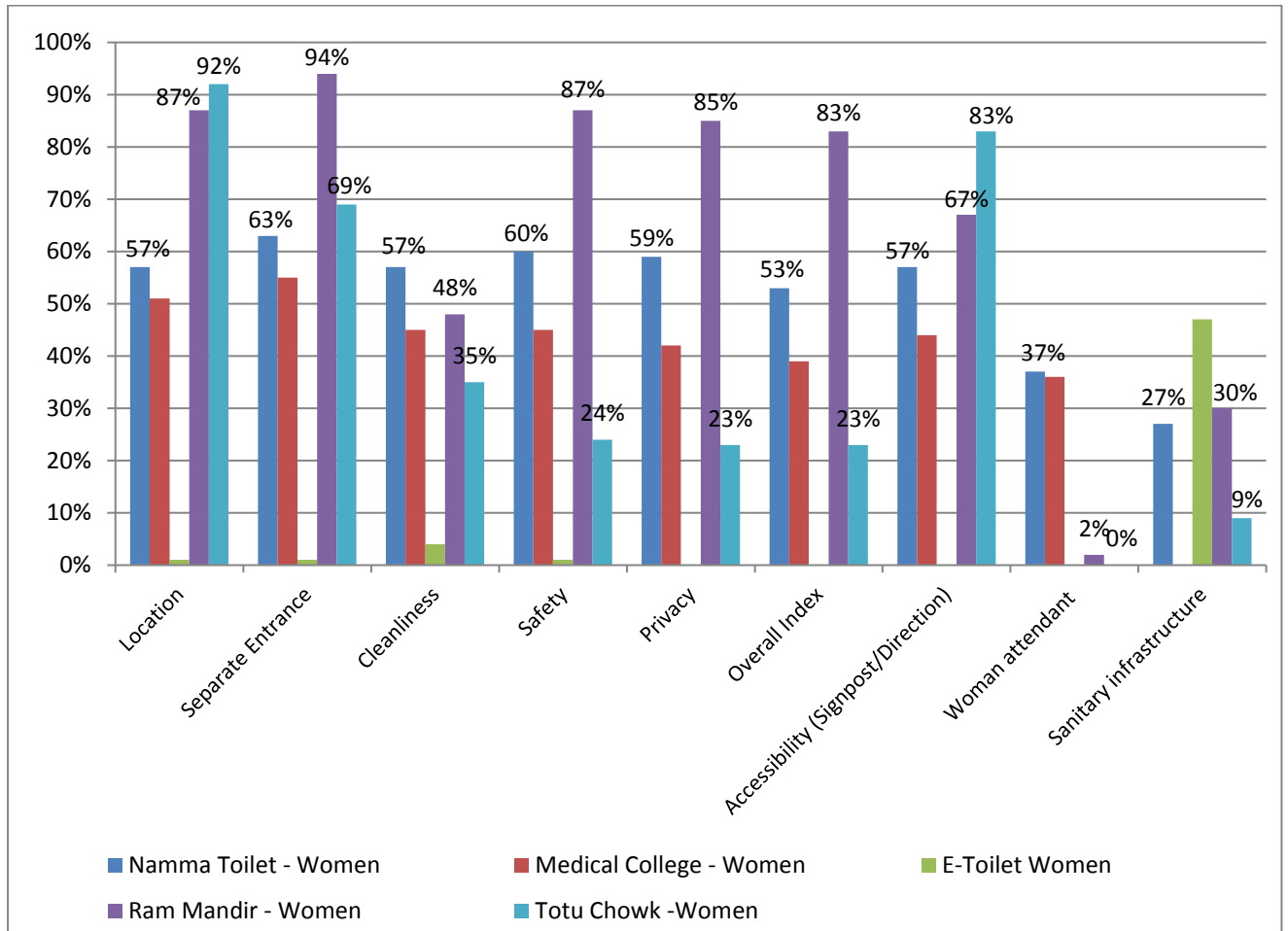
With a clear demarcation of entrance at Ram Mandir PT, it can be seen that 75% of women users have rated above 4 for Location rating indicator. In Namma Toilet PT, 53% of women users’ rating, for overall index, is above four. As regards, individual rating parameters, around 60% of women users have rated above four for separate entrance and safety; location, cleanliness and privacy are not behind with 57%, 57% and 59% respectively with four and above rating score.

With regard to the overall index of Totu Chowk PT, only 23% of women users’ ratings are above four – with 92% and 63% of women users rating four and above for location and separate entrance parameter, due to less number of women users with a rating of four and above with regard to safety, privacy and cleanliness. Due to



visibility of entrance to the public eye and lack of space for queuing have contributed to lower safety and privacy scores.

**Chart 18: Location-wise proportion of users with 75% and above users with 4 and above rating**





## Chapter 6 – Summary of issues from a gender dimension and recommendations

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### 6.1 Issues observed

Issues observed at the survey locations and inferred from the survey, both users and inventory are presented.

From day-wise analysis, at Namma Toilet PT it can be seen that due to high influx of users, the overall ratings of women users are low, in spite of robust cleaning cycles; whereas, at Medical College PT, the footfall during weekend is low compared to weekdays – therefore the ratings are high. At Ram Mandir PT and Totu Chowk PT, relative to their weekend ratings, during Wednesday and Thursday, there is a decline – this can be attributed to less stress on cleaning patterns.

Issues faced with regard to the type of day (weekend or weekday) across locations is presence of men higher compared to women users, therefore at PTs with no demarcation or exclusive waiting space, there is a bearing on safety of women users. This is more so observable at Namma Toilet PT, along with the visibility of entrance to the public eye.

As regards access issues with gender-dimension, at Medical College PT, the presence of a liquor shop in the vicinity poses disturbances to users; also, due to the same reason, the unit is closed between 5 PM – 6 PM. At Totu Chowk PT, majority of women users reported issue with visibility of entrance to the general public; this has implications with respect to safety and privacy of women users. However at Ram Mandir PT, a wall obstructing view put in place helps in addressing women users' safety in this regard.

Users of e-toilet, both men and women faced access issues pertaining to availability of exact change (Rs 2) to avail the services; lack of exact change deterred many users to not use the e-toilet.

With regard to access, at Ram Mandir PT, there is no mention of gender in the local language outside both men and women units; whereas, at Totu Chowk PT the text is mentioned only in Hindi, there is supplementary text in English.

### 6.2 Recommendations

- At Ram Mandir PT and Totu Chowk PT, text mentioning gender along with representative image of respective gender should be put in place to aid users.
- At all locations, presence of full-time women caretaker for women units will improve the overall level of safety and convenience of women users.
- It is imperative to provide adequate facility for storage of luggage at all locations – majority of users reported issue pertaining to lack of provision to keep bags.
- At E-toilet PT, it is imperative to put in place a poster or infographic instructing users on know-how of e-toilet usage; as regards access, the machine controlling entry



should be designed to accept notes and coins of all denominations and tender change to users.

- At Ram Mandir PT, with regard to structure outside the toilet unit, hand-railings (for support) should be put in place leading to women unit.
- With regard to potential advertising revenue which could be used for operations and maintenance, open space (for billboard) on top of the building at Ram Mandir PT, Totu Chowk PT and medical College PT can be utilized for same.
- As regards safety and privacy of women users, a concrete structure in front of women unit at Namma Toilet will aid women users.
- With regard to usage, the demand for toilet stems at various pockets next to parcel office at Tirupathi. Therefore, introduction of mobile e-toilets will help addressing the demand effectively. As regards, demand analysis should be made to ascertain positioning of mobile e-toilet units around parcel office at Tirupathi, and at Tirupathi and Shimla, at large.

**Annexure 1: Public / Community Toilets: Asset Inventory Format****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 / From an elevation
8. Signboard for the public leading to the toilet from the main road (*indicate relevant*): Yes/No
9. Access to toilet clean (*indicate relevant*): Yes/No
10. Access from the nearest road (in m):
11. Condition of the approach road:
12. Distance from nearest public toilet complex (in m):
13. Additional land available around the toilet and extent (in sft):

**Section B: Infrastructure Related Questions**

1. Type of toilet (*select right option*): Public toilet / Community toilet
2. Entrance characteristics (*indicate relevant*):
  - a. Common entrance for women & men: Yes/No
  - b. Main door for the toilet: Yes/No
  - c. Main door working condition: Yes/No
  - d. If no, identify the issues (select all that apply, multiple responses possible):
    - i. Door broken
    - ii. No Latch
    - iii. Door is stuck and not moving
    - iv. Others (specify)
3. Floor type (*indicate relevant*): Mosaic / Tiles / Cement / Others (specify)
4. Floor condition (*indicate relevant*): Good condition / broken/cracked / uneven surface / tiles or flooring has come out / Others (specify)
5. Roof type (*indicate relevant*): Cement concrete / tile / asbestos / thatched / no roof / Others (specify)
6. Roof condition (*indicate relevant*): Good condition / leaking / broken/damaged / needs full repair
7. Type of toilet (Check availability and indicate numbers):

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

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

a. Gents-toilets (Nos.):	b. Gents – urinals (nos.):	c. Ladies toilets (Nos.):
a.1: Fully working	b.1: Fully working	c.1: Fully working





a.2: Units broken a.3: Unit doors without latch a.4. Unit doors not closing a.5. Units without doors a.6. Tap: working a.7. Tap: broken/not working a.8. Bucket/mug a.9. Flush tank	b.2: Units broken b.3: Units pipes broken	c.2: Units broken c.3: Unit Doors without latch: c.4. Unit doors not closing c.5. Units without doors c.6. Tap: working condition c.7. Tap: broken/not working c.8. Bucket/mug c.9. Flush tank
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9. Bathing units and their condition (*indicate Nos. for following*):

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

10. 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		Basin broken	
Mirror available	Nos.	Mirror available	Nos.
	Nos.		Nos.

11. Water storage sump inside toilet (*indicate relevant*):

- a. Gents section: Yes/No
- b. Ladies section: Yes/No

12. Light availability (*indicate Nos. for following*):

- a. Gents section:
- b. Ladies section:

13. Caretaker room (*indicate relevant*): Available / Not available

14. Size of toilet (*indicate relevant*):

- a. Length (in m):
- b. Breadth (in m):
- c. Wall height (in m):
- d. Built up area (in sqm):

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

16. 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 : Available Yes/No	If yes, Area in sft:
If yes for "d", specify area type	

17. Toilet owned by (*indicate relevant*):

- a. Government:
- b. Private (Mention name):
- c. NGO (mention name):



18. Operated and maintained by (*indicate relevant*):

- a. Government:
- b. Private (Mention name):
- c. NGO (mention name):

**Section C: Toilet Usage Details**

19. Toilet being used as a toilet (*indicate relevant*): Yes/No

20. If No, toilet used as:

21. How long is the toilet not in use (*indicate relevant*): \_\_\_\_\_ months

22. Toilet caters to both men and women(*indicate relevant*): Yes/No

23. Toilet timings (Specify AM/ PM)

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

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

25. Fees collected: (Ask caretaker) (put zero if no fee collected):

- a. Urination
- b. Defecation
- c. Shower

26. Signboard with user fees available on public display (*indicate relevant*): Yes/No

27. User fee mentioned same as the collected fee (*indicate relevant*): Same / Higher / Lower

28. Other modes of fees apart from direct cash payment (*indicate relevant*):

- a. None
- b. Monthly card
- c. Weekly card
- d. Cash payment

29. Daily amount collected (average) (*in Rupees*):

30. Currently advertising done(*indicate relevant*): Yes / No

- a. Possibility of using space for advertising: Yes/ No
- b. Space available for advertising (in sft):

31. Daily footfall (average) (*indicate relevant*):

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

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

33. Seasonal variations in footfall (*indicate relevant*):

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

34. Type of users (give ranking – 1 means highest users, 4 is lowest number of users, 0 is no user, select all that apply):

- a. Tourists / pilgrims:
- b. Slum-dwellers:



- c. General public / traders/vendors
- d. Others (specify)

35. Daily usage record maintained (*indicate relevant*): Yes/No

#### Section D: Water availability Status

---

1. Physically Verify and availability (*indicate relevant*): Is water available inside complex? Yes/No
2. Source of water (*indicate relevant*): (Yes/No)
  - a. Water connection from Municipality
  - b. Own bore well
  - c. Water obtained and stored in the toilet complex
3. For 2b:
  - a. Water collected from: Municipality/ Private tanker suppliers
  - b. Water collected by:
  - c. No. of times water collected:
4. 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
5. Water supply frequency (*indicate relevant*):
  - a. Continuous supply
  - b. No. of hours per day
6. Seasonal variation in water supply frequency (*indicate relevant*):
  - a. Not affected: No. of months
  - b. Less than 75% availability: No. of months
  - c. Less than 50% availability: No. of months
7. Toilet Usage Pattern during periods of water scarcity (*indicate relevant*): Same users as normal / Fewer users / No users

#### Section E: Issues related to Emergencies

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

#### Section F: Sewerage & Waste disposal

---

1. Connectivity to wastewater disposal(*indicate relevant*): UGD System/On-Site Treatment – septic tanks or leach pits / road side drains / roads / no specific mechanism
2. If not connected to sewer network, distance from network (in m) \_\_\_\_\_
3. If septic tank, frequency of cleaning tank (number of times/month) \_\_\_\_\_
4. Who is responsible for cleaning of septic tanks (*indicate relevant*): City / Private / Owner

**Section G: Electricity Details**

1. Toilet complex has electricity (*indicate relevant*): Yes/No
2. Electricity availability (*indicate relevant*):
  - a. Continuous
  - b. Limited (No. of hours per day)
3. Electricity board number available (*indicate relevant*): Yes/No
4. Electricity is used for (multiple answers are to be allowed):
  - a. Lighting
  - b. Water sump
  - c. Cleaning
  - d. Misused
5. Electricity charges are paid by (*indicate relevant*):
  - a. Urban local body (Municipality)
  - b. Contractor
  - c. No payment is made
6. In case of electricity failure (*indicate relevant*):
  - a. Issue notified to electricity board
  - b. Issue is escalated to corporation officials
  - c. Issue is escalated to contractor/supervisor
  - d. Local person/people support
  - e. Self-redressal
  - f. No redressal mechanism

**Section H: Details of the caretaker**

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

	Men	Women
Cleaner		
Caretaker		

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

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

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

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



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

7. Responsibility for cleaning toilet (*indicate relevant*): Cleaner / Caretaker / Both
8. No. of times toilet is cleaned per day (*indicate relevant*): \_\_\_\_\_ Nos.
9. Cleaning time each day (*indicate relevant*):
  - a. Morning
  - b. Forenoon
  - c. Afternoon
  - d. Evening
  - e. Night
10. Is there a cleaning timesheet/record sheet issued (*indicate relevant*): Yes/No
11. Cleaning process (*indicate relevant*):
  - a. Manual
  - b. Mechanized
  - c. Not cleaned
12. Complaint redressal mechanism (multiple selection for a and b)
  - a. Telephone number
  - b. Contact person details
  - c. None available

### Section I: Gender Related

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

### Section J: Geography and Appearance

1. Geo-reference ID
2. Latitude



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

### **Section K: Monitoring of services**

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



## Annexure 2: Public / Community Toilets: Users Survey Format

### Questions to be filled by the Interviewer:

- Interview Location and Toilet (Follow the code in Inventory Survey for toilet)
  - Average footfall of the toilet (from the Inventory survey)
  - Average footfall during the time of interviews over a 2 hour period
1. Date of Interview:
  2. Name of the respondent:
  3. Phone number of the respondent:
  4. Gender (*indicate relevant*): Men/Women/Transgender
  5. Age of the respondent (*indicate relevant*):
    - a. Less than 20
    - b. 20 to 30
    - c. 30 to 50
    - d. 50 to 60
    - e. Above 60 (senior citizen)
  6. Resident of city (*indicate relevant*): Yes/No
  7. If Yes (*indicate relevant*):
    - a. Employed: Yes/No
    - b. If Yes: Occupation:
    - c. If No: Student/Yet to find employment/Retired/Housewife
    - d. Reason for out of home toilet use (*indicate relevant*):
      - i. Slum dweller
      - ii. Local travel on official visit
      - iii. Local travel for purchases/market/sight-seeing (please specify)
  1. How often do you use this toilet (*indicate relevant*):
    - a. Daily
    - b. Twice or more in a week
    - c. Once a week
    - d. Rarely
    - e. Cannot say
  2. If a or b is yes,
    - a. Distance from your place to the toilet: \_\_\_\_\_ minute walk
    - b. Distance in terms of km: \_\_\_\_\_
    - c. Is it uphill towards the toilet from your place (*indicate relevant*): Yes/No
  3. Do you use the toilets other than the public toilet facilities (*indicate relevant*):
    - a. In hotels/restaurants
    - b. In public institutions (municipal office / hospital / govt. offices etc.)
    - c. Shops/commercial complexes
    - d. Parks / markets
    - e. Events
  4. How long you have been using this toilet facility? \_\_\_\_\_years
  5. Has the payment (*indicate relevant*):
    - a. Increased over last
      - i. 1 year



- ii. 2 to 3 years
  - iii. 3 to 5years
  - iv. Over 5 years
  - v. Do not recall/remember
- b. Has been the same always since I used
6. For men users: Should this be a toilet complex or a urinal (*indicate relevant*):
- a. Toilet complex
  - b. Urinal
7. Number of units in this toilet complex (*indicate relevant*):
- a. Should be increased
  - b. Can remain the same
  - c. Can be reduced
8. For regular users who are local residents of city: Can you be contacted again through phone if needed by the Corporation for understanding your needs better (*indicate relevant*): Yes/No
9. If No, for question 6 (*indicate relevant*):
- a. Tourist
  - b. Business/Trade visitor
  - c. Medical
  - d. Education
  - e. Others (specify)

10. Local travel / tourist with children (*indicate relevant*):

- a. Travelling with Children: Yes/No
- b. No. of children in the age group:

Age group	Men	Women
0 – 3		
3 – 6		
6 – 10		
10 – 13		
Above 13		

11. If tourist (*indicate relevant*):
- a. Other state (specify)
  - b. Other country (specify)
12. If business/trade: Specify location of origin \_\_\_\_\_
13. If business/trade: You visit city once in
- a. Week
  - b. Daily
  - c. Monthly
  - d. Rarely
14. How long is your visit to city
15. How often did you use public toilet facility in city? Specify number of times \_\_\_\_\_
16. Reason for using this public toilet(*indicate relevant*):
- a. Visiting the area
  - b. Waiting for bus/train/taxi
  - c. Visiting shops / commercial areas
  - d. Other (please specify)





**For all type of users following questions:**

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

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

8. If there is any waiting period, reason for the waiting (*indicate relevant*):
  - a. Toilets have been occupied
  - b. Some of the toilets are not functional
  - c. Toilets were not clean
  - d. Caretaker was not available in the facility
9. Give your ranking (1 to 5, with 1 for highest, 5 for worst) for the atmosphere in the toilet:
  - a. Cleanliness
  - b. Water availability
  - c. Access of toilet from outside
  - d. Water logging
  - e. Smell
  - f. Lighting
  - g. Amenities (bucket, cups etc.)
  - h. Wash basins
  - i. Condition of floor and walls
  - j. Condition of doors
  - k. Behavior of caretakers and cleaners
  - l. Condition of urinals
  - m. Condition of toilet seats



10. Gender
  - a. Safety
  - b. Privacy
  - c. Usability for children
  - d. Garbage bin for napkins
11. Do you have any complaints specific to this toilet (*indicate relevant*): Yes / No
12. Do you have any complaints about public toilets in city (*indicate relevant*): Yes / No
13. Do you have any complaints about open defecation in city (*indicate relevant*): Yes / No
14. Are you willing to pay additional payment for better quality of services (*indicate relevant*): Yes / No
15. If yes, how much (*indicate relevant*):
  - a. For urinals Rs.....
  - b. For toilets Rs.....
  - c. For baths Rs.....
16. If yes for 23, what improvements you are looking for (*indicate relevant*):
  - a. No. of toilet units
  - b. More cleanliness
  - c. Type of infrastructure (*please specify*)
  - d. More privacy
  - e. Clean Space/lockers for keeping things being carried
  - f. Water availability
  - g. Better lightings
  - h. Others (*specify*)
17. For Senior citizens
  - a. Were you able to access the toilet easily
  - b. If no, reason for lack of ease
    - i. Distance from main road
    - ii. Path being slippery
    - iii. No proper pathway
    - iv. Had to search as no signboards available
18. Toilet affected by land-slides (except option a, others are multiple select):
  - a. Not affected
  - b. Structural damage
  - c. Toilet not accessible
  - d. Caretaker cannot function
  - e. Toilet closed
19. Toilet affected by snowfall (except option a, others are multiple select):
  - a. Not applicable/Not affected
  - b. Water supply affected
  - c. Sewerage affected
  - d. Caretaker cannot function
  - e. Toilet closed
20. Water clogging during normal periods (except option a, others are multiple select): The clogging may be physically verified by the interviewer, and regarding complaints, canvassed from the caretaker)
  - a. No clogging



- b. Inside toilet
  - c. Outside toilet
21. No. of days water clogging persists (indicate relevant): \_\_\_\_\_ days
  22. Complain has been registered (indicate relevant): Yes/No
  23. Complain registered date (indicate relevant):
  24. Complain registered to(indicate relevant):
  25. No. of days taken to fix the problem (indicate relevant):



**Annexure 3: Additional Tables**

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**Table 24: Age wise break up - Namma toilet [number of respondents in brackets]**

Location	Gender	Below 10	10 to 20	20 to 40	40 to 60	Above 60
Namma toilet, Tirupathi	Women (243)	2%	10%	46%	32%	10%
	Men (233)	2%	3%	55%	39%	2%
Medical college toilet, Tirupathi	Women (121)	2%	7%	47%	40%	3%
	Men (235)	0%	6%	61%	29%	4%
E-toilet, Tirupathi	Women (75)	0%	4%	83%	13%	0%
	Men (165)	1%	6%	72%	21%	1%
Ram Mandir toilet, Shimla	Women (246)	3%	15%	53%	26%	4%
	Men (245)	0%	6%	53%	28%	13%
Totu chowk toilet, Shimla	Women (245)	1%	12%	56%	28%	3%
	Men (245)	0%	8%	48%	33%	11%

**Table 25: Users classification based on nature of employment [number of respondents in brackets]**

Location	Gender	Not employed	Employed	Seeking Work / Casual / Seasonal Workers
Namma toilet, Tirupathi	Women (243)	51%	44%	5%
	Men (233)	82%	17%	1%
Medical college toilet, Tirupathi	Women (121)	44%	55%	1%
	Men (235)	51%	47%	3%
E-toilet, Tirupathi	Women (75)	3%	97%	-
	Men (165)	12%	88%	-
Ram Mandir toilet, Shimla	Women (246)	32%	33%	35%
	Men (245)	16%	68%	16%
Totu chowk toilet, Shimla	Women (245)	24%	27%	49%
	Men (245)	19%	58%	23%

**Table 26: Users classification based on type of employment [number of respondents in brackets]**

Location	Gender	Private Sector	Public Sector	Others / farmers
Namma toilet, Tirupathi	Women (107)	7%	6%	87%
	Men (41)	12%	49%	39%
Medical college toilet, Tirupathi	Women (67)	3%	25%	72%
	Men (110)	6%	35%	59%
E-toilet, Tirupathi	Women (75)	92%	0%	8%-
	Men (165)	81%	5%	14%
Ram Mandir toilet, Shimla	Women (79)	29%	28%	43%
	Men (166)	16%	56%	28%
Totu chowk toilet, Shimla	Women (66)	26%	42%	32%
	Men (143)	27%	65%	7%



**Table 27: Category of users [number of respondents in brackets]**

Location	Gender	Resident	Tourist	Work related visitors
Namma toilet, Tirupathi	Women (243)	7%	87%	5%
	Men (233)	10%	84%	6%
Medical college toilet, Tirupathi	Women (121)	44%	40%	17%
	Men (235)	49%	32%	19%
E-toilet, Tirupathi	Women (75)	5%	51%	44%
	Men (165)	12%	58%	30%
Ram Mandir toilet, Shimla	Women (246)	45%	43%	14%
	Men (245)	56%	10%	35%
Totu chowk toilet, Shimla	Women (245)	57%	28%	16%
	Men (245)	86%	3%	11%

**Table 28: User perception on ease of identification of toilets [number of respondents in brackets]**

Location	Location related questions	Gender	No issues	Inadequacy in directions
Namma toilet, Tirupathi	Lack of Signpost	Women (235)	93%	7%
		Men (121)	100%	0%
	Lack of Reference or Assistance	Women (233)	93%	8%
		Men (243)	98%	2%
Medical college toilet, Tirupathi	Lack of Signpost	Women (235)	98%	2%
		Men (121)	88%	12%
	Lack of Reference or Assistance	Women (233)	98%	2%
		Men (243)	88%	12%
E-toilet, Tirupathi	Lack of Signpost	Women (75)	100%	0%
		Men (165)	100%	0%
	Lack of Reference or Assistance	Women (75)	100%	0%
		Men (165)	100%	0%
Ram Mandir toilet, Shimla	Lack of Signpost	Women (246)	89%	11%
		Men (245)	80%	20%
	Lack of Reference or Assistance	Women (246)	93%	7%
		Men (245)	69%	31%
Totu chowk toilet, Shimla	Lack of Signpost	Women (245)	98%	2%
		Men (245)	85%	15%
	Lack of Reference or Assistance	Women (245)	95%	5%
		Men (245)	76%	24%

**Table 29: User perception on issues in access toilets [number of respondents in brackets]**

Location	Access	Gender	No	Yes
Namma toilet, Tirupathi	Bushes/Obstacles	Women (243)	80%	19%
		Men (233)	99%	1%
	Dirty Access Path	Women (243)	74%	25%
		Men (233)	99%	1%
	Improper Road	Women (243)	78%	22%
		Men (233)	99%	1%
Medical college toilet, Tirupathi	Bushes/Obstacles	Women (121)	71%	29%
		Men (235)	90%	10%
	Dirty Access Path	Women (121)	74%	26%
		Men (235)	90%	10%
	Improper Road	Women (121)	71%	29%
		Men (235)	90%	10%
E-toilet, Tirupathi	Bushes/Obstacles	Women (75)	100%	0%
		Men (165)	100%	0%



Location	Access	Gender	No	Yes
	Dirty Access Path	Women (75)	100%	0%
		Men (165)	100%	0%
	Improper Road	Women (75)	100%	0%
		Men (165)	100%	0%
Ram Mandir toilet, Shimla	Bushes/Obstacles	Women (246)	100%	0%
		Men (245)	100%	0%
	Dirty Access Path	Women (246)	100%	0%
		Men (245)	100%	0%
Totu chowk toilet, Shimla	Improper Road	Women (246)	100%	0%
		Men (245)	100%	0%
	Bushes/Obstacles	Women (245)	99%	1%
		Men (245)	100%	0%
Dirty Access Path	Women (245)	86%	21%	
	Men (245)	93%	14%	
Improper Road	Women (245)	100%	0%	
	Men (245)	100%	0%	

Table 30: Steps of using toilet – Gender Implications

Aspects to be considered			GENDER CRITERIA					
			Access to toilets	Privacy & dignity	Safety	Menstrual hygiene	Maintenance of toilets	Awareness
STEPS OF USING A TOILET	Location of toilets	New toilet complexes should be located in safe and highly visible places.	x	x				
		Toilets should be located within reasonable walking distance.	x		x			
	Design outside the toilet	Entrance to the toilet complex should be in good condition, highly visible, has adequate lighting on the approach road as also inside the toilet. The steps should not be broken or damaged to enable access for women who are pregnant, old or differently-abled.	x		x			
		Separate entrances for men and women.		x	x			
		Adequate space in waiting area for women to stand in queue.	x					
	Design inside the toilet	Working door locks, latches (on the inside) and hooks on toilet doors, Doors should be in good condition (not damaged and weather proofed).		x	x			
		Provision of bins (in each cubicle) and a proper disposal mechanism for sanitary napkins.		x		x		
		Toilet windows (including ventilators) and roofs should not compromise women's privacy.		x				
	Supporting services	24-hours/day supply of electricity. In case it is irregular, there should be an alternate source.			x			



Aspects to be considered		GENDER CRITERIA					
		Access to toilets	Privacy & dignity	Safety	Menstrual hygiene	Maintenance of toilets	Awareness
Management of toilets	Ensure that there is enough water for usage and cleaning in toilets/Wash basins, working flush systems, working mechanical ventilation doors are in place.				x	x	
	Toilets should be operational 24 hours.	x	x	x	x		
	User charges to be displayed at the entrance at all times.	x					x
	Women caretakers for maintenance of toilets for women.		x	x	x	x	
	Women should be involved in shaping and making the institutional arrangements (for ex. such as selection of sites).					x	x
	Standards have to be established (a regular maintenance and cleaning regime/checklist e.g. cubicles cleaned, trash bins emptied, floor cleaned, supplies refilled) and monitored to assure women that the toilets are hygienic.				x	x	
	Contact number for complaints and help-line to be displayed, for women and children should be set up (if not existing already).			x		x	x
	Public-education campaigns by the Municipality and toilet education material (IEC) to be displayed inside toilets.						x
Knowledge about toilets	Public-education campaigns by the Municipality and toilet education material (IEC) to be displayed inside toilets.						x

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**Table 31: Ratings by regular users - Comparison for signpost parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
First time user	Average	<b>3.45</b>	<b>3.34</b>	<b>3.01</b>	<b>3.41</b>	<b>3.93</b>
	Women	3.74	3.76	3.00	3.64	4.08
	Men	3.4	3.2	3.01	2.84	3.07
Regular user	Average	<b>3.59</b>	<b>3.39</b>	<b>3.06</b>	<b>3.84</b>	<b>3.5</b>
	Women	3.58	3.65	3.00	4.0	4.24
	Men	3.63	3.17	3.08	3.74	3.23
Occasional/Rarely used the same structure before	Average	<b>4.05</b>	<b>3.37</b>	-	<b>3.00</b>	<b>3.89</b>
	Women	4.04	3.32	-	4.0	4.14
	Men	4.05	3.39	-	2.5	3.0



**Table 32: Ratings by regular users - Comparison for woman attendant parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
First time user	Average	<b>3.71</b>	<b>3.34</b>	NA	<b>2.35</b>	<b>1.57</b>
	Women	3.32	3.30	NA	1.28	1.14
	Men	3.78	3.36	NA	5.00	4.11
Regular user	Average	<b>3.63</b>	<b>3.41</b>	NA	<b>3.49</b>	<b>3.92</b>
	Women	3.57	3.51	NA	1.27	1.23
	Men	4.00	3.32	NA	4.89	4.89
Occasional/Rarely used the same structure before	Average	<b>3.54</b>	<b>3.40</b>	-	<b>3.33</b>	<b>2.56</b>
	Women	3.09	3.27	-	2.00	2.00
	Men	4.04	3.46	-	4.00	4.50

**Note:** \* There is no attendant for E-toilets since they are self-cleaning, hence no response possible.

**Table 33: Ratings by regular users - Comparison for sanitary napkins parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
First time user	Average	<b>1.71</b>	<b>1.38</b>	<b>3.46</b>	<b>3.27</b>	<b>3.08</b>
	Women	1.71	1.38	3.46	3.27	3.08
	Men	-	-	-	-	-
Regular user	Average	<b>2.92</b>	<b>1.40</b>	<b>3.50</b>	<b>3.26</b>	<b>3.08</b>
	Women	2.92	1.40	3.50	3.26	3.08
	Men	-	-	-	-	-
Occasional/Rarely used the same structure before	Average	<b>2.23</b>	<b>1.00</b>	-	<b>2.00</b>	<b>2.86</b>
	Women	2.23	1.00	-	2.00	2.86
	Men	-	-	-	-	-

**Table 34: Comparison of ratings by user type for Signpost**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
User not accompanying child	Average	<b>3.77</b>	<b>3.35</b>	<b>3.01</b>	<b>3.68</b>	<b>3.61</b>
	Women	3.83	3.63	3.00	3.86	4.18
	Men	3.73	3.23	3.02	3.55	3.22
User accompanying child	Average	<b>3.88</b>	<b>3.54</b>	<b>3.00</b>	<b>3.70</b>	<b>3.99</b>
	Women	3.85	3.55	-	3.74	4.01
	Men	5.00	3.50	3.00	3.29	2.00

**Table 35: Ratings by users accompanied by children - Comparison for woman attendant parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
User not accompanying child	Average	<b>3.63</b>	<b>3.40</b>	NA	<b>3.45</b>	<b>3.35</b>
	Women	3.32	3.46	NA	1.32	1.23
	Men	3.92	3.36	NA	4.90	4.81
User accompanying child	Average	<b>3.26</b>	<b>3.26</b>	NA	<b>1.48</b>	<b>1.15</b>
	Women	3.21	3.20	NA	1.20	1.12
	Men	5.00	3.67	NA	4.86	4.00

**Note:** \* There is no attendant for E-toilets since they are self-cleaning, hence no response possible.





**Table 36: Ratings by users accompanied by children - Comparison for sanitary napkins parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
User not accompanying child	Average	<b>2.57</b>	<b>1.39</b>	<b>3.47</b>	<b>3.23</b>	<b>3.05</b>
	Women	2.57	1.39	3.47	3.23	3.05
	Men	-	-	-	-	-
User accompanying child	Average	<b>1.91</b>	<b>1.00</b>	-	<b>3.31</b>	<b>3.13</b>
	Women	1.91	1.00	-	3.31	3.13
	Men	-	-	-	-	-

**Note:** \* There is no attendant for E-toilets since they are self-cleaning, hence no response possible.

**Table 37: Ratings by employed users - Comparison for signpost parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
Unemployed	Average	<b>3.84</b>	<b>3.46</b>	<b>3.09</b>	<b>3.62</b>	<b>3.82</b>
	Women	3.99	3.69	3.00	3.90	4.17
	Men	3.75	3.36	3.10	3.03	3.09
Employed	Average	<b>3.64</b>	<b>3.27</b>	<b>3.00</b>	<b>3.61</b>	<b>3.70</b>
	Women	3.63	3.54	3.00	3.74	4.08
	Men	3.68	3.09	3.01	3.33	3.20
Casual or temporary workers	Average	<b>4.00</b>	<b>3.33</b>	-	<b>3.75</b>	<b>3.53</b>
	Women	4.14	5.00	-	3.81	4.11
	Men	3.00	3.00	-	3.72	3.27

**Table 38: Ratings by employed users - Comparison for woman attendant parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
Unemployed	Average	<b>3.64</b>	<b>3.51</b>	NA	<b>2.40</b>	<b>2.41</b>
	Women	3.13	3.29	NA	1.22	1.18
	Men	3.97	3.61	NA	4.95	5.00
Employed	Average	<b>3.54</b>	<b>3.24</b>	NA	<b>2.49</b>	<b>2.76</b>
	Women	3.50	3.49	NA	1.31	1.31
	Men	3.67	3.00	NA	4.95	4.67
Casual or temporary workers	Average	<b>3.38</b>	<b>3.43</b>	-	<b>3.73</b>	<b>3.62</b>
	Women	3.29	5.00	-	1.32	1.14
	Men	4.00	3.17	-	4.88	4.77

**Note:** \* There is no attendant for E-toilets since they are self-cleaning, hence no response possible.

**Table 39: Ratings by employed users - Comparison for sanitary napkins parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
Unemployed	Average	<b>2.19</b>	<b>1.04</b>	<b>3.50</b>	<b>3.47</b>	<b>3.09</b>
	Women	2.19	1.04	3.50	3.47	3.09
	Men	-	-	-	-	-
Employed	Average	<b>2.79</b>	<b>1.55</b>	<b>3.47</b>	<b>3.16</b>	<b>3.08</b>
	Women	2.79	1.55	3.47	3.16	3.08
	Men	-	-	-	-	-
Casual or	Average	<b>2.43</b>	<b>1.00</b>	-	<b>3.14</b>	<b>3.03</b>



Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
temporary workers	Women	2.43	1.00	-	3.14	3.03
	Men	-	-	-	-	-

**Table 40: Statistical reliability of ratings - for all parameters**

Location	Parameter	Chi Square	Degree of freedom	p-value
Namma toilet, Tirupathi	Location	9.5479	4	0.05
	Separate Entrance	13.571	2	0.00
	Cleanliness	45.528	4	0.00
	Safety	27.565	2	0.00
	Privacy	28.165	3	0.00
	Attendant	58.78	4	0.00
Medical college toilet, Tirupathi	Location	37.426	3	0.00
	Separate Entrance	33.154	3	0.00
	Cleanliness	5.5055	3	0.14
	Safety	14.413	3	0.00
	Privacy	10.324	3	0.02
	Attendant	6.236	4	0.18
E-toilet, Tirupathi	Location	14.78	2	0.00
	Separate Entrance	3.629	1	0.07
	Cleanliness	0.27031	1	0.60
	Safety	0.32373	1	0.57
	Privacy	5.2402	2	0.07
	Attendant	NA	NA	NA
Ram Mandir toilet, Shimla	Location	33.743	8	0.00
	Separate Entrance	66.915	6	0.00
	Cleanliness	127.74	8	0.00
	Safety	45.734	4	0.00
	Privacy	55.025	8	0.00
	Attendant	473.75	8	0.00
Totu Chowk toilet, Shimla	Location	45.609	3	0.00
	Separate Entrance	152.75	2	0.00
	Cleanliness	9.8102	4	0.04
	Safety	71.278	4	0.00
	Privacy	72.423	4	0.00
	Attendant	470.25	4	0.00

**Table 41: Statistical reliability of ratings for parameters – Regular users**

Location	Parameter	Chi Square	Degree of freedom	p-value
Namma toilet, Tirupathi	Location	10.538	6	0.10
	Separate Entrance	3.5108	4	0.48
	Cleanliness	16.367	8	0.04
	Safety	5.3986	4	0.25
	Privacy	10.244	6	0.11
Medical college toilet, Tirupathi	Location	2.6725	3	0.44
	Separate Entrance	4.7807	3	0.19
	Cleanliness	5.855	3	0.12
	Safety	0.80992	3	0.85
	Privacy	2.5083	3	0.47
E-toilet, Tirupathi	Location	6.93E-28	1	1.00
	Separate Entrance	6.93E-28	1	1.00
	Cleanliness	0.795	1	0.37



Location	Parameter	Chi Square	Degree of freedom	p-value
Ram Mandir toilet, Shimla	Safety	6.93E-28	1	1.00
	Privacy	NA	NA	NA
	Location	5.8875	2	0.05
	Separate Entrance	23.351	2	0.00
	Cleanliness	7.0107	4	0.14
	Safety	3.2218	2	0.20
Totu Chowk toilet, Shimla	Privacy	5.6101	4	0.23
	Location	0.93251	2	0.63
	Separate Entrance	6.086	2	0.05
	Cleanliness	3.504	4	0.48
	Safety	19.604	4	0.00
	Privacy	20.685	4	0.00

**Table 42: Comparison of ratings by regular users for location parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
First time user	Average	<b>3.47</b>	<b>3.44</b>	<b>3.12</b>	<b>4.00</b>	<b>4.28</b>
	Women	3.84	4.00	3.01	4.27	4.40
	Men	3.40	3.24	3.17	3.32	3.59
Regular user	Average	<b>3.63</b>	<b>3.43</b>	<b>3.47</b>	<b>4.37</b>	<b>4.14</b>
	Women	3.61	3.73	3.00	4.44	4.45
	Men	3.75	3.19	3.62	4.33	4.03
Occasional/Rarely used the same structure before	Average	<b>4.00</b>	<b>3.43</b>	-	<b>3.00</b>	<b>4.44</b>
	Women	4.06	3.50	-	3.00	4.57
	Men	3.95	3.40	-	3.00	4.00

**Table 43 Comparison of ratings by regular users for separate entrance parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
First time user	Average	<b>3.77</b>	<b>3.52</b>	<b>3.05</b>	<b>4.49</b>	<b>3.85</b>
	Women	4.05	4.00	3.01	4.31	3.78
	Men	3.72	3.35	3.07	4.92	4.30
Regular user	Average	<b>3.83</b>	<b>3.49</b>	<b>3.18</b>	<b>4.78</b>	<b>4.51</b>
	Women	3.81	3.71	3.00	4.69	3.97
	Men	3.94	3.31	3.23	4.83	4.70
Occasional/Rarely used the same structure before	Average	<b>4.06</b>	<b>3.51</b>	-	<b>4.67</b>	<b>4.44</b>
	Women	4.12	3.73	-	4.00	4.43
	Men	4.01	3.42	-	5.00	4.50

**Table 44: Statistical reliability of ratings for all parameters – users accompanied with children**

Location	Parameter	Chi Square	Degree of freedom	p-value
Namma toilet, Tirupathi	Location	2.5682	3	0.46
	Separate Entrance	5.2079	2	0.74
	Cleanliness	5.7258	4	0.22
	Safety	2.8191	2	0.24
	Privacy	6.0682	3	0.11
Medical college toilet, Tirupathi	Location	2.1523	3	0.54
	Separate Entrance	0.35472	3	0.95



Location	Parameter	Chi Square	Degree of freedom	p-value
	Cleanliness	8.4999	3	0.04
	Safety	6.7803	3	0.08
	Privacy	6.9473	3	0.07
E-toilet, Tirupathi	Location	NA	NA	NA
	Separate Entrance	NA	NA	NA
	Cleanliness	NA	NA	NA
	Safety	NA	NA	NA
	Privacy	NA	NA	NA
Ram Mandir toilet, Shimla	Location	0.14047	2	0.93
	Separate Entrance	2.186	2	0.34
	Cleanliness	10.354	4	0.03
	Safety	6.4405	2	0.04
	Privacy	6.6892	4	0.15
Totu Chowk toilet, Shimla	Location	0.9861	2	0.61
	Separate Entrance	0.28317	2	0.87
	Cleanliness	8.3412	4	0.08
	Safety	1.8382	4	0.77
	Privacy	0.67764	4	0.95

**Table 45: Comparison of ratings by users accompanied with children – location parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
User not accompanying child	Average	<b>3.76</b>	<b>3.42</b>	<b>3.15</b>	<b>4.21</b>	<b>4.17</b>
	Women	3.85	3.77	3.01	4.34	4.45
	Men	3.69	3.26	3.21	4.13	3.98
User accompanying child	Average	<b>3.94</b>	<b>3.63</b>	<b>3.00</b>	<b>4.32</b>	<b>4.36</b>
	Women	3.94	3.65	-	4.37	4.36
	Men	4.00	3.50	3.00	3.71	4.00

**Table 46: Comparison of ratings by users accompanied with children –separate entrance parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
User not accompanying child	Average	<b>3.92</b>	<b>3.49</b>	<b>3.06</b>	<b>4.73</b>	<b>4.33</b>
	Women	3.98	3.79	3.01	4.54	3.85
	Men	3.87	3.35	3.09	4.85	4.66
User accompanying child	Average	<b>4.03</b>	<b>3.71</b>	<b>3.00</b>	<b>4.45</b>	<b>3.88</b>
	Women	4.00	3.75	-	4.42	3.88
	Men	5.00	3.50	3.00	4.86	4.00



**Table 47: Comparison of ratings by users accompanied with children –cleanliness parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
User not accompanying child	Average	<b>3.84</b>	<b>3.46</b>	<b>3.06</b>	<b>4.04</b>	<b>3.22</b>
	Women	3.86	3.61	3.04	3.64	3.23
	Men	3.82	3.39	3.07	4.31	3.21
User accompanying child	Average	<b>3.74</b>	<b>3.17</b>	<b>3.00</b>	<b>3.55</b>	<b>3.31</b>
	Women	3.73	3.15	-	3.48	3.31
	Men	4.00	3.25	3.00	4.43	3.00

**Table 48: Comparison of ratings by users accompanied with children –safety parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
User not accompanying child	Average	<b>3.93</b>	<b>3.42</b>	<b>3.03</b>	<b>4.33</b>	<b>3.34</b>
	Women	3.95	3.62	3.01	4.43	3.01
	Men	3.90	3.32	3.04	4.25	3.57
User accompanying child	Average	<b>3.91</b>	<b>3.21</b>	<b>3.00</b>	<b>4.59</b>	<b>2.90</b>
	Women	3.91	3.20	-	4.64	2.91
	Men	4.00	3.25	3.00	4.00	2.00

**Table 49: Comparison of ratings by users accompanied with children –privacy parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
User not accompanying child	Average	<b>3.92</b>	<b>3.40</b>	<b>3.03</b>	<b>4.24</b>	<b>3.32</b>
	Women	3.94	3.57	3.01	4.45	2.93
	Men	3.90	3.32	3.04	4.10	3.59
User accompanying child	Average	<b>3.91</b>	<b>3.17</b>	<b>3.00</b>	<b>4.49</b>	<b>2.82</b>
	Women	3.91	3.15	-	4.57	2.83
	Men	4.00	3.25	3.00	3.57	2.00

**Table 50: Statistical reliability of ratings for parameters – employment status**

Location	Parameter	Chi Square	Degree of freedom	p-value
Namma toilet, Tirupathi	Location	11.057	3	0.01
	Separate Entrance	4.0091	2	0.13
	Cleanliness	22.616	4	0.00
	Safety	8.2991	2	0.02
	Privacy	6.3182	3	0.10
Medical college toilet, Tirupathi	Location	15.032	3	0.00
	Separate Entrance	3.7951	3	0.28
	Cleanliness	5.9326	3	0.11
	Safety	6.6711	3	0.08
	Privacy	7.4944	3	0.06
E-toilet, Tirupathi	Location	3.49E-31	1	1.00
	Separate Entrance	8.7485	1	0.00
	Cleanliness	2.3598	1	0.12
	Safety	8.7485	1	0.00
	Privacy			
Ram Mandir toilet, Shimla	Location	7.8401	2	0.02
	Separate Entrance	15.259	2	0.00
	Cleanliness	4.5449	3	0.21



Location	Parameter	Chi Square	Degree of freedom	p-value
Totu Chowk toilet, Shimla	Safety	0.37565	2	0.83
	Privacy	2.9422	3	0.40
	Location	8.818	2	0.01
	Separate Entrance	7.7523	2	0.02
	Cleanliness	12.234	4	0.02
	Safety	2.9457	4	0.57
	Privacy	3.0269	4	0.55

**Table 51: Comparison of ratings by employed users for location parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
Unemployed	Average	<b>3.82</b>	<b>3.53</b>	<b>3.50</b>	<b>4.11</b>	<b>4.25</b>
	Women	4.01	3.86	3.00	4.30	4.43
	Men	3.71	3.38	3.55	3.70	3.88
Employed	Average	<b>3.66</b>	<b>3.34</b>	<b>3.11</b>	<b>4.23</b>	<b>4.25</b>
	Women	3.66	3.65	3.01	4.42	4.49
	Men	3.63	3.13	3.16	3.85	3.93
Casual or temporary workers	Average	<b>4.13</b>	<b>3.33</b>	-	<b>4.29</b>	<b>4.13</b>
	Women	4.29	5.00	-	4.33	4.35
	Men	3.00	3.00	-	4.28	4.03

**Table 52: Comparison of ratings by employed users for separate entrance parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
Unemployed	Average	<b>3.98</b>	<b>3.66</b>	<b>3.41</b>	<b>4.66</b>	<b>4.07</b>
	Women	4.08	3.92	3.50	4.50	3.79
	Men	3.92	3.54	3.40	5.00	4.65
Employed	Average	<b>3.81</b>	<b>3.35</b>	<b>3.03</b>	<b>4.50</b>	<b>4.29</b>
	Women	3.86	3.66	3.00	4.32	4.08
	Men	3.68	3.14	3.04	4.87	4.56
Casual or temporary workers	Average	<b>4.38</b>	<b>3.33</b>	-	<b>4.77</b>	<b>4.40</b>
	Women	4.43	5.00	-	4.67	3.77
	Men	4.00	3.00	-	4.81	4.69

**Table 53: Comparison of ratings by employed users for cleanliness parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
Unemployed	Average	<b>3.90</b>	<b>3.63</b>	<b>3.27</b>	<b>3.69</b>	<b>3.19</b>
	Women	3.97	3.39	3.50	3.40	3.23
	Men	3.85	3.73	3.25	4.33	3.11
Employed	Average	<b>3.68</b>	<b>3.25</b>	<b>3.04</b>	<b>3.91</b>	<b>3.31</b>
	Women	3.67	3.63	3.03	3.72	3.41
	Men	3.68	2.99	3.04	4.31	3.18
Casual or temporary workers	Average	<b>4.13</b>	<b>3.33</b>	-	<b>4.10</b>	<b>3.24</b>
	Women	4.14	4.00	-	3.66	3.18
	Men	4.00	3.20	-	4.31	3.27



**Table 54: Comparison of ratings by employed users for safety parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
Unemployed	Average	<b>4.00</b>	<b>3.56</b>	<b>3.18</b>	<b>4.40</b>	<b>3.24</b>
	Women	4.08	3.37	3.50	4.56	3.11
	Men	3.95	3.64	3.15	4.05	3.51
Employed	Average	<b>3.74</b>	<b>3.24</b>	<b>3.01</b>	<b>4.43</b>	<b>3.13</b>
	Women	3.76	3.68	3.00	4.51	2.86
	Men	3.68	2.95	3.02	4.28	3.49
Casual or temporary workers	Average	<b>4.38</b>	<b>3.33</b>	-	<b>4.33</b>	<b>3.36</b>
	Women	4.43	4.00	-	4.44	2.83
	Men	4.00	3.20	-	4.28	3.61

**Table 55: Comparison of ratings by employed users for privacy parameter**

Usage category	User type	Namma toilet, Tirupathi	Medical college toilet, Tirupathi	E-toilet, Tirupathi	Ram Mandir toilet, Shimla	Totu Chowk toilet, Shimla
Unemployed	Average	<b>3.99</b>	<b>3.53</b>	<b>3.41</b>	<b>4.26</b>	<b>3.24</b>
	Women	4.04	3.31	3.00	4.53	3.09
	Men	3.95	3.63	3.45	3.68	3.56
Employed	Average	<b>3.75</b>	<b>3.23</b>	<b>3.01</b>	<b>4.39</b>	<b>3.02</b>
	Women	3.80	3.63	3.00	4.41	2.68
	Men	3.63	2.96	3.02	4.36	3.47
Casual or temporary workers	Average	<b>4.25</b>	<b>3.33</b>	-	<b>4.25</b>	<b>3.35</b>
	Women	4.29	4.00	-	4.53	2.76
	Men	4.00	3.20	-	4.12	3.62

**Table 56: Time-wise women user ratings on select parameters**

Time	Namma toilet, Tirupathi				Medical college toilet, Tirupathi				E-toilet, Tirupathi				Ram Mandir toilet, Shimla				Totu Chowk toilet, Shimla			
	Clean- liness	Safety	Privacy	Overall	Clean- liness	Safety	Privacy	Overall	Clean- liness	Safety	Privacy	Overall	Clean- liness	Safety	Privacy	Overall	Clean- liness	Safety	Privacy	Overall
6:00 AM																				
6:30 AM																				
7:00 AM	4.09	4.09	3.82	<b>3.92</b>	3.6	3.5	<b>3.5</b>	<b>3.54</b>	3.17	3	3	<b>3.03</b>								
7:30 AM	3.67	3.67	3.67	<b>3.67</b>	3.42	3.5	<b>3.42</b>	<b>3.68</b>	-	-	-	-								
8:00 AM	3.67	3.67	3.5	<b>3.57</b>	3.5	3.5	<b>3.5</b>	<b>3.7</b>	3	3	3	<b>3</b>								
8:30 AM	3.88	3.88	3.88	<b>3.85</b>	3.25	3.38	<b>3.25</b>	<b>3.5</b>	3	3	3	<b>3</b>								
9:00 AM	3.32	3.56	3.56	<b>3.54</b>	3.47	3.53	<b>3.53</b>	<b>3.64</b>	3.14	3.14	3	<b>3.09</b>					3.23	3.11	3.11	<b>3.57</b>
9:30 AM	-	-	-	-	-	-	-	-	3	3	3	<b>3</b>					-	-	-	-
10:00 AM	3.29	3.67	3.62	<b>3.43</b>	3.43	3.43	<b>3.43</b>	<b>3.43</b>	3	3	3	<b>3</b>	3.5	4.5	4.5	<b>4</b>	2.72	2.56	2.44	<b>3.11</b>
10:30 AM	3.71	3.81	3.81	<b>3.79</b>	3	3	<b>3</b>	<b>3</b>	3	3	3	<b>3</b>	3.25	4.33	4.33	<b>4.03</b>	3.26	3.42	3.58	<b>3.73</b>
11:00 AM	3.87	3.93	4	<b>3.46</b>	3	4	<b>3</b>	<b>3.2</b>	3	3	3	<b>3</b>	3.35	4.71	4.71	<b>4.29</b>	3.52	3.14	2.93	<b>3.57</b>
11:30 AM	3.88	4	4.13	<b>3.16</b>	3	3	<b>3</b>	<b>3</b>	3	3	3	<b>3.03</b>	3.29	4.5	4.67	<b>4.3</b>	3.29	2.95	2.86	<b>3.49</b>
12:00 AM	3.88	4.25	4.13	<b>4</b>	3.71	3.71	<b>3.71</b>	<b>3.71</b>	3.2	3	3	<b>3.04</b>	3.52	4.84	4.84	<b>4.45</b>	3.5	3	2.84	<b>3.53</b>
12:30 AM	3.5	3.5	3.5	<b>3.5</b>	5	5	<b>5</b>	<b>4.6</b>	3	3	3	<b>3</b>	3.75	4.8	4.65	<b>4.46</b>	2.95	3	3.05	<b>3.5</b>
13:00 PM	3.33	3.67	4	<b>3.8</b>	3.43	3.43	<b>3.29</b>	<b>3.2</b>	3	3	3	<b>3</b>	3.77	4.54	4.54	<b>4.32</b>	3.21	2.88	2.83	<b>3.36</b>
13:30 PM	3.25	3.25	3.25	<b>2.84</b>	3.48	3.39	<b>3.39</b>	<b>3.5</b>	3	3	3	<b>3</b>	3.42	4.42	4.42	<b>4.17</b>	3.56	2.94	2.94	<b>3.51</b>
14:00 PM	3	3	3	<b>1</b>	4	3.8	<b>3.8</b>	<b>3.8</b>	3	3	3	<b>3</b>	4.1	4.67	4.33	<b>4.44</b>	3.25	3.25	2.75	<b>3.6</b>
15:00 PM	5	5	5	<b>4.78</b>	4.25	4.75	<b>4.25</b>	<b>4.4</b>	3	3	3	<b>3</b>	3.58	4.58	4.5	<b>4.3</b>	3	2.5	2	<b>3.3</b>
15:30 PM	4.5	4.5	4.75	<b>4.55</b>	4.33	4.33	<b>4.33</b>	<b>4.07</b>	3	3	3	<b>3</b>	4.1	4.4	4.5	<b>4.46</b>	3	1.75	1.75	<b>2.9</b>
16:00 PM	4	4	4	<b>4</b>	-	-	-	-	-	-	-	-	3.5	4.21	4.43	<b>4.19</b>	3	1	1	<b>2.8</b>
16:30 PM	4.43	4.43	4.43	<b>4.23</b>	-	-	-	-	3	3	3	<b>3</b>	3.56	3.67	3.56	<b>3.87</b>	-	-	-	-
17:00 PM	4.56	4.56	4.56	<b>4.56</b>	-	-	-	-	-	-	-	-	3.62	4	4.08	<b>4.12</b>	-	-	-	-
17:30 PM	4.13	4.13	4.13	<b>3.88</b>	-	-	-	-	-	-	-	-	3	5	5	<b>4.3</b>	-	-	-	-
18:00 PM	3.78	3.78	3.78	<b>3.78</b>	-	-	-	-	3	3	3	<b>3</b>	5	5	5	<b>5</b>	-	-	-	-
18:30 PM	4.33	4.33	4.33	<b>4.33</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19:00 PM	-	-	-	-	-	-	-	-	3	3	3	<b>3</b>	-	-	-	-	-	-	-	-
19:30 PM	-	-	-	-	-	-	-	-	3	3	3	<b>3</b>	3.5	4.5	4.5	<b>4.3</b>	-	-	-	-



