HDFC
WITH YOU, RIGHT THROUGH

# IMPACT ASSESSMENT

FINAL REPORT

April 2022

## URBAN SANITATION

Household Toilets
in Urban Slums

4th Wheel
Social Impact
WSI

# TABLE OF CONTENTS

# LIST OF ABBREVIATIONS

| | |
|---|---|
| CTB | Community Toilet Blocks |
| FGD | Focus Group Discussions |
| KMC | Kolhapur Municipal Corporation |
| OD | Open Defecation |
| OECD DAC | OECD Development Assistance Committee |
| OHOT | One home, One Toilet |
| PCMC | Pimpri Chinchwad Municipal Corporation |
| SA | Shelter Associates |
| UNICEF | United Nations Children's Fund |
| UTI | Urinary Tract Infection |

# LIST OF FIGURES

# LIST OF TABLES



# ACKNOWLEDGEMENTS

The 4th Wheel team would like to extend its gratitude towards all study respondents for their insights and time. The research team is grateful for this opportunity to learn about the One Home, One Toilet programme through this impact evaluation study. The team would like to thank the HT Parekh team for their constructive inputs and valuable support. The team acknowledges the hard work of the Shelter Associates team to facilitate the data collection process and thank them for their technical inputs.

# EXECUTIVE SUMMARY

In association with the HT Parekh Foundation, Shelter Associates has been engaged in addressing open defecation in urban slums in Maharashtra since 2013 by building individual toilets in homes as part of the One Home, One Toilet (OHOT) programme. The retrospective evaluation by 4th Wheel assessed impact areas across three levels - individual, household, and community with a focus on 2 years, spanning 2019-20 and 2020-21 in Kolhapur and Pimpri-Chinchwad. 1011 households across 26 slums were reached in Kolhapur Municipal Corporation (KMC) while 416 households across 17 slums have been reached in Pimpri-Chinchwad Municipal Corporation (PCMC) in the last 2 years.

305 respondents were reached in the study. 52 respondents participated in the study from PCMC and 253 respondents participated from KMC slums. There was higher representation of females in the sample. Females accounted for 61% of the respondents, while 38% respondents were males[1]. The average age of respondents was 40 years. A larger number of households across PCMC and KMC had daily wage workers (52%) followed by people holding private jobs (49%) and business (16%). 63 households that were reached in the PCMC and KMC, were characterised by the presence of vulnerable groups viz. elderly, disabled, children and women.

- **Program Impacts**

**1. Improved Access**

Before the construction of toilets, most people used Community Toilet Blocks (CTBs) in PCMC (81%) and KMC (97%). Open defecation was more prevalent in KMC (19%) than PCMC (16%). In both locations, approximately 80% households faced issues with sanitation before household toilets were built.

- Lack of hygiene in CTBs was stated by maximum respondents across PCMC (56%) and KMC (86%). Maintenance and cleanliness of CTBs were not regular and the unavailability of water made it difficult to clean CTBs daily.
- CTB was difficult to access for children, elders, pregnant women and persons with injury or disability as the CTB would have overflowing water making the pathway slippery. In some slums like More Vasti in PCMC, the CTB was situated on a hill. Pregnant ladies, elderly people and especially persons with disabilities found it very difficult to access the respective CTBs as they would get tired of holding buckets in a long queue for using the CTB. Flooding during monsoon made using CTBs or going for open defecation difficult due to accumulation of water in both PCMC and KMC.
- Lack of privacy was also an issue (44% in PCMC, 59% in KMC) as the toilets didn't have doors or latches. Women respondents highlighted safety concerns as they needed company to go after sunset.

88% of the total respondents (across PCMS and KMC) reported an improvement in ease of access and convenience. 85% of the respondents stated that there had been an increase in ease of access and convenience for children/elders/pregnant women/ disabled.

[1] There were two transgenders who participated in the study

**2. Toilet Usage**

Higher number of respondents in PCMC (88%) in comparison to KMC (84%) had all family members using toilets. In 16% households in KMC and 12% households in PCMC, there is at-least one person in the house who either used Community Toilets or resorted to Open Defecation[2].

In both locations, many male members of the family were not using the household toilet. Of those who stated reasons for not using toilets, using CTBs as a habit was the most common response across both PCMC (56%) and KMC (78%). Reduced space in houses was the most common issue as reported by respondents in PCMC and KMC, followed by foul smells.

**3. Time Saving**

Since all CTBs are located at a slum level, reaching them did not take too much time, i.e., average time taken to walk to the CTB was 7 minutes in PCMC and 6 minutes in KMC. In PCMC, on average, the waiting time to use the CTB is 13 minutes. In KMC, the overall average wait to use a CTB was 20 minutes

Larger number of respondents in KMC (93%) stated time saving as a big advantage of household toilets, in comparison to PCMC households (75%).

**4. Safety and Privacy**

Higher number of respondents in KMC stated an improvement in privacy (71%) and safety (67%) in comparison to respondents in PCMC stating improvements in privacy (56%) and safety (40%). Some respondents mentioned that at late evenings it was difficult to go for open defecation as there were no lights and they also mentioned getting bitten by snakes and scorpions while practicing open defecation. To maintain privacy, respondents go very far from their houses to defecate in the open.

**5. Dietary Practices**

Dietary restrictions are curtailed owing to household toilets, resulting in good health outcomes for women, children, elders and disabled. Across PCMC and KMC, 19% households use and to restrict their liquid consumption at night and 27% of respondents used to restrict their food consumption at night. Numbers have decreased to only 2% households having dietary restrictions *(liquid intake and food consumption at night)* after building household toilets.

**6. Hygiene Practices**

Larger number of respondents in KMC (66%) feel there is an improvement in personal hygiene and cleanliness in comparison to respondents (35%) in PCMC.

There is a significant improvement in the number of times sanitary products are changed during menstruation, among both PCMC and KMC respondents. In PCMC, women who used to change pads more than three times a day was 4% before, which increased to 43% after construction of the household toilet. In KMC, since building the household toilet, 74% of menstruating women respondents change their material more than twice as compared to 20% prior to toilet building.

[2] Even though this area has been declared as Open Defecation Free, there were reports of residents resorting to open defecation

## 7. Health Outcomes

Higher number of respondents attributed improvement in family health from KMC slums (57%) in comparison to respondents in PCMC slums (38%). Very few households (6% in PCMC and 9% in KMC) reported family members suffering from water borne diseases in the last three months.

Usage of household toilets by all members tends to reduce the diseases caused by water and hygiene facilities. Only 6% of households where all members use the toilet suffered from water borne diseases vs. 17% of the household where at-least one member do not use HH toilet suffered from water borne diseases. Higher number of respondents attributed improvement in family health from KMC slums (57%) in comparison to respondents in PCMC slums (38%).

## 8. Household Level Impacts

A much larger number of respondents in KMC (58%) agreed that household toilets have led to improved social status where only 21% respondents in PCMC stated this. This was mainly related to getting better marriage proposals, being able to invite guests over, etc. In KMC slums during the interview respondents mentioned that after building household toilets guests feel more comfortable and welcome in their house.

## 9. Community Level Impacts

Respondents from KMC perceived much higher levels of impact at a community level in comparison to their PCMC counterparts. 56% respondents in KMC felt that toilets have resulted in overall cleanliness of their slum. 23% KMC respondents felt the program resulted in strengthened community cohesion[3]. KMC respondents (28%) felt that property values and rents have increased in the area owing to household toilets.

## 10. Covid-19

For 75% of the respondents in both KMC and PCMC, the biggest advantage of having a toilet at home during the Covid-19 pandemic was convenience, hygiene, and less exposure.

- **Toilet Infrastructure**

A higher proportion of households had toilets inside the house (67% PCMC, 57% KMC) in comparison to those who had toilets outside their house (33% PCMC, 43% KMC). As the toilets were built inside the homes, some of the respondents faced issues like reduced space, closeness to kitchen, foul smell, rat infestation, etc.

Toilet infrastructure was seen to better in PCMC households in comparison to households in KMC slums. More households in PCMC had hand wash sinks (25%) in comparison to those in KMC (3%). In PCMC 96% had soap available in toilets while only 62% toilets in KMC had soap available in toilets. In PCMC, 77% of the households had functional lights in the toilet, whereas in KMC, functional lights were available in 66% of toilets. In collaboration with the Municipal Corporations, Shelter Associates built more drainage infrastructures in KMC (82%) as compared to PCMC (24%), since drainage systems in terms of existing sewage lines were better in PCMC than KMC.

[3] A cohesive community is one where there is common vision and a sense of belonging for all communities

More households had individual tap water connections in PCMC (94%) than KMC (91%). However, regularity of water supply was seen to be better in KMC slums than in PCMC. While 96% of households in KMC had water supply every day, only 35% of households in PCMC had water supply every day.

- **Toilet Maintenance and Cleaning**

Respondents use water to flush after every use in PCMC (98%) than KMC (96%). Frequency of cleaning toilets is higher in PCMC than KMC. The water supply hours and timings highly impact the cleaning of the toilets. As the water supply hours per day increases, the frequency of toilet cleaning also increases[4].

Toilet cleaning materials were stated by all respondents, but the type used was dependent on the type of drainage. Usage of liquid toilet cleaner was more prevalent in sewage line vs. septic tank. 75% of households who have sewage line use liquid toilet cleaner vs. 62% of households with septic tanks use liquid toilet cleaner.

In KMC, 92% respondents who had septic tanks[5] could explain maintenance and use of the septic tank. However, SA staff and respondents did point out many households do not have adequate information on using and maintaining septic tanks.

In terms of recommendations, there is a need to work with local corporations for improving regular water supply to ensure sustained toilet usage and cleaning. Toilet designs must include water storage space, handwashing sinks, availability of lights and adequate ventilation. Awareness on maintaining septic tanks is crucial to ensure long term usage of toilets and sustainability of impacts. Materials provided for the toilets need to be reviewed, since there was negative feedback in terms of the material provided, especially for the doors, tiles and the 10ft pipe. Training programs and community engagement should show higher recall data and ensure to include comprehensive list of topics on hygiene and sanitation. Cost sharing and affordability of toilets should be considered, and level of support can be decided based on financial conditions and household incomes. If impacts on health, safety and privacy want to be brought about among communities, maintenance of CTBs should be a focus. Partnering with Corporations for regular drainage cleaning and waste management should be a priority.

- **Program Participation and Feedback**

The main reason for not building prior to OHOT program was unavailability of sewage line (62%) in PCMC, while in KMC the prominent reason was high construction costs (72%). Maximum respondents in PCMC (92%) and KMC (83%) came to know about the program through door-to-door visits and community meetings organised by Shelter Associate team members. There were respondents who were part of the sanitation committees across PCMC (12%) and KMC (20%).

There was good recall on interactions of respondents with Shelter Associates staff. The average number of interactions were 5 meetings for PCMC and 10 meetings for KMC. Across both locations, ratings[6] were higher for interactions with SA staff in comparison to ratings on the raw materials provided for the toilets.

Higher number of respondents in KMC (38%) took loans to build toilets than respondents in PCMC (15%).

[4] The correlation coefficient is 0.89, which essentially means there is a strong and positive correlation between supply of water and toilet cleaning frequency.
[5] n=198
[6] 5-point Likert scales were used to garner program feedback on interactions with SA staff and quality of material provided to build the toilet.

While analysing loans between those who constructed only toilets and those who also undertook house renovations, 51% of those who took loans only constructed toilets in KMC whereas in PCMC 63% only built toilets. The average amount of loan to build the toilet is INR. 16,894 whereas the INR. 79,763 is the average loan amount who have decided to upgrade their house along with the toilet construction.

# 1. INTRODUCTION

## 1.1. Background

**Target 2 of Sustainable Development Goal 6 states that "access to adequate and equitable sanitation and hygiene for all and the end of open defecation" are fundamental, with special emphasis on women, girls and vulnerable groups.** One major component of sanitation is a household level toilet. In the Indian context, the Swachh Bharat Mission has provided impetus to toilet-building. Since its implementation in 2014, those who engaged in open defecation had reduced by 450 million (UNICEF) by 2019.[7] Nevertheless, sustained, and comprehensive efforts are needed to plug the hole around toilet access, availability, and sanitation practices. In Indian slum contexts, there is an inadequate number and capacity of Community Toilet Blocks (CTBs), which subsequently leads to ineffective sanitation practices, facilities, and behaviours. Adequate sanitation has an intrinsic value to human health and wellbeing, integral to ensure lifelong adequate health, hygiene, and wellbeing.

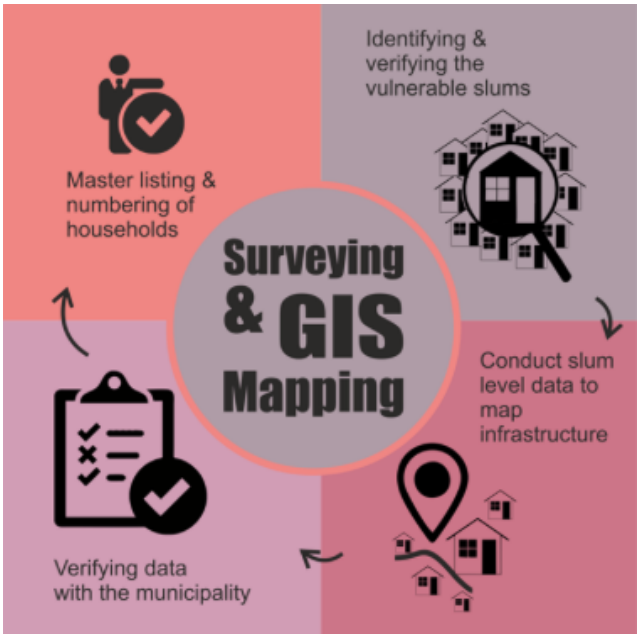
**The HT Parekh Foundation has been working to enable 'access and opportunity to transform lives' for vulnerable communities such that they can transition from 'surviving to thriving'.** As part of its efforts to empower individuals and strengthen communities, the Foundation has been engaged in interventions related to Education, Healthcare, Livelihoods, Health and Sanitation, since 2012. **In association with the HT Parekh Foundation, Shelter Associates has been engaged in addressing open defecation in urban slums in Maharashtra** since 2013, by building individual toilets in homes as part of the One Home, One Toilet (OHOT) programme.

## 1.2. The OHOT programme

**The OHOT programme builds on the premise that more individual household toilets will reduce the strain on CTBs, end ODF, and improve general health and hygiene.** The OHOT programme has 3 main components: Step 1 relates to surveying and GIS mapping through which rapid household and infrastructure surveys are undertaken. Once this mapping exercise is completed and verified, the second step entails community mobilisation through meetings, workshops, and focus group discussions (FGDs) with community members and stakeholders. Once community buy-in into the OHOT programme is enabled, the final and third step is that of toilet construction.

[7] Strengthening sustainable WASH programming. *UNICEF*. https://www.unicef.org/india/what-we-do/water-sanitation-hygiene

*Figure 1: Step 1 of the OHOT programme (Source: Shelter Associates website)*



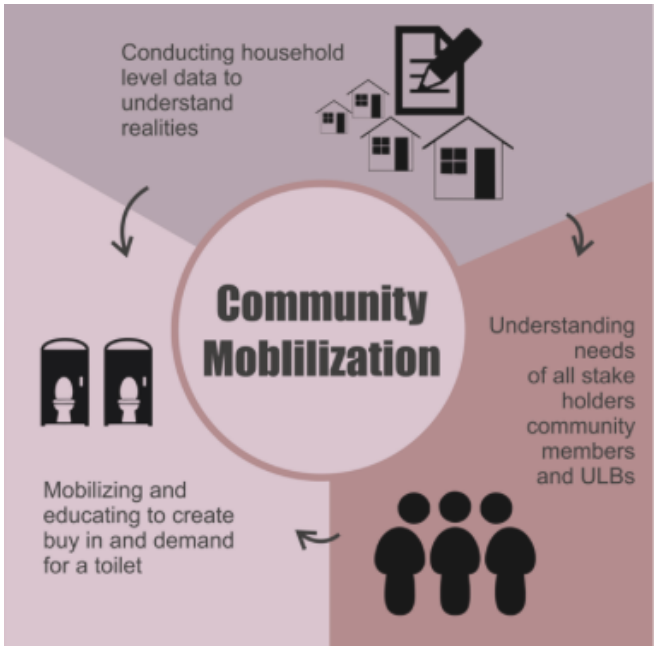

**As part of the first step, slum-level and household-level data is mapped and integrated with the specific informal settlement via the Geographic Information System (GIS).**[8] All existing physical structures, infrastructure, and features within informal settlements are mapped as against the data held by the Associated Ward Officer. This includes physical structures such as dwellings, CTBs, schools, clinics, factories, shops community halls, temples, mosques, etc. Features and amenities such as open spaces, areas of open defecation, areas of open garbage dumping, water bodies, cattle sheds, and physical infrastructure including roads, lanes, water wells, water supply pipes, water stand-posts/hand pumps, water taps, electricity lines and poles are mapped. After this, dwellings are assigned a Unique Reference Identities (URI). Subsequently, an overall and accurate map of the informal settlement is generated. As a next step, sewage infrastructure including sewage lines, pipe diameters, slopes, blocked pipes, and broken manholes/chamber covers are located.

**Subsequently, rapid household surveys (specific to each household, place of defecation, and their interest to build a household toilet) are carried out with each family within the settlement.** This helps to build an understanding of the families living in the informal settlement. Community members are involved in collecting this data. Similarly, rapid infrastructure mapping is carried out where OHOT specific information is gained. This includes information relating to toilets, water supply, solid waste management systems, sewage management infrastructure and road and access information.

**This data is then imported into GIS to give a detailed intervention plan to meet the gaps in the delivery of sanitation.** In Kolhapur, 57 slums have been surveyed while in Pimpri Chinchwad, 76 slums have been surveyed and mapped.[9] This data is also shared with relevant government stakeholders. Where feasible, this data is utilised to further enabling infrastructure that could help the optimal functioning of the OHOT programme. For instance, in Kolhapur, the data from the infrastructure mapping informed the process of laying and upgrading the drainage lines in areas that were not equipped to handle the new channels of waste. In Kolhapur, it also utilised by the Corporation to distribute masks and other relevant materials in the Covid-19 context. In 2020-21, this data was utilised to roll out digital addresses to households across various cities in Maharashtra.

[8] Creating Spatial Data. *Shelter Associates*. https://shelter-associates.org/downloads/Sanitation/CHAPTER%201_CREATING%20SPATIAL%20DATA.pdf
[9] Slum Data. *Shelter Associates*. https://shelter-associates.org/index.php

*Figure 2: Step 2 of the OHOT programme (Source: Shelter Associates website)*




**As part of the next stage of community mobilisation, interactions are held with the relevant stakeholders and local community members**.[10] The local elected representative is familiarised with the OHOT implementing agency and methodology and leader buy-in is achieved. Subsequent to this, community buy-in is understood and enabled. To this end, door-to-door visits, open community meetings, transect walks, corner meetings, focus group discussions, workshops with different stakeholders, and children's workshops are held. Interactions are held with all households that do not have toilets, but may or may not be interested in building toilets. OHOT beneficiaries from previous projects are brought in to share their experiences of building toilets and its benefits to them, their community, and the conditions in their settlement. Area-specific information is gained on sanitation, cleanliness, and general problems, while details about the OHOT process (costs, delivery, outcome and probable impact) programme are shared with participants. As a final part of this stage, a sanitation committee is formed, with the intent that community women and men will be able to address challenges in the settlement independently. In addition, the committee is also intended to act as an informed intermediary for the local residents of the settlement. Prior engagement via the mapping stage and other interactions with community members are utilised by SA implementation staff to identify potential candidates for the sanitation committee.

*Figure 3: Step 3 of the OHOT programme (Source: Shelter Associates website)*


**The final step is that of toilet construction.** Once the family has indicated agreement towards building the toilet, an undertaking is signed. As part of this, the rights and responsibilities of the beneficiaries and OHOT implementing agency are

[10] Mobillizing Communities. *Shelter Associates*. https://shelter-associates.org/downloads/Sanitation/CHAPTER%202_MOBILIZING%20COMMUNITIES.pdf

laid out and agreed upon. [11]The labour cost of building the toilet is undertaken by the beneficiary while the construction material and components are provided by Shelter Associates and a funding agency. The toilet construction occurs over 3 phases, and completion of each phase paves the way for receipt of material for the next phase. Once the toilet is completed and usage has begun, a follow-up activity is undertaken by Shelter Associates implementation staff.

**Between 2013 and 2016, SA's efforts as part of the OHOT programme, were concentrated in Pune and Sangli-Miraj.** These efforts were subsequently replicated in Kolhapur and Pimpri-Chinchwad, among other places. In Kolhapur, the data collection for the programme was first launched in Rajan Nagar and Bondhre Nagar in 2015 while toilet building began in 2016.

## 1.3. Evaluation Scope

**The retrospective evaluation by 4th Wheel assessed process and outcome areas of inquiry across three levels - individual, household, and community with a focus on 2 years, spanning 2019-20 and 2020-21 in Kolhapur and Pimpri-Chinchwad.**

As per available data, 1011 households across 26 slums have been reached in Kolhapur Municipal Corporation (KMC) while 416 households across 17 slums have been reached in Pimpri-Chinchwad Municipal Corporation (PCMC) in the last 2 years (Table 1).

*Table 1:Overview of Program Coverage*

| **Year** | **KMC** | | **PCMC** | | **Total** | | **Funding (INR Cr.)** |
|---|---|---|---|---|---|---|---|
| | Slums | Households | Slums | Households | Slums | Households | |
| 2019-20 | 16 | 711 | 17 | 416 | 33 | 1127 | 2.36 |
| 2020-21 | 10 | 323[12] | 0 | 0 | 10 | 323 | 0.77 |
| **Total** | **26** | **1034** | **17** | **416** | **43** | **1450** | **3.13** |

[11] Delivering Toilets. *Shelter Associates*. https://shelter-associates.org/downloads/Sanitation/CHAPTER%203_DELIVERING%20TOILETS.pdf

[12] For the purpose of the study, the sampling universe details for KMC in 2020-21 is 300 instead of 323. The construction of some toilets' was delayed due to the second Covid-19 wave in India.

# 2. METHODOLOGY

**The study adopted a mixed method, retrospective evaluation approach.** Quantitative information and qualitative inputs were gathered through surveys and semi-structured interviews respectively. The technology platform SurveyCTO was used to collect quantitative data.

## 2.1. Study Objectives

**The purpose of the Impact Assessment was to understand the impact of the OHOT program** and gain insights into the transformational changes brought about at the individual, household, and community levels (Annex 1). Specifically, the objectives of the study were as follows:

- To profile beneficiaries who have participated in the OHOT programme
- To document and review the implementation processes of the OHOT program
- To assess outcomes and impact at 3 levels- individual, household, and community
- To analyse the programme based on the evaluation criteria defined by OECD/DAC i.e.: relevance, efficiency, effectiveness, impact, coherence, and sustainability.

## 2.2. Sampling

**The sample universe for 2019-20 and 2020-21 in the two geographies under study was a total of 1450 households.** The sample size was calculated as 303 respondents, based on a 95% confidence level and confidence interval of 5. To obtain the final list of respondents to be contacted for the study, a multi-stage cluster sampling approach was used.

**As a first step, the sample universe was stratified according to geography**. A sample size of 253 households from KMC and 52 households from PCMC were defined. KMC accounts for more recent engagement (2019-20 and 2020-21) and higher coverage of households (1127 of 1450 households). Therefore, the sample size was distributed such that KMC accounts for 83% while PCMC gets 17% coverage as compared to 71% and 29% for KMC and PCMC respectively in the universe. Table 2 below depicts this breakdown.

*Table 2: Sample Universe to Sample Size (Households) Overview*

| Location | Sample Universe (Households) | Sample (Households) |
|---|---|---|
| KMC | 1034 (71%) | 253 (83%) |
| PCMC | 416 (29%) | 50 (17%) |
| **Total** | **1450** | **303** |

**83% respondents included in the study had toilets built in 2019-20** while 17% built their toilets in 2020-21, showcasing a higher sample representation from households supported in 2019-20.

*Table 3: Sample Universe to Sample Size (Timeline) Overview*

| Year | Sample Universe | Actual reach |
|---|---|---|
| 2019-20 | 71% | 83% |
| 2020-21 | 29% | 17% |

**As the next step to identify the slums to be included in the study, slums were stratified according to the presence of vulnerable groups at a household level.** The slum areas with a higher intersection of presence of vulnerable groups in households, were chosen to be included in the study. The specific slums and number of households was determined by the presence of a minimum of 4 vulnerable groups viz. elderly, women, children, and disabled persons. Based on this rationale, 9 slums were shortlisted for KCMC and 5 were shortlisted for PCMC. Once the slums were identified, proportion to percentage of sampling was undertaken to get a final number of households to be included in the study (See Table 4).

**A total of 305 respondents were reached in the study.** 52 respondents were reached in PCMC and 253 respondents participated from KMC slums.

*Table 4: Slum-wise breakdown of respondents in KMC and PCMC*

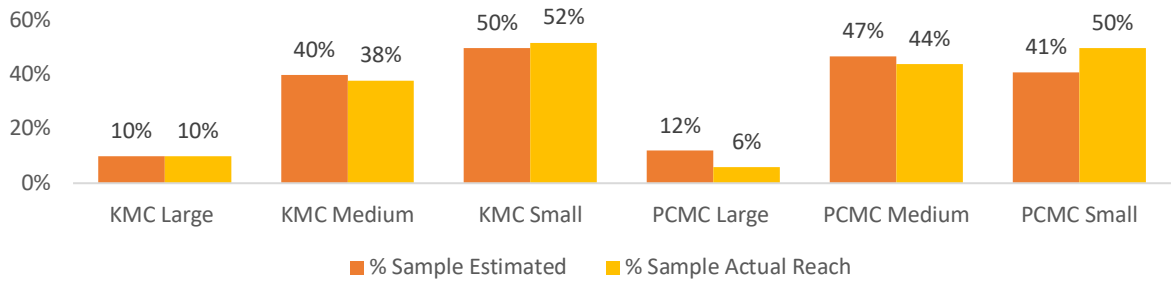
| **Slum Name** | **No. of Respondents** | **Respondent percentage** | **Vulnerable Groups** | **Slum Name** | **Number of Respondents** | **Respondents percentage** | **Vulnerable Groups** |
|---|---|---|---|---|---|---|---|
| United Agency | 46 | 18% | 6 | Balaji Nagar | 19 | 37% | 1 |
| Ambedkar Nagar | 40 | 16% | 15 | More Vasti | 13 | 25% | 1 |
| Awachit Nagar | 32 | 13% | 5 | Sanjay Gandhi Nagar | 9 | 17% | 2 |
| Phule Wadi | 26 | 10% | 3 | Vidhya Nagar | 7 | 13% | 2 |
| Takala Khan | 26 | 10% | 6 | Shanti Nagar | 4 | 8% | 3 |
| Bhagat Singh Vasahat | 24 | 9% | 5 | | | | |
| Kadam Wadi | 23 | 9% | 5 | | | | |
| Salokhe Nagar | 18 | 7% | 6 | | | | |
| Dombar Wada | 18 | 7% | 6 | | | | |
| **Total** | **253** | **100%** | **57** | **Total** | **52** | **100%** | **9*** |

**The number of vulnerable households to be reached in each slum was determined.** In KMC, while 63 vulnerable households were aimed to be reached, 57 vulnerable households were reached for the study. In PCMC, 17 vulnerable households were to be reached, but only 9 were traced and reached (Annex 2).

**As the next step, the sample was stratified over other variables such as size of household (medium, small, and large), level of upgradation (full upgradation, partial upgradation, and only toilet) and type of sewage line, via the proportion-to-percentage method.**

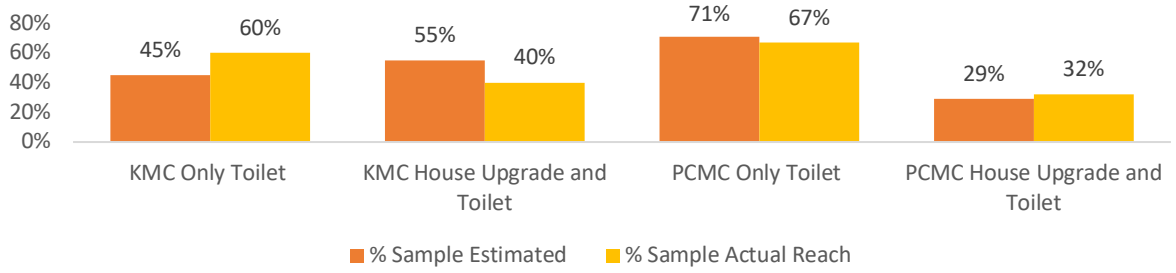
**The final list of respondents included in the study in terms of family size is similar to the estimated sample bifurcation.** The sample stratification for KMC is representative of the estimated numbers, but there are fewer large family households included from PCMC than estimated (Fig. 4).

*Figure 4: Estimated Vs Achieved Sample (Family Size)*



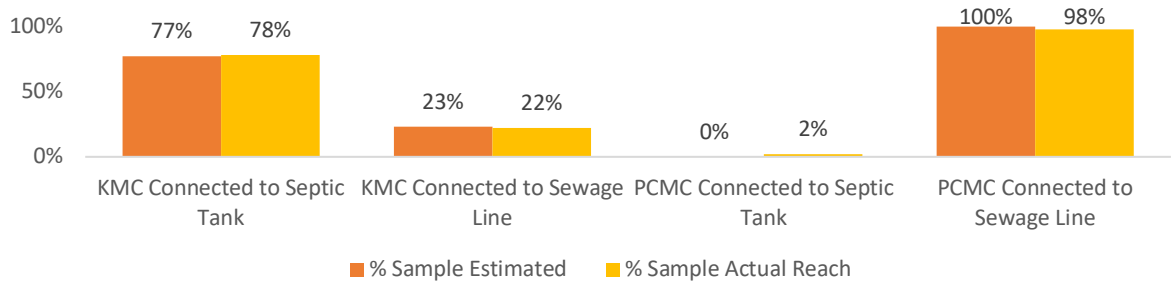

**With regards to level of upgradation, sample stratification differs slightly.** In KMC more respondents who had only built toilets were included as compared with the estimated sample stratification. PCMC sees a similar actual sample than the one estimated (Fig. 5). This is because there were some households who were not reached as estimated in the sample.

*Figure 5: Estimated Vs Achieved Sample (Type of Upgradation)*




**The final sample reached was exactly similar to the estimated stratification in terms of type of drainage. While** no households were estimated to have septic tanks in PCMC, one household (2%) had this type of drainage (Fig.4).

*Figure 6: Estimated Vs Achieved Sample (Type of Drainage)*




**The final list of 303 respondents to be included in the study was determined as per the above outlined approach to sampling.** To get an overview of sample calculations and final household lists, please refer here.

An additional 10 stakeholders were interviewed for the study across PCMC and KMC comprising of community leaders (4), Government staff (2), and SA Implementation team members (4). For respondent profiles, please refer Annex 3.

*Table 5: Key Informants/ Respondents*

| Type of Stakeholder | KMC | PCMC | Total |
|---|---|---|---|
| Community Leader | 2 | 2 | 4 |
| Government Staff | 1 | 1 | 2 |
| SA Implementation Staff | 3 | 1 | 4 |
| **Total** | **6** | **4** | **10** |

## Slum Profiles

**The five slums visited in PCMC were Balaji Nagar, More Vasti, Shanti Nagar, Sanjay Gandhi Nagar and Vidhya Nagar.** The streets were extremely narrow in all slums. Street dogs were a menace in many places which affected people engaging in open defecation and there were many cases of dog bites in these areas. In all five slums, there were CTBs with both women and men blocks. Infrastructure and cleanliness were poor in all CTBs. The CTBs had severe leakage issues, and chambers were overflowing due to poor drainage and even open in some places, owing to which wastewater went into people's homes. This resulted in health issues among residents owing to unhygienic surroundings. CTBs in Vidhya Nagar were comparatively better than the other four slums. The Sanjay Gandhi Nagar slum was cleaner and Vidhya Nagar was visibly more economically well-off in comparison to others. For specific details on each slum in terms of prevalence of open defecation, quality of CTBs and overall slum infrastructure in PCMC, please refer to Annex 4.

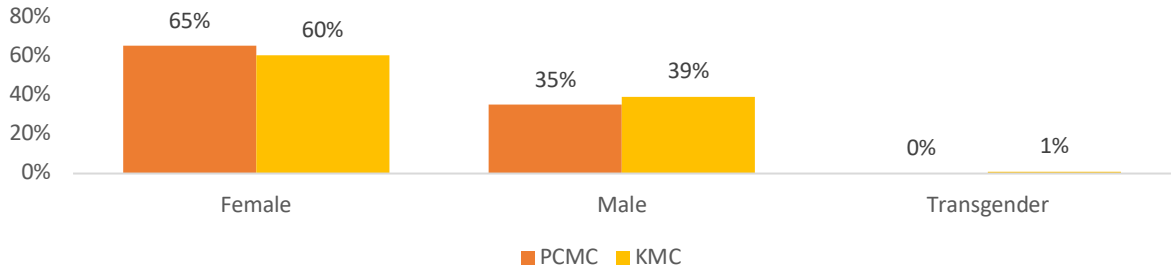
**The 9 slums visited in KMC were Awachit Nagar, Ambedkar Nagar, Phule Wadi, Takala Khan, Kadam Wadi Kapoor Vasahat, Salokhe Nagar, Bhagat Singh Vasahat, Dombar Wada, and United Agency.** Mostly, internal slum roads were narrow with open gutter lines prevalent in some of the slums, contributing to a persisting stench and posing as a health hazard. In comparison, Phule Wadi had clean roads and metered water connections. Frequency of garbage collection was area-specific with a garbage bin coming in twice a day in Phule Wadi, Bhagat Singh Vasahat and Salokhe Park, and once a week in all other areas except for Dombar Wada. Dombar Wada was visibly unclean as a result of infrequent garbage collection and bad drainage. All of the 9 slums had male and female CTBs. None of the CTBs visited charged a fee for usage, however, except for one CTB in Salokhe Park where users decided to maintain CTB cleanliness themselves, CTB infrastructure and

cleanliness was inadequate all across. In certain CTBs in Awachit Nagar and Salokhe Park, toilets were cleaned as little as once and twice a week. For specific details on each slum in terms of general area and area infrastructure overview, prevalence of open defecation, quality of CTBs in KMC, please refer to Annex 5.

## Respondent Profiles

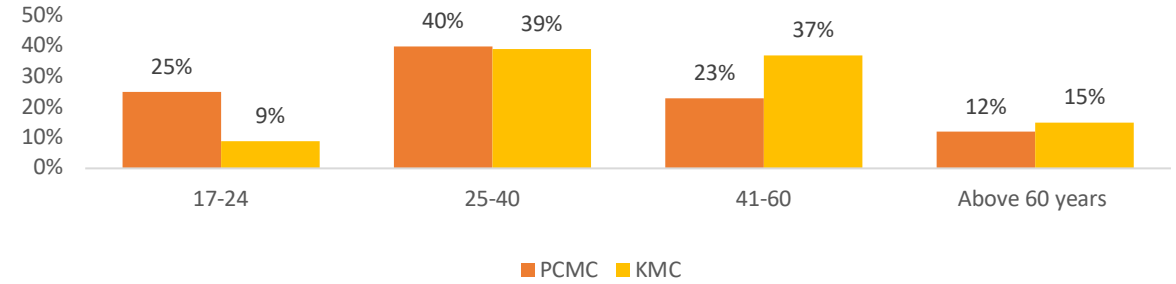
**There was higher representation of females in the sample. Females accounted for 60% of the respondents in KMC and 65% of the respondents in PCMC**. In KMC, data collection occurred during the daytime, thus females who were homemakers were more easily available for interviews as compared to male respondents. Similarly, in PCMC, the lower number of male respondents can be attributed to them being at work. Instead, the females in the houses were interviewed. In addition, those males who had returned home during lunch hours were interviewed. Males accounted for 40% of the respondents in KMC while 35 % of the respondents in PCMC were male. In KMC, 2 transgender individuals were also interviewed in United Agency.

*Figure 7: Respondent Gender*




**The average age of respondents across the 9 slum areas in KMC was 43 while the average age of respondents across the 5 slums in PCMC was 39. The median age of KMC respondents was 41 while in PCMC the median age was 33.** In PCMC, 40% of the respondents in the study were between the ages 25-40 years. A cumulative 38% of respondents were above the age of 41 while 25% were between the ages of 17 and 24. In KMC, the highest number of respondents (39%) were from the young to the middle age group of 25 to 40, while 37% belonged to the 41 to 60 age group. Since availability of respondents drove participation in the interview, 15% of respondents belonged to the senior category of 61 to 90 while youth in the age group of 17 to 24 accounted for 9% of the total sample since they may have been engaged in work or education-related activities.

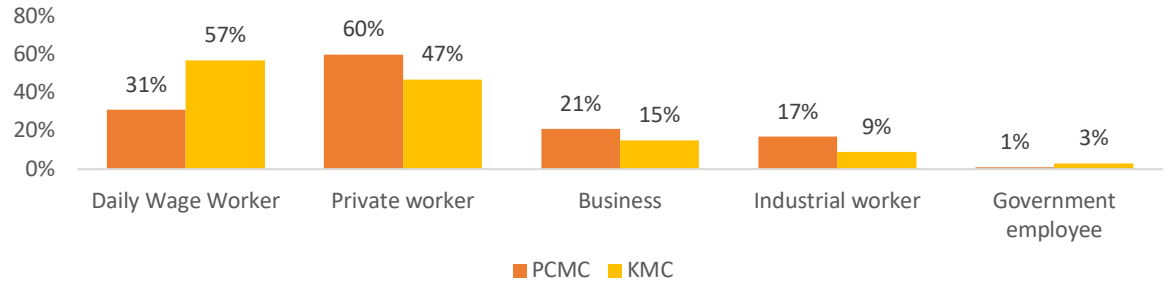
*Figure 8: Respondent Age*



**Few disabled persons[13] were included in the study.** In KMC, 4% (10) of the respondents were disabled while 6% (3) of the respondents in PCMC were disabled. In KMC, out of the total persons with disabilities, 9 had locomotive[14] disorder while only 1 respondent had visual impairment. Ambedkar Nagar had the highest number (5) of persons with disability respondents, whereas Dombar Wada and United Agency had 2 respondents each. 6 male and 4 female were disabled in the study. The highest number of locomotive disorder respondents (4) was observed in the age group of 41 to 55. The visually impaired respondent was interviewed in Salokhe Park slum. In PCMC, 3 of the respondents in the sample were disabled, all of whom were in the above 55 age category. 2 of the male respondents who had a locomotive disability belonged to Vidya Nagar, while the female respondent who had a hearing disability was in Balaji Nagar (Annex 6).

**A larger number of households had daily wage workers in KMC (57%) as against PCMC (31%), while PCMC had more households with people holding private jobs (60%) in comparison to KMC (47%).**

*Figure 9: Occupation Profiles*




**In PCMC, of the 52 respondents, a minimum of 68 household members were reported to be working.** 60% mentioned that at least 1 household member was engaged in private work in capacities as drivers, carpenters, operators, delivery partners, and security guards. 31% mentioned that at least 1 member was involved in daily wage work like rickshaw drivers, labour, etc. 17% of the respondents mentioned at least 1 member who was involved in industrial work in factories as machine operators, manual laborers, etc., as the slums were near to the MIDC industrial area. 21% mentioned 1 member who had their own business such as a clothes shop, tailoring, general store, etc.

**In KMC, in 253 households, a minimum of 333 persons were reported to be working, with daily wage work being more prevalent.** 57% of the households had at least one member who is a daily wage worker, followed by 47% households where one member was involved in private jobs. Daily wage work included those who were engaged in painting, masonry work, carpentry, construction work, plumbing, and industrial fitting while private work entailed occupations such as domestic house help, security guard, technician, sweeper, sales men, mechanic, cleaner, and cook.

## 2.3. Tools and Methods

**In addition to the main beneficiary survey, a structured interview tool was utilized for each of the other respondent types**, i.e.: 1) Community Leader, 2) Government Stakeholder, and 3) SA Implementation staff. A slum profile was also used for observations by the research team, with a specific focus on area cleanliness, state of CTB infrastructure and ODF practice, and general area details.

[13] Only the respondents who possessed a disability certificate are considered disabled in the study.
[14] Locomotive disorder is a condition where persons' mobility and movements are restricted.(i.e. Paralysis and handicap)

*Table 6: Overview of Research Tools*

| | |
|---|---|
| **BENEFICIARY TOOL** | The beneficiary tool comprised 8 key sections, which include: 1) Personal Details, 2) Family Details, 3) Access to Sanitation, 4) Knowledge, Attitudes and Practices (KAP) towards sanitation 5) Housing, Water and Sanitation Infrastructure, 6) Program Engagement, 7) Impacts on Health, Safety and Social Norms and 8) Community profiling assessing overall slum conditions in terms of infrastructure |
| **SEMI-STRUCTURED INTERVIEWS** | The interview collected insights on 6 sections: 1) Personal Demographics, 2) Relevance, 3) Programme Engagement, 4) Efficiency, 5) Impact, and 6) Sustainability. |
| **SLUM PROFILE TOOL** | The Slum Profile Tool was a tool which covered 5 aspects such as 1) CTB infrastructure and Usage, 2) Drainage Infrastructure, 3) Open Defecation prevalence, 4) Housing and Employment overview, 5) Other entities working in the slum. In addition, this tool was utilized to capture images specific to slum entry points, CTB, housing structures, and ODF areas where possible. |

**To ensure consistency of research and quality data collection, multiple trainings were conducted with surveyors,** which briefed them on the programme context, research background, objectives, and basic research ethics to be followed to form positive relationships with respondents.

## 2.4. Data Analysis

**The data was inputted and cleaned directly on Microsoft Excel.** Relevant data was extracted from the raw data and data was analysed at 3 levels (individual, household and community) on the basis of the indicator framework. The beneficiary insights and feedback on impact outcomes were analysed based on their yes/no responses. Their corresponding qualitative quotes were coded and key impact areas were outlined. In addition, data was also analysed on certain variables such as income, gender, and household size via cross tabulations to understand trends, similarities and differences.

**1. Data Cleaning:** All the variables of the response data were checked for outlier and data type.

**2. Data Structuring**: To prepare the dataset for analysis, for multiple answer questions, the dataset was transformed from a wide structure to a long structure.

**3. Exploratory Data Analysis**: EDA was conducted on survey data to check the prevalence levels of toilet usage. The respondent behaviour and practices were isolated to identify the trend for ideal behaviour and practices. MS Excel was used as a tool for EDA.

I. **Comparative Analysis at Municipal Corporation Intersection** was done for the following categories:
    1. Housing Infrastructure
    2. Toilet Infrastructure

3. Program Engagement
4. Areas of Impact

II. **Prevalence levels analysis of toilet usage** were done on:

1. Municipal Corporation Intersection
2. Demographic Intersection
3. Family Intersection
4. Housing Profile Intersection
5. Health Intersection

**4. Data Visualisations:** The data analysis was visualized with appropriate charts and graphs to identify trends. Based on the visualization, uptrend and downtrend were identified. MS Excel was used for Data Visualisation.

**The data collected from the other qualitative tools was transcribed systematically and entered into an outlined indicator grid**. This data was then organised on the basis of assessment objectives, and analysed to understand the perceptions of government stakeholders, community leaders and SA implementation staff.

## 2.5. Study Limitations and Mitigation Strategies

**Data collection and analysis was carried out in a sufficiently sound way that allows for evidence-based conclusions and analysis-based recommendations.** The table below the main challenges faced in detailed overview of the challenges and mitigation strategies to address these can be found below.

*Table 7: Research Limitations and Mitigation Strategies*

| Research Limitation and Challenge | Mitigation Strategy |
|---|---|
| The areas were unfamiliar terrain for team members geographically which made locating houses difficult. Areas like Balaji Nagar and Awachit Nagar had a wide expanse, In other areas, especially such as Takala Khan, houses were difficult to locate while some other areas, the house numbers (given by SA) had been painted over. | The presence of SA team members was integral to the process of locating houses, and they helped to quickly reach houses. In a couple of areas, SA team members connected the data collection team with local community members who had worked closely with SA in the past and they directed the team to houses. |
| Locked households presented a significant challenge to ensuring appropriate sampling. In Balaji Nagar in PCMC, the team exhausted all the first choice homes, and the alternative homes i.e. they were locked even after checking for availability multiple times. In KMC, in addition to the 250 households where data was collected, the team encountered 65 houses which were found to be locked or the respondent was unavailable, or the owner/tenant had changed. | The identification of alternate households helped to mitigate the challenges to sampling. As a result, final sampling is very close to the intended sampling. In Balaji Nagar, the SA team connected the data collection team with other houses that had been built by SA via its collaboration with HT Parekh. |
| There is a possibility of the social desirability bias i.e. that many respondents gave answers, which they know to be 'right and appropriate practices. | Enumerators were trained to ask questions in a non-judgemental manner that would likely enable uninhibited responses. In addition, the |

| | |
|---|---|
| | tool included questions on both knowledge and practice to make inferences on programme impacts. |

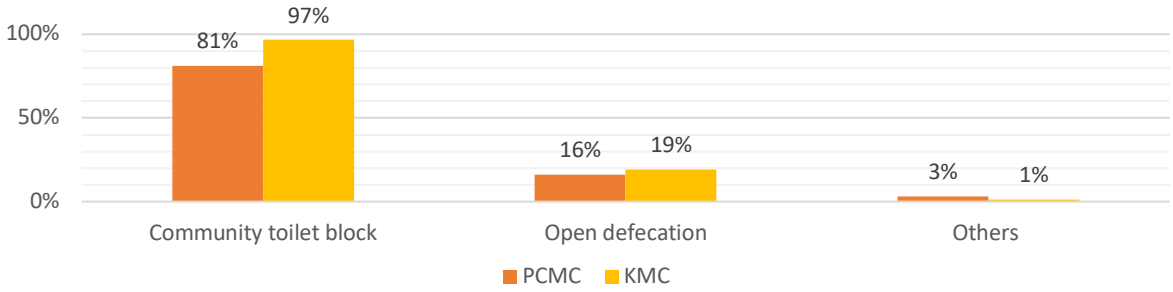
# 3. FINDINGS AND RESULTS

## 3.1. Areas of Impact

- **Improvement in Access**

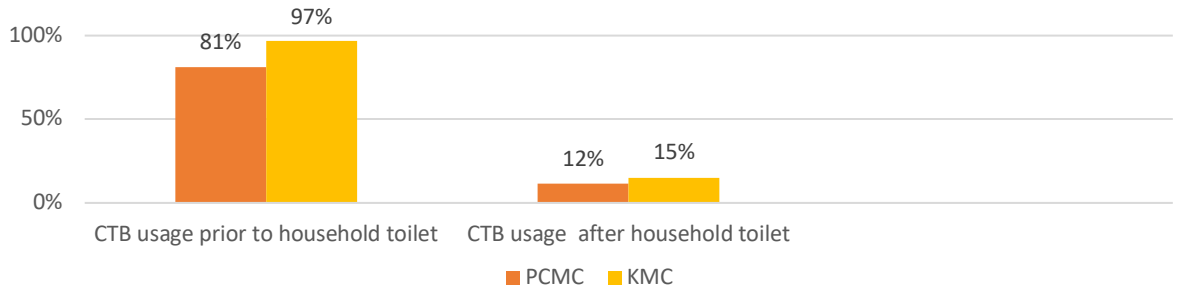
**Before the construction of toilets, most people used Community Toilet Blocks (CTBs) in PCMC (81%) and KMC (97%). Open defecation was more prevalent in KMC (19%) than PCMC (16%).** In PCMC, respondents relied on other sanitation means such as a relative's or neighbour's toilet, mobile toilets etc. In Balaji Nagar and More Vasti slums of PCMC, open defecation was practised before the implementation of the OHOT program. In KMC, the highest number of respondents from United Agency (14), Ambedkar Nagar (10) and Salokhe Park (8) used to practise open defecation i.e. 19%. On the other hand, in Salokhe Park, 1% used neighbour's toilets as their toilet was under construction and one respondent already had access to toilets.

*Figure 10: Facility used before toilet construction*




Approximately 82% and 97% of respondents in PCMC and KMC stated that at least 1 household member was using the CTB. Subsequent to household toilet building, in comparison, this extent of toilet usage at the CTB was considerably reduced to 12% and 15 % in PCMC and KMC respectively. This is indicative of reduced number of persons using the CTB, thereby easing the person-load that toilets at CTBs had to handle.

*Figure 11: CTB usage before and after building the household toilet*



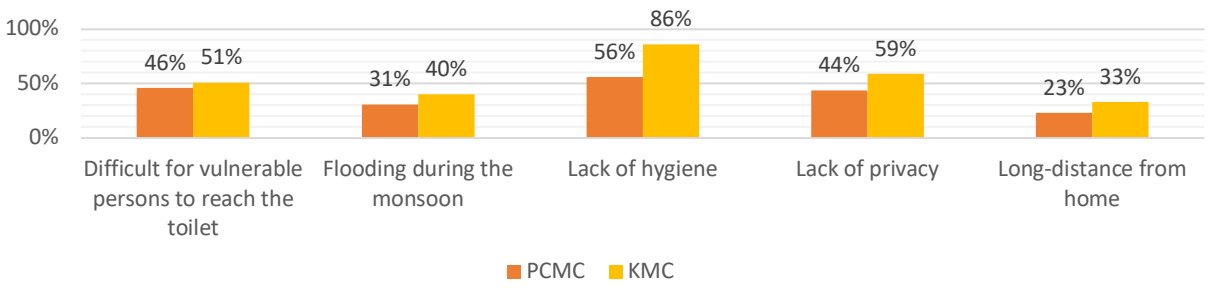

**In both locations, approximately 80% households faced issues with sanitation before household toilets were built.** In PCMC, 79% of the respondents encountered multiple issues while using sanitation facilities prior to building toilets. 21% felt that there were no issues in accessing or using the sanitation facilities and they are habitual and more comfortable in using them. In KMC, 81% faced difficulties in practicing open defecation and going to community toilet blocks. Whereas, 19% didn't encounter any kind of difficulties.

**Lack of hygiene in CTBs was stated by maximum respondents across PCMC (56%) and KMC (86%).** This is because the maintenance and cleanliness of CTBs were not regular and the unavailability of water made it difficult to clean CTBs daily. Other issues faced by respondents using either CTB or preferring Open defecation was difficulty in access for children, elders, pregnant women and persons with injury or disability across PCMC (46%) and KMC (51%). CTB was difficult to access for children, elders, pregnant women and persons with injury or disability as the CTB would have overflowing water making the pathway slippery. In some slums like More Vasti in PCMC, the CTB was situated on a hill. Pregnant ladies, elderly people and specially abled persons found it very difficult to access the respective CTBs as they would get tired of holding buckets in a long queue for using the CTB.

*"My father-in-law is paralyzed for the last 2 months. The household toilet is convenient for him." - 30 years old female from Phule Wadi, KMC*

**Lack of privacy was also an issue (44% in PCMC, 59% in KMC) as the toilets didn't have functional doors or latches.** Women respondents highlighted issues like lack of privacy and safety concerns as they needed company to go after sunset. In PCMC, in certain slums like Shanti Nagar, the women's CTB was located near an auto garage and men were sitting and peeking inside. Some respondents also mentioned having drunkards presence in their slums hence they feared for their family members' safety. Flooding during monsoon made using CTBs or going for open defecation difficult due to accumulation of water in both PCMC (31%) and KMC (40%). In KMC, flooding during monsoon made using CTBs difficult due to accumulation of water as the roof was not present in most of the CTBs.

*Figure 12: Challenges of using CTBs/Open Defecation*



**In Kolhapur slums, out of the total respondents who faced difficulties in accessing sanitation facilities prior to building toilets, 70% and 90% faced lack of hygiene while using community toilet blocks and 90% defecating in the open respectively.** Lack of privacy was also a matter of concern especially for menstruating women because at some CTBs, the doors and latches were broken, therefore at times they had to practise open defecation. Whereas some reported living far from the CTBs so going there by foot was time consuming for them. Flooding during the monsoon season was also a major concern for respondents because the CTB would get flooded and waste would come out of the pots. Meanwhile, few mentioned that they fear going to CTB at night due to the unavailability of lights inside the blocks. They have to use mobile phone lights for visibility. Moreover, people would knock and bang on the CTB door during rush hours.

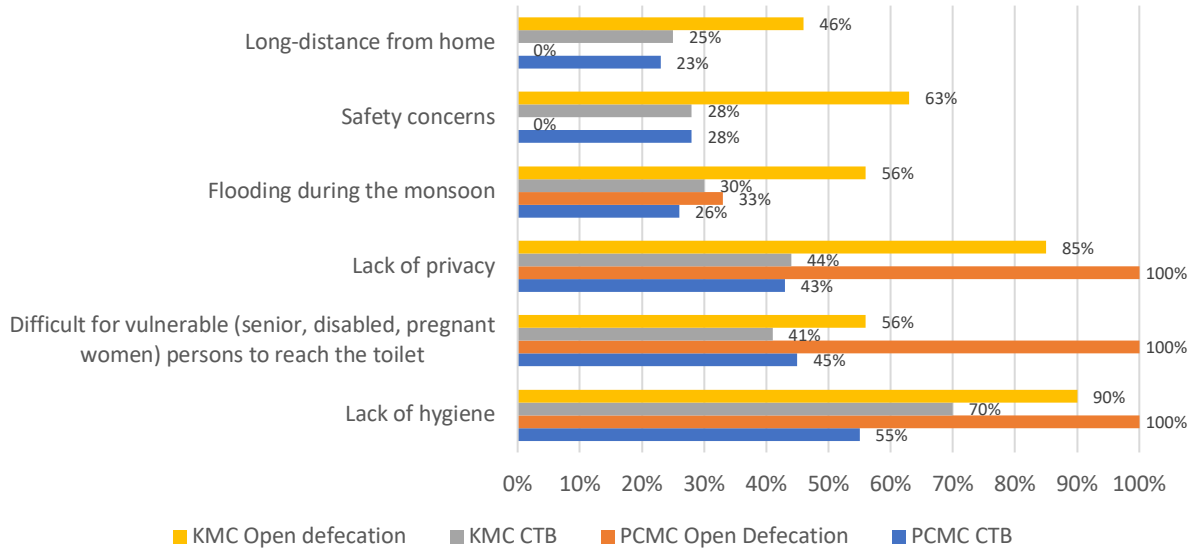
**As far as open defecation was concerned, respondents felt a lack of privacy while defecating in the open as several other persons used to come there for defecation.** Due to bumpy terrain, the open field gets flooded during the monsoon season, hence respondents faced difficulties in open defecation. Some respondents mentioned that at late evenings it was difficult to go for open defecation as there were no lights and they also mentioned getting bitten by snakes and scorpions while practicing open defecation. As to maintain privacy, respondents go very far from their houses to defecate in the open.

*"My sister is paralyzed. She came to my house only after we built a toilet at home, it was not possible for her to use CTB."*
*- Female, 26 years, Vidhya Nagar, PCMC*

*"My husband is suffering from a prolonged stomach infection, therefore he can't wait too long in the community toilet queue. It is a blessing for us to have a household toilet."*
*- Female, 60 years, Phule Wadi, KMC*

*"When there was a flood in the rainy season, water came out from the public toilet and the entire slum stench. Having a household toilet gave us relief from all these situations."*
*- 22 year old female from Ambedkar Nagar, KMC*

*Figure 13: Differences in challenges of using CTBs and Open Defecation*



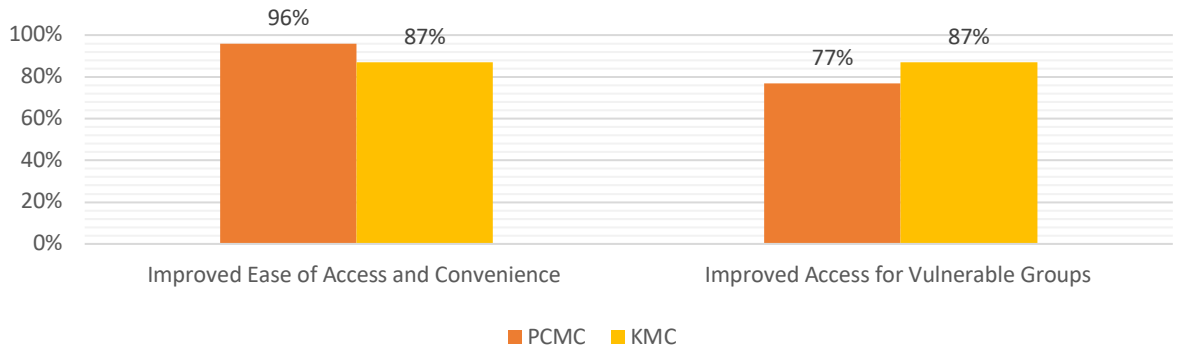

**In PCMC, for 96% of the respondents, the main advantage of building a household toilet is the improved ease of access and convenience.** For 77% of the respondents, ease of access for children/elders/disables/pregnant women has improved, earlier someone had to accompany them, they take a bucket of water for them from home, or the pathway to CTB used to be slippery in monsoon.

**In KMC, 87% of the respondents report an improvement in the ease of access for themselves** as well as the ease of access and convenience for children/elders/pregnant women/injured or disabled persons in the household.

**While analysing gender responses, 87% females and 89% males acknowledged an improved access to toilets** owing to the program, while 82% females and 89% males stated improved access for vulnerable groups. Among age groups, a higher number of respondents (97%) within the age group of 25-40 years felt that access to toilets have improved in comparison to age groups of 17-24 years (81%), above 60 years of age respondents (81%) and those aged between 41-60 years (Refer Annex 7).

*"During my first pregnancy, I had to face lots of difficulties because I had to go to the community toilet. Now I feel comfortable and convenient for not using the community toilet."*
*- Female, 31 years, United Agency, KMC*

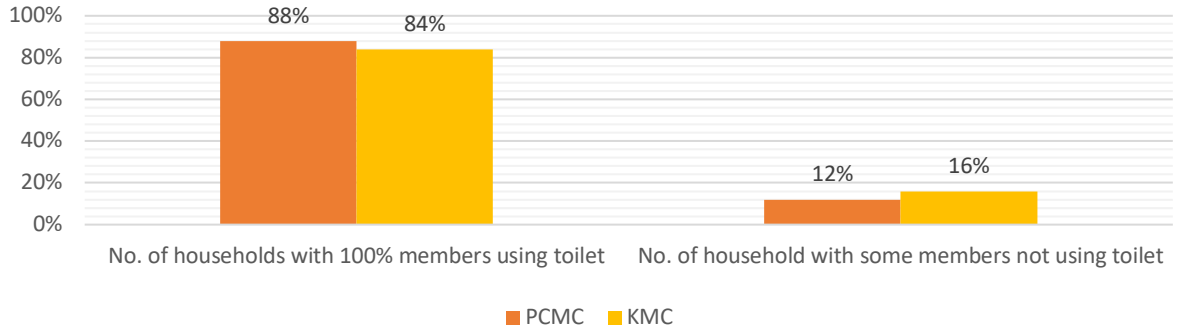
*Figure 14: Overview of Impacts on Access*




- **Toilet Usage**

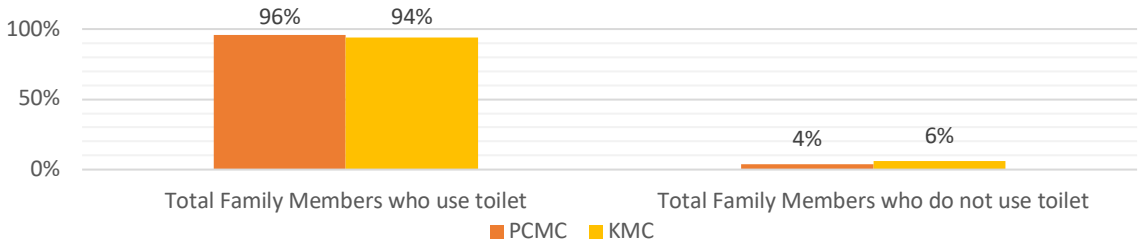
**Higher number of respondents in PCMC (88%) in comparison to KMC (84%) had all family members using toilets.** In 16% households in KMC and 12% households in PCMC, there is at-least one person in the house who either used Community Toilets or Open Defecation.

*Figure 15: Extent of Toilet Usage*




**Around 4% persons across 52 households in PCMC do not use household toilets, while in KMC 6% persons across 253 households do not use toilets.** In KMC, there are a total of 1211 family members under the purview of study out of which 1140 members from 213 households use household toilets, whereas in 71 members from 40 households still use community toilets and/or practise open defecation. In KMC, of the total respondents, 16 are still practicing open defecation and 53 are still using community toilets in Ambedkar Nagar, United Agency, Phule Wadi, Salokhe Park, Bhagat Singh Vasahat and Dombar Wada slums.

*Figure 16: Percentage of family members not using toilets*



**Households with more family members are prone to have members who do not use the toilet.** The average family size of the house-hold where at-least one member do not use HH Toilet is 5.4, in contrast to average family size of 4.6 where all family members use HH Toilet (Annex 8).

**Households with disabled persons are more prone to have members who do not use the toilet.** This is because where there are more vulnerable persons in the household (elders, disabled, women), other members use the CTB to reduce load on the toilets**.** 6.4% of households who do not use HH toilets have disabled family members. Contrary, only 5% of the house-holds have disabled members, where HH toilets are used (Annex 9).

**With an increase in the earning members, there is a decrease in households where at least one person does not use the toilet.** Though this association is weak as correlation coefficient is -0.12 (Annex 10).

**Households with daily wage workers are more prone to have members who do not use toilets.** 53.3% of the family members of the house-holds are engaged as daily wage workers where at-least one member do not use HH toilet. (Annex 11). This could be because they have to be at work at a particular time and hence use CTBs.

**The non-usage of household toilets is more prevalent in the household monthly income range of INR. 5001-10,000.** 53% of the house-hold where at-least one member do not use HH toilet have income range of Rs.5001-10000 (Annex 12).

**Households with septic tanks are more likely to have some members who do not use toilets.** 76% households where at-least one member of the family do not use HH toilet have septic tank vs. only 63% of the households where all members use HH Toilet (Annex 13). This could be because there is a perception among people on not increasing the load on toilets which have septic tanks and the stench from toilets of septic tanks when not maintained properly.

**HH who on average interact less with SA team members are more likely to have at least one member who does not use the toilet.** Households where at least one member does not use the toilet interacted with the SA team on average for 7.8 times vs. households where all members use the toilet have interacted with SA team 11 times on average (Annex 14).

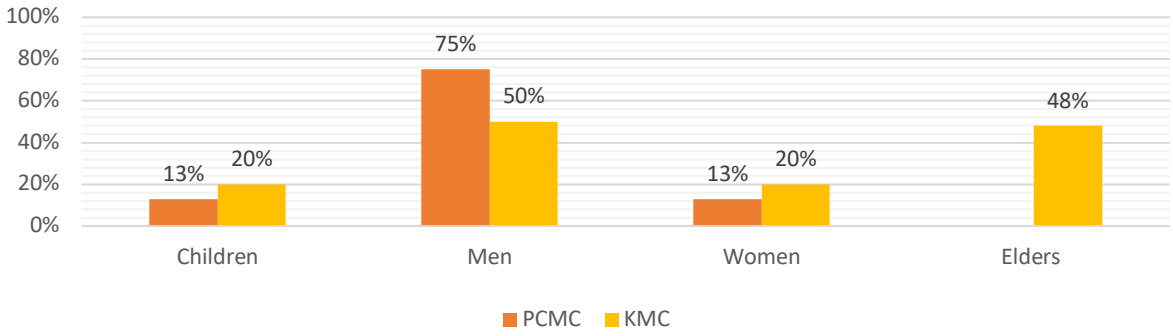
**Building toilets inside the house tends to reduce the chance of usage by all members of the family.** 66% of HH where at-least one member do not use toilets have built toilet inside the house vs. 57% of the households where all members use HH toilet (Annex 15).

**Functional water connections have an impact on usage of toilets.** 51% of households where at-least one member do not use the toilet have functional water connection vs. 60% of the households have functional water connection where all members use the toilet (Annex 16).

**In PCMC, 75% of the members who were not using the household toilet were men in the family.** A possible reason could be that men are more hesitant and embarrassed to use the toilet with family and women around. This indicates that there are a lot of taboos around sanitation and behavioural changes are required for the beneficiaries to start using the provided sanitation facilities. In KMC, of the total family members who do not use household toilets, 50% men and 48% elderly members are reluctant to use their household toilets. These respondents belong to Ambedkar Nagar, Dombar Wada and Phule Wadi slums. The men have the misconception that household toilets are built for women hence they do not use toilets. Subsequently, 20% of

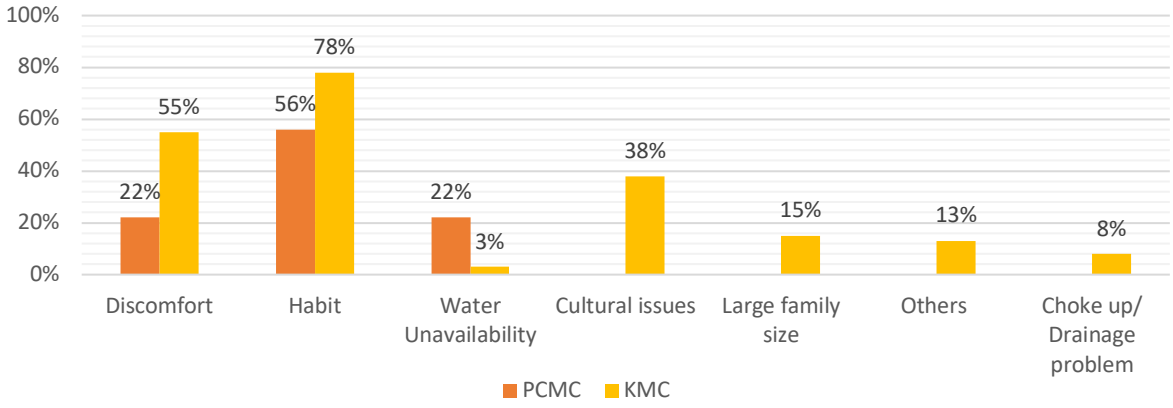
females and children each do not prefer to use household toilets. Moreover, during the visit to the slums, kids were seen urinating on the road and defecating in the open gutter lines in Dombar Wada slum.

*Figure 17: Type of family members not using toilets*




**Of those who stated reasons for not using toilets, using CTBs as a habit was the most common response across both PCMC (56%) and KMC (78%).** In PCMC, people were comfortable in using CTBs, and it was difficult to get used to home toilets despite the hygiene and ease of accessibility. Another prominent reason for not using toilets was the discomfort (22%) at small home toilets. The data was indicative of the fact that behavioural change communication is an important factor in such interventions. Lack of water availability was stated by 22% of those not using household toilets. In KMC, out of those who do not use toilets at home, 55% feel discomfort and shy using household toilets hence they prefer to go out. 38% have cultural taboos, as the male population think that toilets are built for women only so men do not use the same toilet. Moreover, as per their responses they can't eat and defecate in the same room due to foul smell. 15% of respondents have reported having a large family size therefore they prefer to use community toilets. 3% faced water unavailability issues at the household level thus they reported going out for sanitation.

*Figure 18: Reasons for not using toilets*




*"Me and my wife do not use the household toilet because we are claustrophobic. Hence, we still go to CTB. Other household members use the toilet."*
*- Male, 73 years, Phule Wadi, KMC*

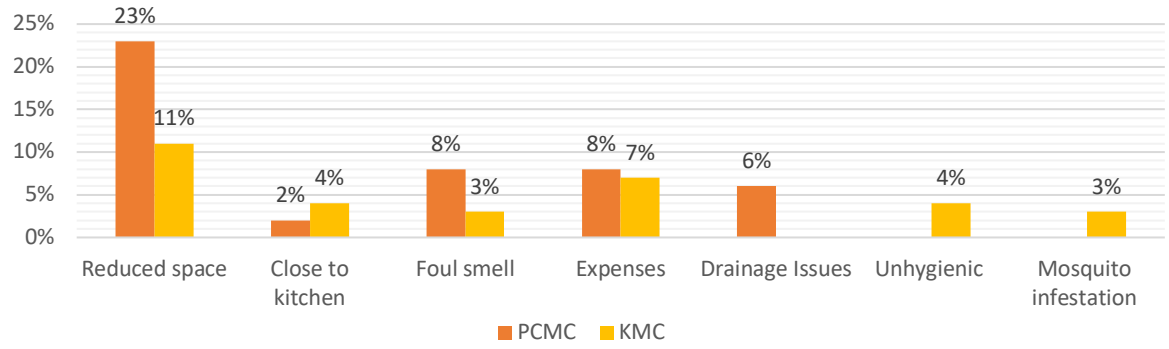
*"Good access to CTB from the House. Street lights help us to access toilets at Night. Men still used CTB for Toilet. They have fear if they use household toilets then the chances of overflowing Septic tanks is higher. So only females use household toilets."*
*- Male, 51 years, Dombar Wada, KMC.*

**Reduced space in houses is the most common issue as reported by respondents in PCMC and KMC, followed by foul smells and high costs of building toilets.** In PCMC, reduced space is the biggest issue faced by the respondents after building the toilet (23%). 8% of the respondents are bothered with the foul smell due to the toilet whereas 8% of the respondents felt that because of toilets their expenses had increased as they had to buy toilet cleaner, provide electricity connection, and water connection in the toilet. 6% respondents face drainage issues regularly after building the toilet, due to clogging and overflowing of sewage chambers. Other issues that many of the respondents highlighted was rat infestation from the toilet pots. In KMC, even though most of the respondents (85%) did not face any disadvantages and issues after building a household toilet, 15% of the respondents have faced certain issues due to household toilets. According to 11% of the respondents, reduced space is one of the major disadvantages of building a toilet. Other issues that respondents highlighted were, an increase in expenses (7%), proximity to the kitchen (4%), unhygienic (4%), foul smell from the toilet and drainage chamber (3%), and mosquito infestation (3%).

*"We are happy about household toilets because they are free from the unsanitary environment. However, we got into debt because we took the loan, and we are having difficulties in paying it off."*
*- Female, 30 years, Awachit Nagar, KMC*

*" Due to the lockdown, we lost our job, and the organization was forcing us to build a toilet within a month. Moreover, we had a hand to mouth situation. We didn't have money to pay labour charges. After construction of the toilet, the space in the house has reduced."*
*- Female, 19 years, United Agency, KMC*

*Figure 19: Disadvantages of household toilets*




**Respondents who do not have all family members using toilets state more disadvantages of having a toilet in comparison to respondents where all members of their household use toilets** (Annex 17).

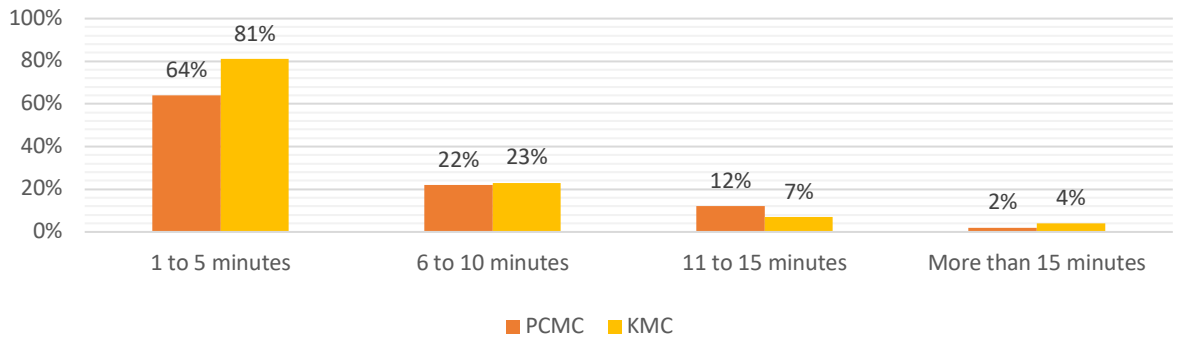
**Households who have toilets inside the house have listed more disadvantages than the HH who have their toilets outside the house.** 20% respondents who have their toilet inside of the house have listed disadvantages vs. 17% respondents who have their toilet outside of the house (Annex 18).

- **Time Saving**

**Since all CTBs are located at a slum level, reaching them did not take too much time, i.e. average time taken to walk to the CTB was 7 minutes in PCMC and 6 minutes in KMC.** For PCMC, as CTBs were located in every pocket of the slum, it would take 1-5 minutes to reach according to 64% of the respondents. Whereas open defecation was practiced only in Balaji Nagar and More Vasti, and it took not more than 10 minutes to travel to the open defecation spot. (Annex 19)

In KMC, 81% did not spend more than 5 minutes walking one way to the CTB as they are located across the slums. In some slums like Ambedkar Nagar, United Agency, Takala Khan and Awachit Nagar, CTBs were located at distance hence 11% of the respondents took more than 10 minutes. Prior to building household toilets, open defecation was more prevalent in slums like United agency, Ambedkar Nagar and Salokhe Park where 89% took less than 10 minutes to go to the open field for defecation.

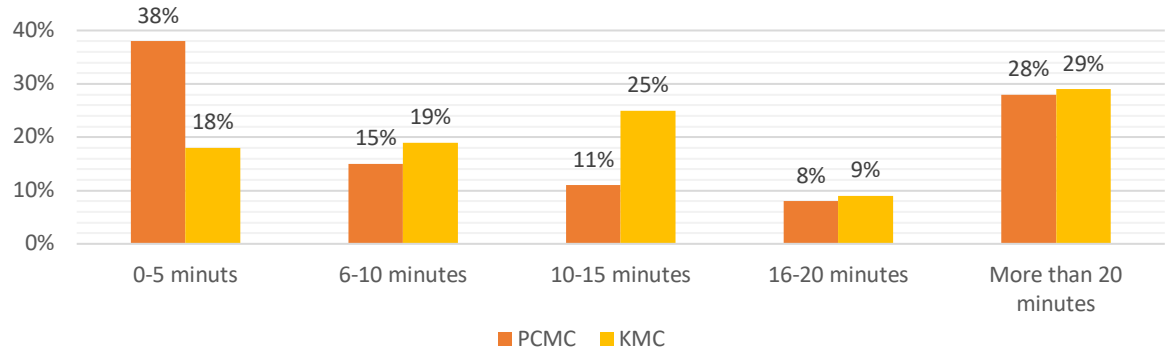
*Figure 20: Time spent walking to CTB/Open defecation spots*




**In PCMC, on average, the waiting time to use the CTB is 13 minutes.** The waiting time varies from 0-5 minutes for 38% of the respondents to more than 20 minutes for 28% of the respondents. In More Vasti people preferred to go for open defecation if the waiting line was too long.

**In KMC, the overall average wait to use a CTB was 20 minutes.** Prior to building household toilets 29% of the respondents in United Agency, Ambedkar Nagar and Kadam Wadi reported that they used to wait for more than 20 minutes to use the CTB due to long queues in rush hours in the early morning. Having more than five CTBs in Awachit Nagar and Salokhe Park, 37% of the respondents used to wait less than 10 minutes to use the CTB.

*Figure 21: Time spent waiting to use CTB/Open defecation spots*




**Larger number of respondents in KMC (93%) stated time saving as a big advantage of household toilets, in comparison to PCMC households (75%).** PCMC respondents felt they saved time after the household toilet was built, as they no longer had to wait in line or walk to the sanitation facility. The biggest advantage of building a household toilet as per 93% of KMC respondents is time saved as they no longer had to travel to CTB or open defecation area and wait in a queue to use CTB.

**While analysing gender differences, more males (92%) than females (89%) felt time saving was a benefit of having household toilets.** No significant differences were seen in responses in terms of age groups of respondents (Annex 7).

*" The household toilet helped in saving a lot of time, now I can go to the washroom at my convenience and don't have to wait for the community toilet to get free."*
*- Female, 32 years, Shanti Nagar, PCMC*

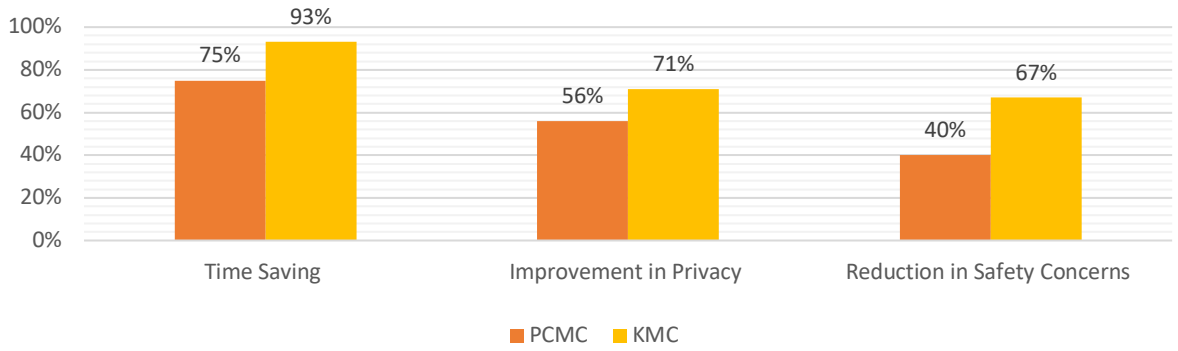
*" I don't have to go with kids and the household chores don't suffer because of waiting lines in CTBs."*
*- Female, 20 years, More Vasti, PCMC*

- **Safety and Privacy**

**Higher number of respondents in KMC stated an improvement in privacy (71%) and safety (67%) in comparison to respondents in PCMC stating improvements in privacy (56%) and safety (40%).** In PCMC, an advantage concerning females was the improvement in privacy and reduced safety concerns because in some slums, after sunset in evenings men used to sit near the toilet areas and drink, making it difficult for women to use after sunset. In Shanti Nagar, the women's CTB was near an auto garage and men were always around the CTB, making it difficult for women to access freely. In KMC, especially for female respondents, the privacy has increased since using individual toilets and the safety concerns around female members going alone to the CTB or open defecation spot has reduced.

**More females (68%) than males (53%) felt an improvement in safety owing to household toilets, whereas more males (73%) than females (73%) felt privacy has improved** since household toilets have been built. A much higher proportion of respondents in the age group of 25-40 years felt safety and privacy has improved, in comparison to other age group response (Annex 7).

*Figure 22: Overview of Impacts on Time Saving, Privacy and Safety Concerns*




*" There were no doors or locks in CTBs, it was difficult to go, anyone could enter anytime. There were gents sitting outside the toilet and drinking, who would pass comments."*
*-Female, 36 years, Balaji Nagar, PCMC*

*"There have been reductions in safety concerns for family members around toilet usage as we don't have to go to CTBs anymore. It was difficult for females to go alone to community toilets. There was no privacy and there were dogs who used to attack in the way which made going to the washroom difficult for everyone alone, especially kids.*
*-Female, 17 years, Sanjay Gandhi Nagar, PCMC*

*"Men used to harass me when I used to defecate in the open. I was helpless because I am partially blind, and it was affecting my mental health adversely. I am very grateful to Shelter Associates for helping me build a household toilet."*
*- Female, 38 years, Salokhe Park, KMC*

- **Dietary Practices**

**In PCMC, data was only recorded for practices before toilet construction.** Only 19% of the respondents restricted liquid consumption as most of them relied on bathing spaces for urination, 27% of the respondents restricted their food consumption at night to avoid going to CTB, and also avoided certain foods for dinner that could upset the stomach.

**As observed from the KMC data, before building household toilets through the OHOT program, 19% of respondents used to restrict their liquid consumption at night so that they do not have to go to community toilets at night. Eventually, numbers have decreased to 2% after building household toilets.** There are several reasons why respondents preferred not to go to community toilets at night such as the unavailability of the lights inside the toilet blocks, females need company to go to CTB after late evenings. Since toilet blocks are cleaned once every morning they become extremely unhygienic as the day passes; whereas people fear going for open defecation at night due to the unavailability of lights and open fields have snakes and other insects roaming.

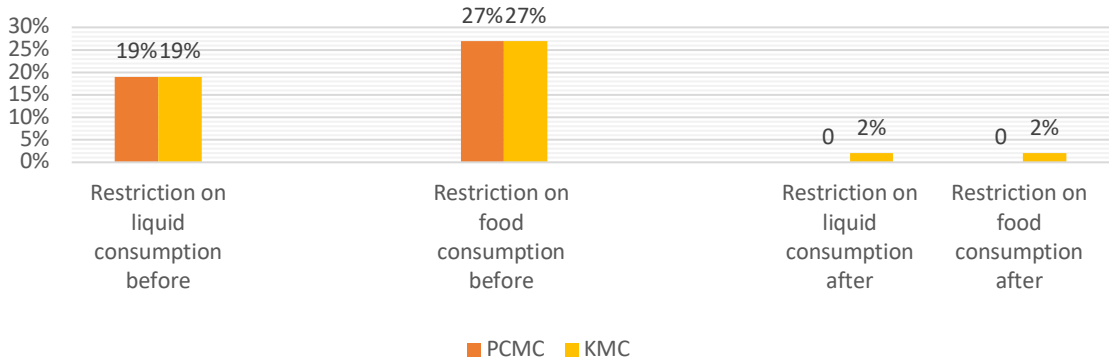
*"Since we had to avoid going to the toilet from 9 pm to 5 am we used to stop having water after 8 pm"*
*- Female, 32 years, Shanti Nagar, PCMC*

*"It was scary to think of getting stomach problems and loose motions. We would avoid heavy meals at night to avoid going to CTBs."*
*- Female, 26 years, More Vasti, PCMC*

*"Sometimes we used to suffer from constipation because we do not go to the toilet after late evenings due to unavailability of lights."*
*- 45 year old male from Takala Khan, KMC*

**On account of having no lights at respective community toilet blocks and lack of hygiene, 27% of respondents used to restrict their food consumption at night, especially in United Agency, Ambedkar Nagar and Phule Wadi. However, the number has decreased to 2% after the construction of the toilet.** Before building household toilets, female members deliberately eat less and sleep with an empty stomach so that they don't have to go to CTB at night. Sometimes they used to suffer from constipation because they do not prefer to go to CTBs after late evenings.

*Figure 23: Dietary Restrictions*




- **Cost Saving**

**CTBs were mainly accessible for free in PCMC (83%) and KMC (99%).** In PCMC, 11% of the respondents were paying INR 30 per month to access CTB. The cost of CTB varied depending on the maintaining authority as these charges were given to the cleaning person taking care of that CTB. In KMC, respondents from slums of Ambedkar Nagar and Salokhe Nagar paid INR 5 to use the pay-and-use public toilets as they had to go to work early and they didn't have time to wait in the long queues of CTBs (Annex 20)

**Not too many respondents stated a reduction in household expenditure to treat infections and water-borne diseases across PCMC (11%) and KMC (21%).** Analysing gender differences in responses, more females (25%) than males (10%) felt toilets have reduced household expenditures on healthcare (Annex 7). No major trends were observed while analysing age differences for this impact area.

*"The area now has less mosquito breeding sites, we are not using unhygienic toilets, which has reduced the diseases in the family."*
*-Male, 24 years, Balaji Nagar, PCMC*

- **Hygiene Practices**

**Larger number of respondents in KMC (66%) feel there is an improvement in personal hygiene and cleanliness in comparison to respondents (35%) in PCMC.** There were no gender differences seen in this response**.** A higher number of respondents (70%) in the age group of 25-40 years felt this impact in comparison to other age groups (Annex 7).

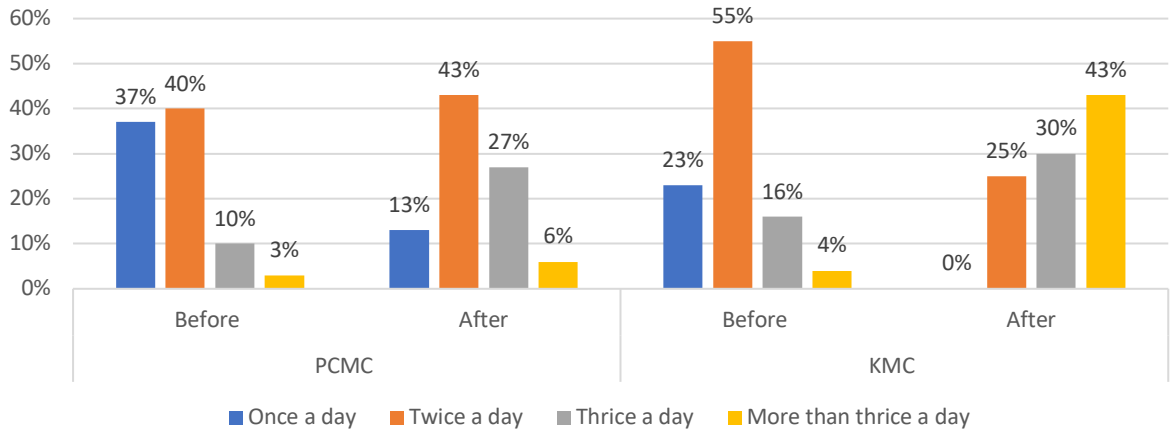
*We use the toilet and clean it every day. It keeps the house and ourselves clean. The CTB used to have overflowing water and was dirty, everyone had to clean their hands and feet after coming back.*
*- Female, 28 years, Balaji Nagar, PCMC*

*"Open defecation is near our house, and our house is on the slopes below. So, in the rainy season waste flows down and stinks so badly and we all get sick. After building household toilets, open defecation nearly stopped in our slum. We are very thankful to shelter associates."*
*- Female, 46 years, Salokhe Park, KMC'*

**Single-use sanitary pads were most common in PCMC (67%) and KMC (82%).** In PCMC, of the 30 women of menstruating age, single used sanitary pads were the preferred menstruation material used by 67% of the women. 15% of the women were using cloth for comfort and economic reasons. In KMC, out of the 69 women who were at a menstruating age, 81% of women used single-use sanitary pads. 19% of women used cloth during their menstruation period, which could be a result of habit and the re-usability aspect of cloth materials (See Annex 21).

**This is a significant improvement in the number of times sanitary products are changed during menstruation, among both PCMC and KMC respondents.** In PCMC, for 70% of the respondents the frequency of changing pads increased to twice or thrice a day after the household toilets were built. Prior to the toilets, the frequency of changing pads was once or twice a day for 77% of the respondents. Toilets at home made it easier for women and girls to clean and change pads and made a huge difference for females who suffered from heavy menstrual bleeding and needed to frequently change pads. In KMC, since building the household toilet, 74% of the women menstruating respondents change their material more than twice as compared to 20% prior to toilet building. Previously 78% would change their material once or twice a day. Clearly, there has been an increase in those who change their sanitary material thrice and more than thrice a day, and a reduction in those who change their material once and twice a day. This increase can be attributed to increased convenience for women to change their sanitary materials in the comfort of their own households.

*Figure 24: Menstrual Hygiene Practices*




*"Changing pads during the menstrual cycle in the public toilet was very difficult. Because there was no dustbins & cleanliness. Moreover, in the past my mother suffered from prolonged urinary infections. Having a household toilet has improved our living conditions." - Female, 30 years, Awachit Nagar, KMC*

- **Health Outcomes**

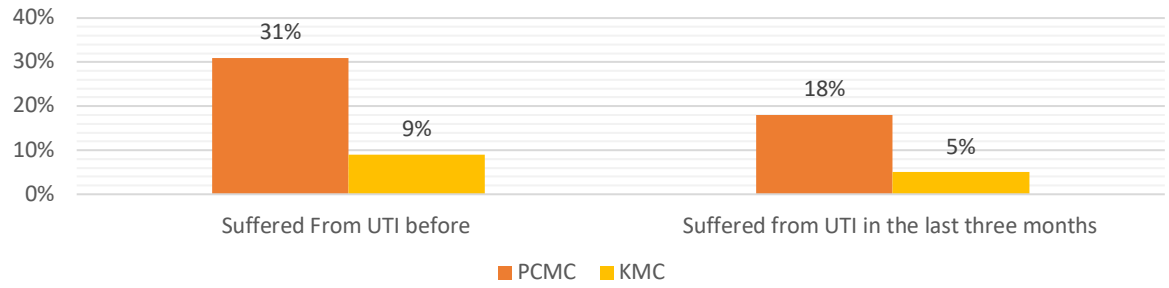
**Very few households (6% in PCMC and 9% in KMC) reported family members suffering from water borne diseases in the last three months.** In PCMC, 94% respondents mentioned that the family members have not suffered from any waterborne diseases in the last 3 months. 2% of the respondents said family members had suffered from cholera in the last 3 months whereas 2% of the respondents have had cases of diarrhoea in the family. In KMC, 91% of the respondents mentioned that none of their family members have suffered from any waterborne disease in the last three months. Only 3% of the respondents had a family member who suffered from diarrhoea in the last three months, while a mere 1% of the sample population had a case of typhoid and 1 % had a family member who suffered from jaundice. 5% of the sample mentioned that their family members had suffered from other vector borne diseases like Dengue, Chikungunya, etc. in the last three months.

**Usage of HH toilets by all members tends to reduce the diseases caused by water and hygiene facilities.** Only 6% of households where all members use the toilet suffer from water borne diseases vs. 17% of the household where at-least one member do not use HH toilet (Annex 22).

**The prevalence of UTI among female respondents has reduced in both PCMC and KMC slums .** In PCMC, 31% of the women respondents had suffered from UTI before building the household toilet, whereas only 7% of the women respondents had suffered from UTI in the last 3 months. In KMC, the percentage of women suffering from UTI has reduced by 4% after the building of household toilets. In comparison to the 9% of the female respondents who had suffered from UTI before building the household toilet, only 5% of the women respondents had suffered from UTI in the last 3 months.

**Usage of household toilets by all members tend to reduce the chances of UTI.** 17% of the HH where at-least one member do not use toilets have UTI vs. 13% of households where all members use household toilets (Annex 23).

*Figure 25: Reduction in UTI infections*




**In PCMC, the most common symptom according to all the 7 women who had suffered from UTI in the last 3 months was itching around the vagina.** Another symptom 71% of the women suffered from was burning sensations. Whereas only 14% of the respondents suffered from pain during urination.

**The most common symptom was itching around the vaginal area among KMC respondents who continued to experience UTI symptoms.** 75% of women experienced itching. Approximately 13% encountered burning sensations and infections due to sanitary napkins. Both itching around the vaginal area and infection due to sanitary napkins are more likely to be attributed to inadequate hygiene practices.

*"Due to the use of the public toilet I was suffering from a vaginal infection, I had to spend a lot of money for the treatment. After building a household toilet my infection reduced as well as my medical expenditures."*
*- Female, 27 years, Dombar Wada, KMC*

**Higher number of respondents attributed improvement in family health from KMC slums (57%) in comparison to respondents in PCMC slums (38%).** Higher number of females (62%) than male respondents (42%) state an improvement in health status. Higher number of respondents (58%) in the age group of 41-60 years mention this as an impact.

*"There are less cases of Stomach aches and loose motions. Daughter used to have UTI because of unhygienic CTBs but now that has stopped."*
*- Female, 36 years, Balaji Nagar, PCMC*

***Case study: Drudgery of a partially blind woman***

*A 38 year old partially blind woman resided in Salokhe Park, an urban slum in Kolhapur city. She lived in a kutcha house structure in a nuclear family of four persons. Calendar selling was her main source of income from which she is earning INR 5000 per month. Moreover her husband was engaged in a blue collar job earning INR 9000 per month.*

*Prior to building a household toilet, she used to go to Community Toilet Blocks and at times defecate in the open. She faced several difficulties such as lack of hygiene at community toilet blocks and lack of privacy in open defecation. In addition, she needed someone to accompany her at night. Moreover, she deliberately used to eat and drink less at night to avoid going to the Community Toilet Block. She had no other choice but to opt for available sanitation options.*

*At times, she had to wait for 60 minutes in the long queue of the Community Toilet Block. Men used to harass her when she used to defecate in the open. Due to her partial blindness she felt helpless, to the extent that it was affecting her mental health adversely. Changing pads during her menstrual cycle at the public toilet was difficult and unhygienic because there were no dustbins and cleanliness was missing. Furthermore, the exposure to unhygienic environments in the Community Toilet Block or open defecation had caused her a vaginal infection. She had to bear high medical expenditure for recovery from urinary tract infections.*

*The primary reasons that had prevented her from building the toilet were unavailability of the sewage line in the slum, lack of space inside the house and high construction cost of the toilet. Shelter Associates identified these issues and helped her by providing toilet construction materials and knowledge of maintaining septic tanks. She spent INR 15,000 for the construction of the toilet and attached bathroom. Besides, she availed the loan of INR 10,000 to cope with the expenditure of construction. She also participated in the sanitation committee meetings and septic tank workshops conducted by the team members of Shelter Associates.*

***"Being blind we felt cursed. Even if we are tired of standing in line, no one would give us a chance to use the toilet soon. So a lot of time was wasted."***

*Having a household toilet improved her and her family's living conditions. For a partially blind person, a household toilet is a boon. Due to the household toilet, she is now able to keep herself clean and ensure proper hygiene since her recovery from the urinary tract infection. After construction of the household toilet, her home has become more hospitable and guests feel more welcome and comfortable. Additionally, their social status has increased in society.*

*While there have been tremendous improvements in her living conditions because of the toilet, she did bring up pertinent negative implications. After construction of the household toilets, the internal roads of the street have become narrower. The neighbours don't know how to maintain the septic tanks hence a stench is prevalent in the surrounding area. Due to use of the septic tank, mosquito infestation has increased in the area.*

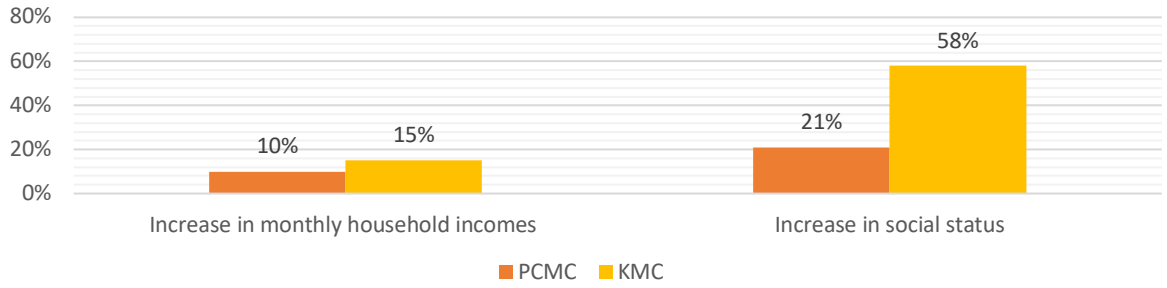
*Despite this, she feels blessed after construction of the household toilet and is very grateful to Shelter Associate for that.*

- **Household Level Impacts**

**A relatively smaller number of respondents in both PCMC (10%) and KMC (15%) felt that their household incomes have improved because of having toilets in their houses.** Those who felt incomes have improved mainly stated they could get to work on time (and hence work for longer hours) since the toilet was built.

**A much larger number of respondents in KMC (58%) agreed that household toilets have led to improved social status where only 21% respondents in PCMC stated this.** This was mainly related to getting better marriage proposals, being able to invite guests over, etc. In KMC slums during the interview respondents mentioned that after building household toilets guests feel more comfortable and welcome in their house. More males (63%) than females (44%) felt social status improvements (Annex 7).

*Figure 26: Overview of Impacts at a Household Level*




*" There has been an increase in monthly household income as I reach for my work on time and sometimes can do overtime because of the time I save from not standing in line for CTB."*

- *Male, 32 years, Sanjay Gandhi Nagar, PCMC*

*"I just got married because the bride and my in-laws demanded a household toilet. Hence we built the toilet."*
*- Male, 24 years, United Agency, KMC*

*There was a lack of facilities before. Connection systems were missing. CTB cleaning and maintenance had to be done manually. The OHOT programme addressed all of these aspects and improved home sanitation… Sanitation practices have become activated. So there is the educational aspect as well..*

- *Government official, KMC*

***Case Study: The humble toilet, and its contributions to fundamental changes in women's lives***

*A 17-year old girl from Sanjay Gandhi Nagar in Pimpri-Chinchwad Municipal Corporation, was living in a medium-sized family of 6 persons. They were living in a single room house, which had an approximate area of 200-250 sq.ft. The family had lived in Sanjay Gandhi Nagar for 25 years.*

*Prior to building the household toilet, she would use the CTB, 5 minutes away from her home. However, it took her 15 minutes on average to wait to use the toilet. She encountered multiple challenges whilst using the toilets in the CTB. Not only did she need company to go to the toilet especially at night, the lack of hygiene and flooding during the monsoon made it difficult to reach and use the toilets. To avoid going to the toilet at night, all the female family members would stop eating by 9 pm while the kids would eat dinner by 7 pm. During her period, she would use single-use sanitary napkins and would change her sanitary napkins twice. The Shanti Nagar area also had a presence of stray dogs, and this acted as a deterrent to visiting the toilets.*

*These challenges were addressed via SA's intervention. Given her young age, as part of the community mobilization stage, she had participated in children workshops along with the community meetings held by SA as part of the community mobilization where interactions around these challenges and ways to overcome the same occurred. Her family built the toilet with guidance and support from SA.*

*Since building the toilet, all 6 members of the household have begun to use the toilet. At a personal level, she is able to use her toilet at night and at odd times, especially during the monsoon. Time taken to visit and use the CTB toilet is no longer wasted. The beneficiary's frequency of changing sanitary napkins has increased from 2 to 3 times a day.*

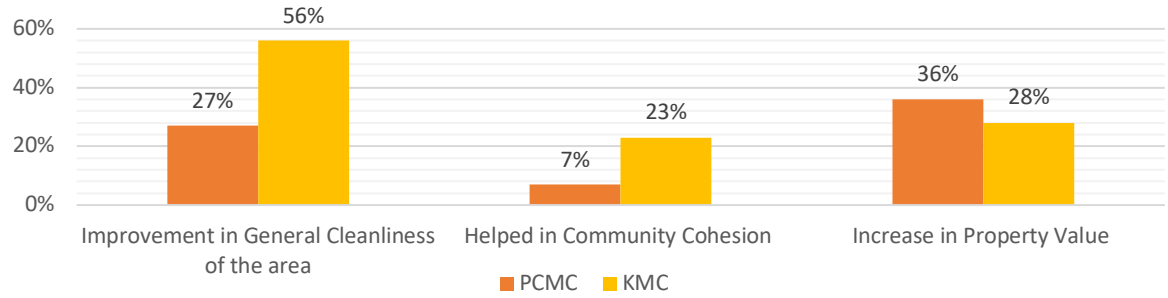
*Since the CTB toilets did not have locks and proper doors previously, they couldn't go alone and had to take their own bucket of water. Women and girls, especially in her family, have gotten access to better sanitation facilities. Since building the household toilets, instances of loose motions and stomach aches have declined in her family. Having the toilet during COVID-19 has also helped with ensuring less exposure, hygiene, and convenience.*

*Overall, the area's cleanliness has improved since everyone keeps their surroundings clean. Access to toilets for women in the community has increased and improved, for all of the above-mentioned factors. The beneficiary also highlighted that since they had built a toilet, other families in the community also initiated building the toilet in their households, indicating peer influence as a factor contributing to toilet building. She also attributed an increase in the area rent to the presence of household toilets in the area.*

- **Community Level Impacts**

**Respondents from KMC perceived much higher levels of impact at a community level in comparison to their PCMC counterparts.** While 56% respondents in KMC felt that toilets have resulted in overall cleanliness of their slum, only 27% of PCMC felt so. While 23% KMC respondents felt the program resulted in strengthened community cohesion[15], only 7% respondents in PCMC acknowledged this impact area. More PCMC respondents (36%) than KMC respondents (28%) felt that property values and rents have increased in the area owing to household toilets.

*Figure 27: Overview of Community Level Impacts*




*"Toilet construction has brought people together. Everyone gathers and talks about cleanliness. The chambers are frequently cleaned and that keeps the sewage line clean and prevents foul smell."*
*- Female, 45 years, Balaji Nagar, PCMC*

*"Community cohesion was improved since there were so many meetings and we were told so much about the advantages of toilets and they convinced us to make household toilets. It was the best decision."*
*- Female, 17 years, Sanjay Gandhi Nagar, PCMC*

*"The rent has increased for tenants. Our property value has increased because of the toilet, bathroom and water connection."*
*- Female, 45 years, Balaji Nagar, PCMC*

*Through this project, many toilets were designed in a manner where the bathrooms were modified. This exercise was useful in confidence building. People are proud that they have toilets. Plus we have worked with Below Poverty Line people. Government officials (commissioner, corporation officials) visited slums.*
*- Government official, KMC*

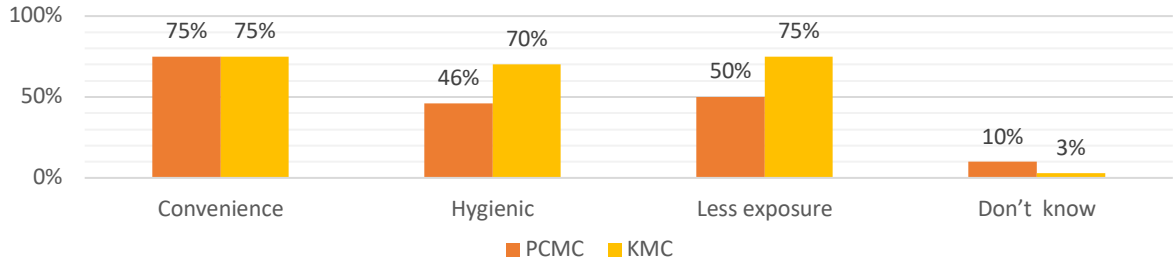
- **Covid-19**

**For 75% of the respondents in both KMC and PCMC, the biggest advantage of having a toilet at home during the Covid-19 pandemic was convenience**. They didn't have to step out of the house or take permission to go to the toilet in lockdown. According to 50% of the respondents in PCMC, it helped in

[15] A cohesive community is one where there is common vision and a sense of belonging for all communities

preventing unnecessary exposure they would otherwise have experienced while using CTB or waiting in line and according to 46% of the respondents it was hygienic to use a private household toilet. In KMC, 70% of the respondents maintained hygiene during COVID 19 times owing to household toilets. In some areas, many respondents tested positive so having household toilets became a boon for them and others.

*Figure 28: Benefits of having toilets during Covid-19*




*"I was tested COVID positive, hence having a household toilet gave me less exposure and it was very convenient for me."*
*- Female, 50 years, Dombar Wada, KMC*

*"My father tested COVID positive, so it was very comfortable and convenient for him to use the household toilet."*
*- Male, 24 years, Kadam Wadi, KMC*

*During Covid, we were able to provide masks to community members with help from the data collected as part of the OHOT programme*

- *Government official, KMC*

***Case Study: Toilet access and the multiple positive impacts at an individual and household level***

*A 28-year old male was living in a household of 4 persons in Bhagatsingh Vasahat in Kolhapur city. Along with his family, he had been living in the area as a tenant for the past 2 years, in a house of approximately 200 sq.ft with 2 rooms. He was the sole breadwinner in the household, employed in a private job.*

*While the respondent and his wife used the toilets at the Community Toilet Block, the children in the household would engage in open defecation. Lack of hygiene was the primary difficulty highlighted by this respondent whilst using the toilet in the Community Toilet Block and engaging in open defecation. This led to members of the family frequently falling sick. With regard to the Community Toilet Block, the walk to reach the toilet took 5 minutes, while they had to wait for approximately 15 minutes to use the facility. During night time, the family regulated their food and liquid consumption since the toilets lacked adequate lights.*

*These challenges came to the fore during the community mobilization stage of Shelter Associates' programming. The respondent had participated in community meetings and door-to-door meetings, along with being a member of the sanitation committee. He was subsequently able to build a household toilet with help from Shelter Associates.*

*The respondent was highly appreciative that all the family members saved time since they did not need to wait in the queue to use the CTB toilet anymore. They are now using the saved time to fulfil other household tasks. The respondent is able to reach his job on time.*

*In addition, members of the household fall ill less frequently due to which family expenditure on health has reduced. Moreover, the family does not need to self-regulate their food consumption. Previously, the respondent would worry about his wife and children, when the Community Toilet Block and open defecation were the only options. However, this worry had declined considerably. Guests also feel more welcome in the household, given the ease due to the presence of a household toilet.*

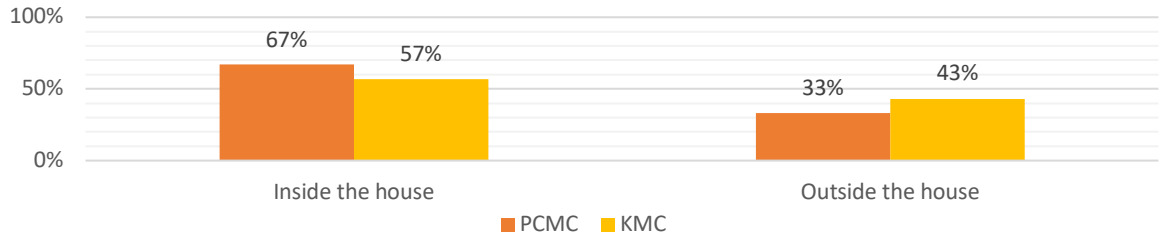
*During the COVID-19 pandemic, all the members of the household experienced benefits in the form of convenient access to a toilet and necessary hygiene, and prevention of unnecessary exposure. The household toilet was a blessing to this household.*

## 3.2. Toilet Infrastructure

**A higher proportion of households had toilets inside the house** (67% PCMC, 57% KMC) in comparison to those who had toilets outside their house (33% PCMC, 43% KMC). In PCMC, a possible reason for a greater number of the respondents having toilet inside the house is because SA had stopped sanctioning material under OHOT program for toilet construction outside the house. As the toilets were built inside the homes, some of the respondents faced issues like reduced space, closeness to kitchen, foul smell, rat infestation, etc. In KMC, as a result of building toilets inside houses the space inside the house was reduced, and some of them faced issues like closeness to the kitchen, mosquito infestation and foul smell inside the house. Whereas, 43% KMC

respondents built toilets outside their houses, which also significantly reduced the space of the internal roads and made them narrow.

*Figure 29: Location of Toilet*




**Corresponding to data on the location of the toilets, it was seen that a higher number of households in PCMC had the bathing space combined with the toilet, in comparison to KMC households.** In PCMC, 61% of the respondents had constructed the bathing space combined with the toilet for the convenience and ease. For 31% of the household, the bathing space was constructed inside the house, next to the toilet but had a separate entry. Remaining 6% of the houses had bathing space outside the house due to lack of space inside, and 2% were yet to build the toilet and bathroom as house renovation was ongoing during the time of survey and the toilet and bathroom were under renovation. In KMC, 45% of the respondents had bathing space combined with the toilet. 45% of the households had a single wall separating bathroom and toilet with different entry but both are constructed inside the house. Furthermore 9% of the households built the bathing space outside due to lack of space inside the house and 1% of the households are yet to build the toilet as their house upgradation was ongoing during the survey time.

Inside household Toilet at Dombar Wada

Inside household Toilet at Kadam wadi

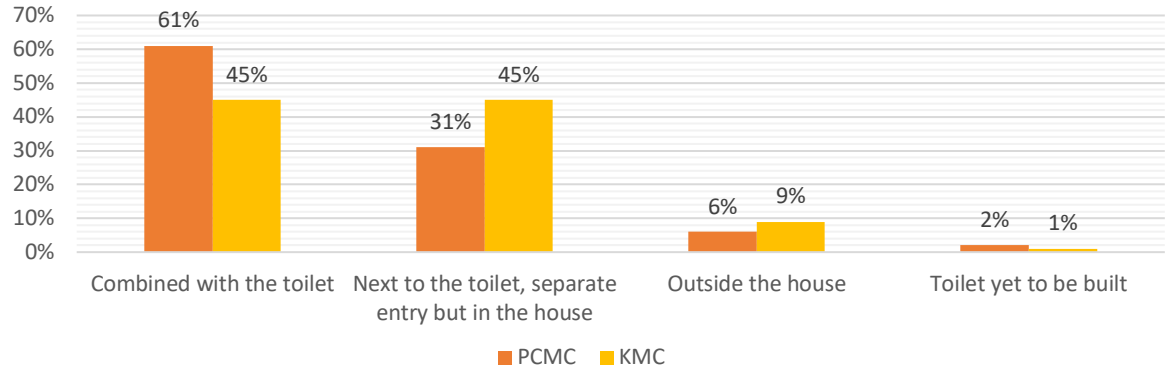
Outside household toilet at Bhagat Singh Vasahat

Outside household toilet at United agency

Inside household toilet at Balaji Nagar

Inside household toilet at Shanti Nagar

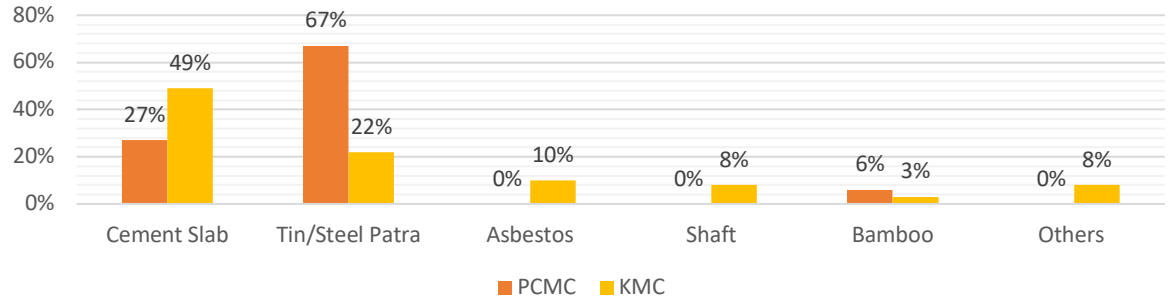
*Figure 30: Type of Bathing Space*




**All toilets had roofs in PCMC, while in KMC 93% of the toilets constructed under the OHOT initiative had a roof built over the toilet.** In PCMC, having a roof was necessitated by the fact that Pune has a prolonged monsoon and without a roof, the toilets would be of no use for a long duration of year. 67% of the respondents had tin and steel sheets for the roof of the toilets. Only 27% of the respondents had a pucca cement slab roof. Remaining 6% had bamboo roofs. In KMC, 49% of the toiles had a pucca roof made up of cement slabs as they had kept water tanks for the water connection inside the toilet. The other roofs that were observed were made

up of variety of materials such as Tin/Steel sheets (22%), Asbestos (10%), shaft (8%), bamboo (3%) and other materials like limestone, plastic sheet, wooden slab were also used (8%). Where toilets were situated outside the house, they were attached to the house wall and were open from above but were provided shade from adjoining house roofs.

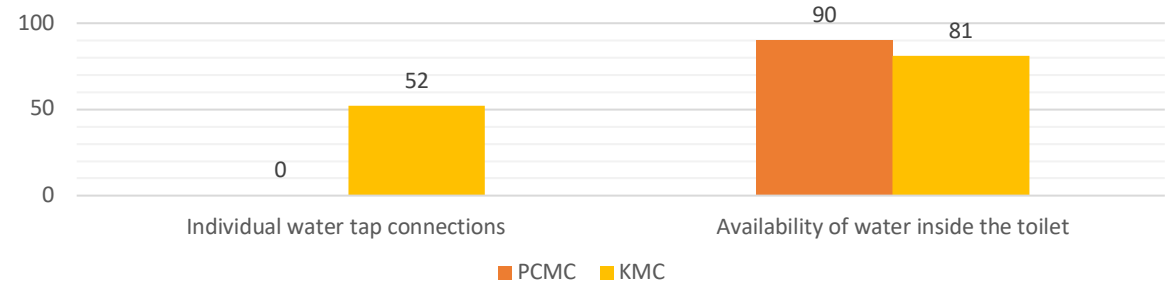
*Figure 31: Toilet Roof Material*




- **Water availability**

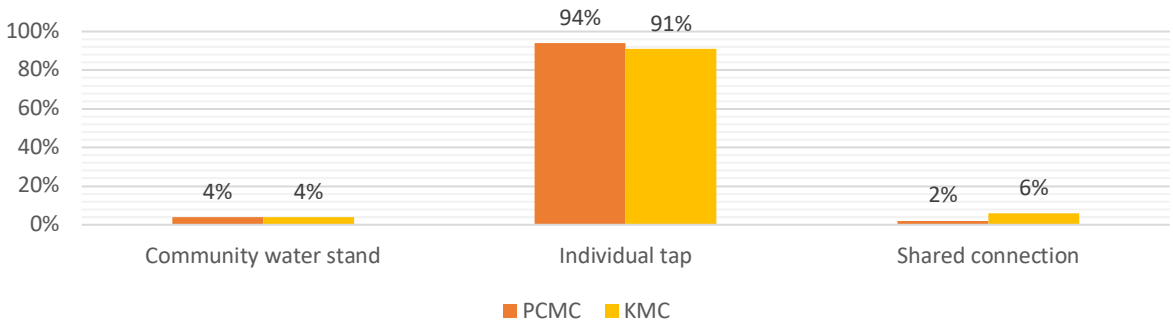
**Water was available in most toilets for both PCMC (90%) and KMC (81%).** In PCMC, filled water containers were observed in 90% of the toilets. The water was used for flushing after use, cleaning and washing hands. In 10% of the toilets the water was not available inside the toilet. One of the possible reasons for the same could be that they used to fill buckets of water and take it to the toilet for every use from the bathing space or water tap outside the house. In KMC, 52% of households have water tap connections inside their house; whereas in 48% of households respondents fetch water from community taps. 81% households had water available in the toilets, as the respondents stored the water for their daily use because in some of the slums water comes alternatively.

*Figure 32: Water Availability in Toilets*



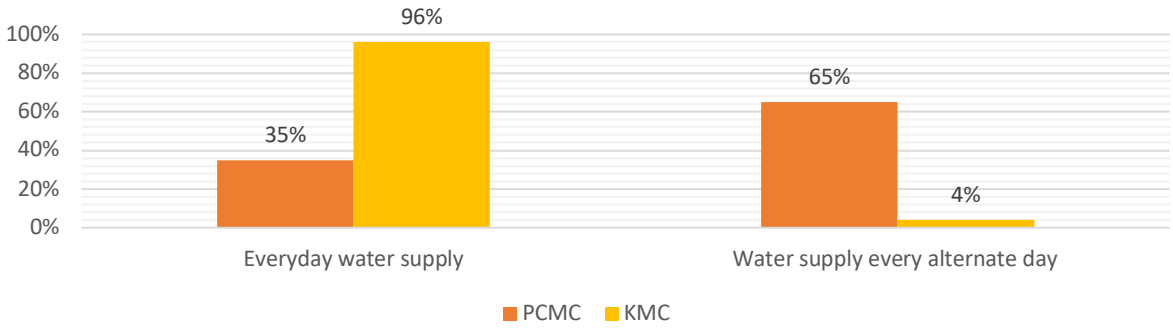

**More than 90% households had individual tap water connections in PCMC (94%) and KMC (91%).** Other sources of water for households identified in PCMC were community water stands (4%) present in Shanti Nagar and More Vasti, and shared connection was observed in Shanti Nagar. (2%). In KMC, due to the unavailability of individual tap water connections, 6% respondents in Ambedkar Nagar, Awachit Nagar, United Agency, Phule Wadi and Salokhe Park share their water connection as well as water bills with the neighbours. Whereas some respondents (5) from United Agency, Salokhe Park (2), Ambedkar Nagar (2) and Kadam Wadi (2) had to travel to community water stands to fetch the water. Due to the unavailability of the individual water connection in Dombar Wada and Takala Khan, some respondents buy water from their neighbours.

*Figure 33: Source of Water*




**Regularity of water supply was seen to be better in KMC slums than in PCMC. While 96% of households in KMC had a water supply every day, only 35% of households in PCMC had a water supply every day.**

*Figure 34: Water Availability (Overall)*




Community water tap connection at Awachit Nagar, KMC

Individual water tap connection with meter at Phule Wadi, KMC

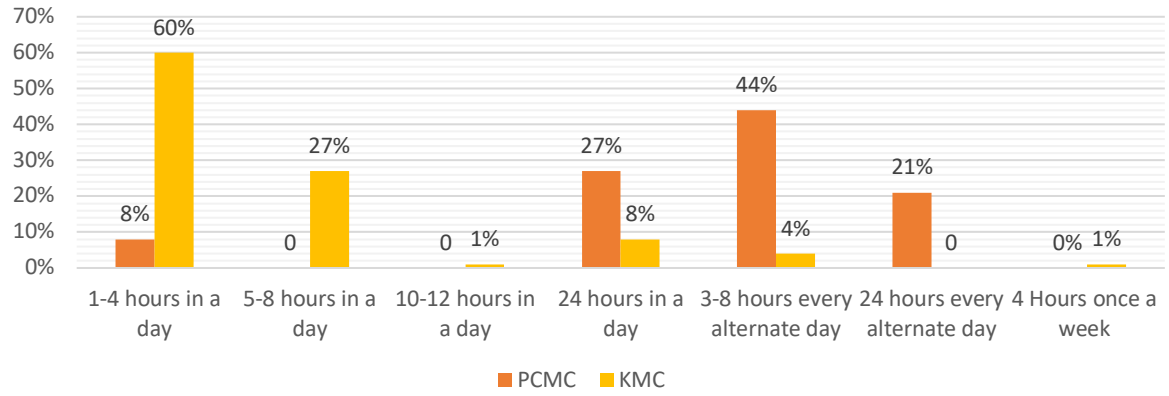
Individual water tank storage at Bhagat Singh Vasahat, KMC

Individual Water tap at Kadam Wadi, KMC

**In PCMC, water supply was available for 44% households 3-8 hours every alternate day.** For 21% of the respondents, the water supply was available 24 hours every alternate day. Only 27% of the respondents had a water supply for 20-24 hours every day. The water supply timings in the same slum differed due to different connections. Households having water supply every day were from Sanjay Gandhi Nagar, Balaji Nagar and More Vasti. Whereas, the households in Shanti Nagar and Vidhya Nagar had alternate day water supplies.

**In KMC, 60% of the total sample only received water for 1-4 hours in a day,** while 27% received water for 5-8 hours in a day. The majority of the respondents have access to water supply on a daily basis in Ambedkar Nagar, Salokhe Park, Kadam Wadi, Phule Wadi and Bhagat Singh Vasahat slums. However, water availability hours vary as per the demand and usage of the water. Only 8% in Phule Wadi received a 24-hour water supply. Moreover, their houses are equipped with water meter connections. Water bill comes every two months hence they were very cautious with their water usage. On the other hand, 4% of the respondents in United Agency, Takala Khan and Dombar Wada slums have access to water supply every alternate day for 3 to 8 hours. Among 9 slums most of the respondents have built water storage tanks to fulfil their water necessities.

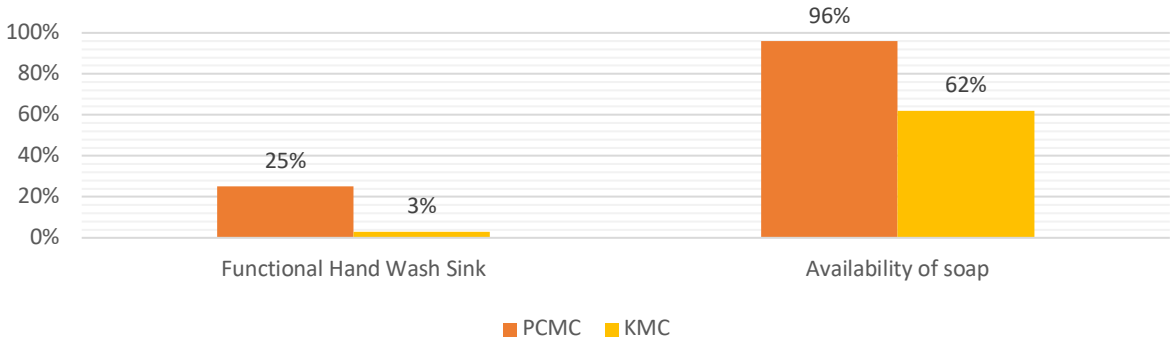
*Figure 35: Water Availability (In hours)*



- **Handwashing infrastructure**

**The status of handwashing infrastructure was much better in PCMC than in KMC slums.** For 75% of PCMC households hand wash sink was not available inside the toilet, but they did have buckets of water outside toilets for washing hands. Only 25% of the households had a hand wash sink near the toilet. In 96% of the households, soap was available in the bathroom attached to the toilet or outside the toilet for washing hands. Only 4% of the households didn't have soap available anywhere in sight. In KMC, 97% households did not have a functional hand wash sink due to lack of space in their house hence they preferred to wash their hands inside the toilet or in the attached bathroom. Whereas only 3% households have a functional hand wash sink. As per the observation, 62% of toilets have soap available for handwashing. However, as per enumerator observations, due to lack of awareness, 38% of households were habituated to wash their hands with only water.

*Figure 36: Handwashing Infrastructure in Toilets*




Handwash area at Salokhe park

Handwash area at Bhagat Singh Vasahat

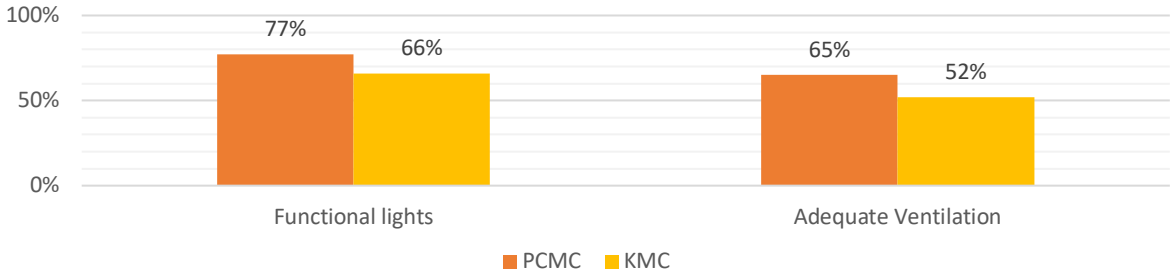
Handwash area at Kadam wadi

Handwash area at United agency

- **Electricity and Ventilation**

**Infrastructure in terms of lights in toilets and ventilation of toilets was observed to be better in PCMC in comparison to KMC.** In PCMC, 77% of the households had functional lights in the toilet, whereas 23% of the households were yet to get electricity connection inside the toilet. 65% of the households had bigger windows or space between the toilet wall and the roof for adequate ventilation and air. Remaining 35% of the households had the given ventilation window only which wasn't enough for adequate ventilation. In KMC, functional lights were available in 66% of toilets; whereas the same facility was missing in 34% of toilets as they mentioned having ample sunlight in the morning and enough house lights after late evenings. 52% of toilets were constructed with ventilation windows; however, 48% of toilets did not have proper ventilation facilities as few of them have open roofs and some of the respondents have built toilets in confined places hence there was no room for ventilation window.

*Figure 37: Electricity and Ventilation in Toilets*

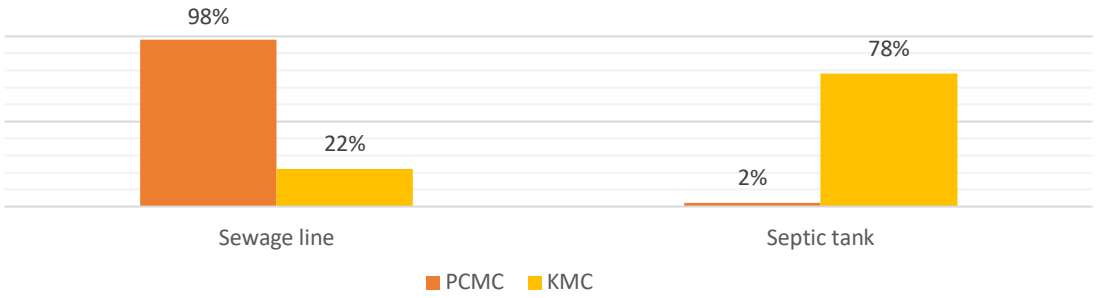



- **Drainage**

**Septic tanks were not very prevalent in PCMC slums (2%) but were widely seen in KMC slums (78%).** In PCMC only one respondent in Balaji Nagar had septic tank drainage, while 98% of the respondents had toilets connected to sewage line drainage. In KMC, 78% have installed septic tanks whereas 22% of households are connected with sewage lines in respected slums. Due to the unavailability of the sewage line, more respondents are using septic tanks. Furthermore, Ambedkar Nagar, Salokhe Park, United Agency, Phule Wadi and Bhagat Singh Vasahat respondents have 100% septic tank connections. Takala Khan and Awachit Nagar slums have

many households using sewage line connections. Dombar Wada and Kadam Wadi have few households which have sewage line connections.

*Figure 38: Type of Drainage*




*We know the exact number of beneficiaries of this project. Drainage lines have been laid due to the data. In some places, existing drainage lines are not connected to toilets but people have still been able to build and use toilets. We have been able to work on solid waste management as well.*

- *Government official, KMC*

**Shelter Associates built more drainage infrastructure in KMC as compared to PCMC, since drainage systems in terms of existing sewage lines were better in PCMC than KMC.** It is important to note that SA has been instrumental in setting up drainage systems and sewage lines across many slums in PCMC.

**In PCMC, 76% of the respondents already had an existing sewage line available in the area (in many instances built with the support of SA).** In 18% of cases, a new drainage connection was built from Pimpri Chinchwad Municipal Corporation due to the unavailability of a drainage line in the area. In KMC, out of the total 55 respondents who had sewage line connections, 82% have installed new sewage line connections with the help of Shelter Associate in Awachit Nagar and Takala Khan slums. Whereas, 18% of households in Takala Khan, Kadam Wadi, Awachit Nagar and Dombar Wada were connected with existing sewage lines which were installed by KMC.

Sewage line connection at Takala khan

Sewage line connection at Awachit nagar

Septic tank connection at United agency

Sewage line connection at More Basti

Sewage line connection at Balaji Nagar

Open gutter line at Kadam wadi

*"Earlier we used Harpic powder to clean the toilet. Later Shelter Associate team members suggested we use a different powder and not Harpic since it kills all the bacteria inside the septic tank."*
*- Male, 53 years, Ambedkar Nagar, KMC*

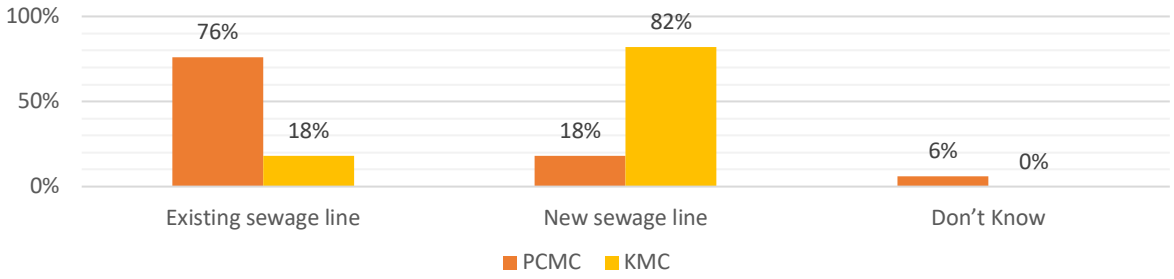
*"Some of the household members do not have knowledge of using a septic tank, hence the stench spread in the entire area."*
*- Female, 38 years, Salokhe Park, KMC*

*"SA team members have given training before installing a septic tank. In the training, they have instructed beneficiaries to add eggs and lemon to the septic tank to create some bacteria which helps clean the septic tank and convert human waste into liquid. However, some of the*

*beneficiaries don't follow this instruction and wash their toilet with detergent powder and Harpic toilet cleaner which kills all the bacteria."*
*- Male, 60 years, Awachit Nagar, KMC*

*"We are totally unaware about the septic tank cleaning. Due to irregular water supply we are unable to clean the toilet. In that period we are suffering from a stench at home."*
*- Female, 28 years, Dombar Wada, KMC*

*Figure 39: Type of Sewage Line*




- **Flushing and Toilet Cleaning**

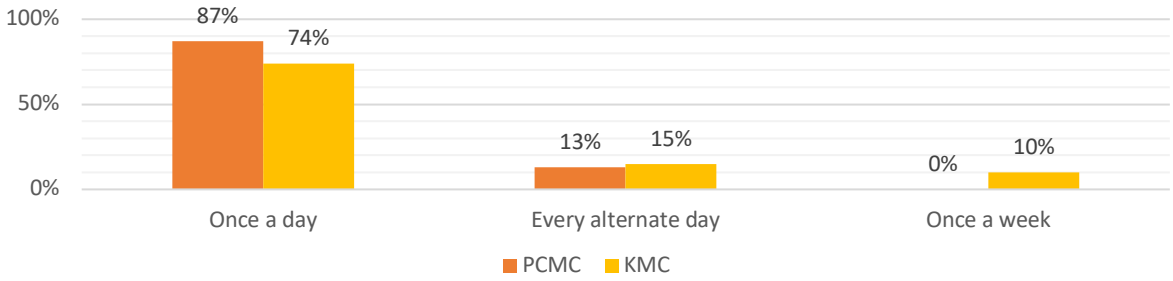
**In KMC, 92% of toilets did not have functional flush as most of the respondents put water through buckets after using the toilet.** Only 8% toilets were equipped with a functional flushing system. This data is not available for PCMC slums. (Annex 2)

**Most respondents use water to flush after every use in both PCMC (98%) and KMC (96%).** In PCMC, 2% of the respondents were not practicing putting water after each use due to water shortage. They clean the toilet with water at fixed intervals after everyone has used it in the morning, afternoon and night. In KMC, 96% of the respondents were habituated to put bucket water every time after they use the household toilet. Those who did not were from Ambedkar Nagar, United Agency, Takala Khan and Phule Wadi slums.

**High number of respondents across PCMC (87%) than KMC (74%) clean their toilets once a day.** In PCMC, while 13% reported cleaning their toilets every alternate day and all others cleaning every day. In United Agency, Ambedkar Nagar, Awachit Nagar and Takala Khan slums 74% of respondents preferred to clean the toilet once a day. As per their response most of them clean their toilet with ample use of water. Whereas 15% clean their toilet every alternate day. Most of the respondents from Awachit Nagar reported having water supply once a week hence they clean their toilet once a week i.e. 10%. However, in United Agency and Salokhe Park slums 1% reported that they never clean their toilets and 3% clean toilets at their convenience.

**The water supply hours and timings highly impact the cleaning of the toilets.** As the water supply hours per day increases, the frequency of toilet cleaning also increases. The correlation coefficient is 0.89, which essentially means there is a strong and positive correlation between supply of water and toilet cleaning frequency (Annex 24).

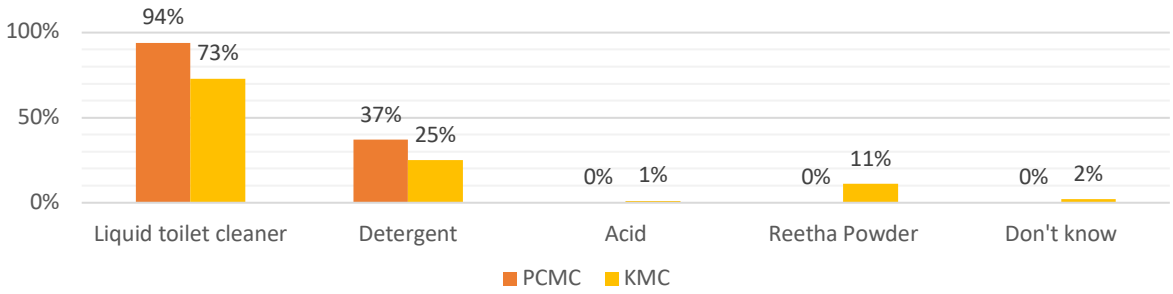
*Figure 40: Toilet Cleaning Frequency*




*"We used to have water scarcity during the summer season due to irregular water supply. And due to lack of water use, nearby public toilet stinks."*
*- Female, 32 years old, Ambedkar Nagar, KMC*

**Toilet cleaning materials were stated by all respondents, but the type used was dependent on the type of drainage.** Usage of liquid toilet cleaner was more prevalent in Sewage Line vs. Septic Tank. 75% of households who have Sewage Line use Liquid Toilet Cleaner vs. 62% of HH with Septic Tank use Liquid toilet cleaner (Annex 25). In PCMC, liquid toilet cleaner like *Harpic* was preferred by 94% of the respondents for cleaning the toilet. 37% respondents rely on detergent powders like *Nirma, Tide,* etc. to clean their toilets. In KMC, most of the respondents from Awachit Nagar and Takala Khan have sewage line connections hence they prefer to use liquid toilet cleaner to clean their household toilet. Subsequently, 25% use detergent and 1% use acid to clean the toilets in Kadam Wadi and Takala Khan slums. It causes adverse effects in the septic tank and respondents have to clean the tank in less than two years. As per the given instructions to remove the stench and increase the bacteria 11% use Reetha powder to clean the toilet in Phule Wadi and Dombar Wada slums.

*Figure 41: Toilet Cleaning Materials*

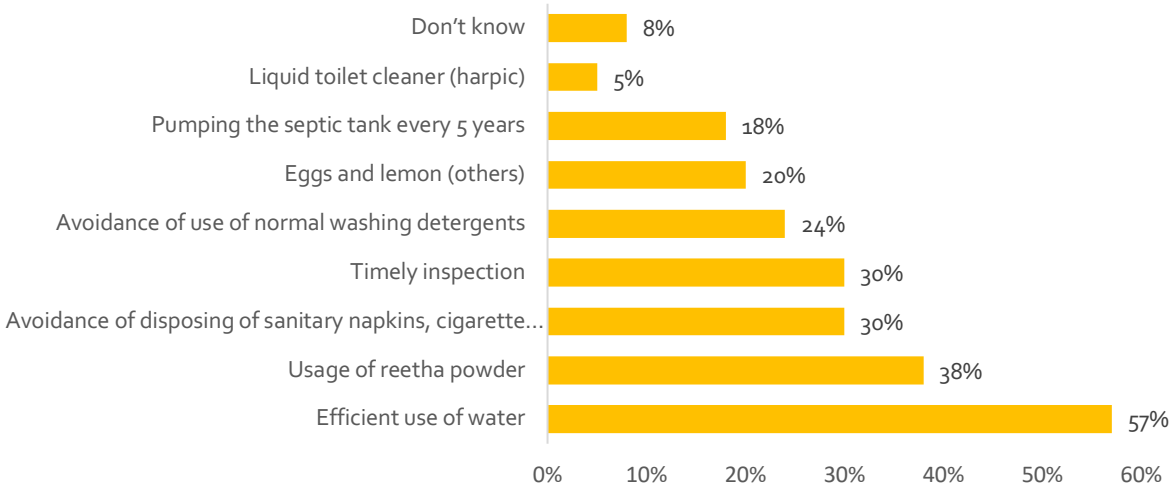



**The respondent in PCMC was not aware of septic tank maintenance measures.** When questioned about the knowledge of maintenance and cleaning of the septic tank, she was only aware of pumping the septic tank every 5 years. He was not aware of certain important measures such as avoidance of disposing of sanitary napkins, cigarette butts, etc in the toilet, efficient use of water, timely inspection, avoidance of normal washing detergents for cleaning, usage of *Reetha* powder which are crucial for timely maintenance and cleaning.

**In KMC, of the 198 respondents, 92% respondents could explain maintenance and use of the septic tank.** Each household had a specific maintenance instructions' manual. The most common response was the efficient use of water i.e. 57%. Respondents (38%) also mentioned using Reetha Powder to get rid of the foul smell, a timely inspection of the septic tank (30%) and pumping the septic tank every 5 years to clean the waste (18%). They were also instructed to avoid disposing of sanitary napkins, cigarette butts (30%) and to put eggs and

lemon in septic tanks to increase the bacteria (20%). However, despite being prohibited to use 5% of respondents use Harpic liquid toilet cleaner. As a result, all the bacteria inside the septic tank gets killed and respondents have to clean the septic tank in less than 2 years.

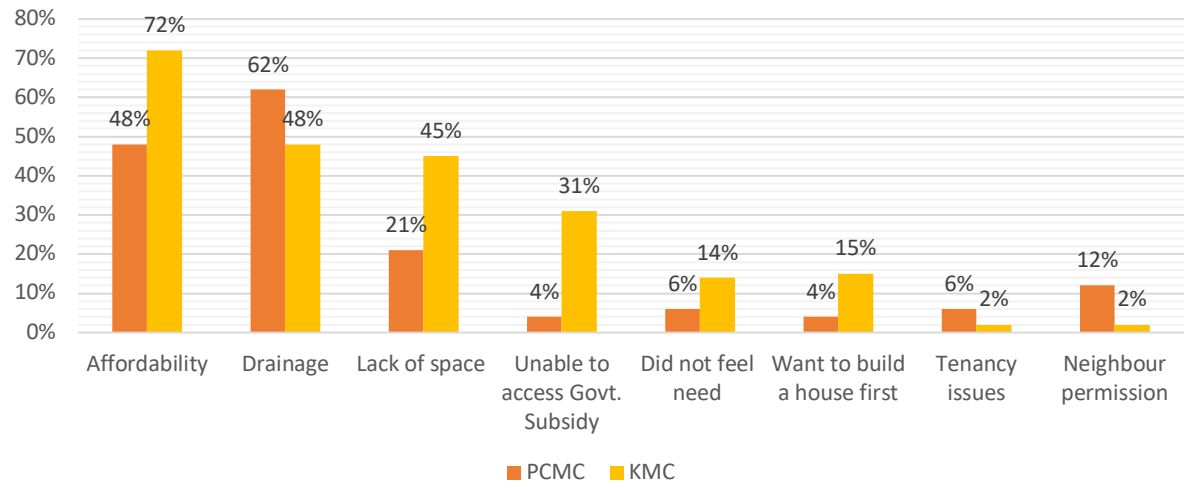
*Figure 42: Knowledge on Septic Tank precautions among KMC respondents*




## 3.3. Program Engagement and Feedback

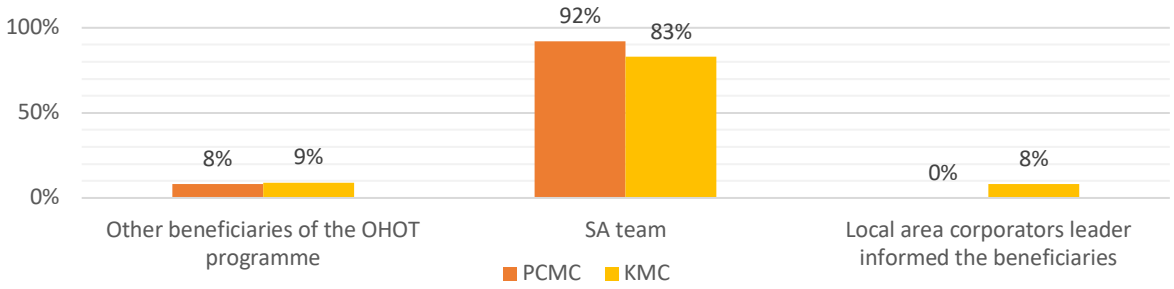
**The main reason for not building prior to OHOT program was unavailability of sewage line (62%) in PCMC, while in KMC the prominent reason was high construction costs (72%).** In PCMC, other issues that prevented them from building a toilet were high cost (48%), lack of space inside the house (21%), no permission as the slum settlement is illegal and permanent construction was not allowed (12%), tenancy issues (6%), wanting to build the house first (6%) and unawareness or lack of documents for subsidy available under schemes like Swachh Bharat Abhiyan (4%). 6% of respondents were satisfied with the current CTBs and didn't feel the need to build a toilet. In KMC, the other reasons for not building household toilets were unavailability of sewage lines (48%), lack of space inside the house (45%), lack of awareness of subsidy (31%) and 15% want to build a house first and then the toilet. 14% of respondents were satisfied with sanitation facilities; they didn't feel they needed household toilet facilities. However, they decided to build the household toilet later as they observed that having a household toilet increases social status; and guests feel more welcome and comfortable having a household toilet. On the other hand, 2% of respondents 2% faced opposition from their neighbour because of assumed foul smells.

*Figure 43: Reasons for not building toilets before the OHOT Program*



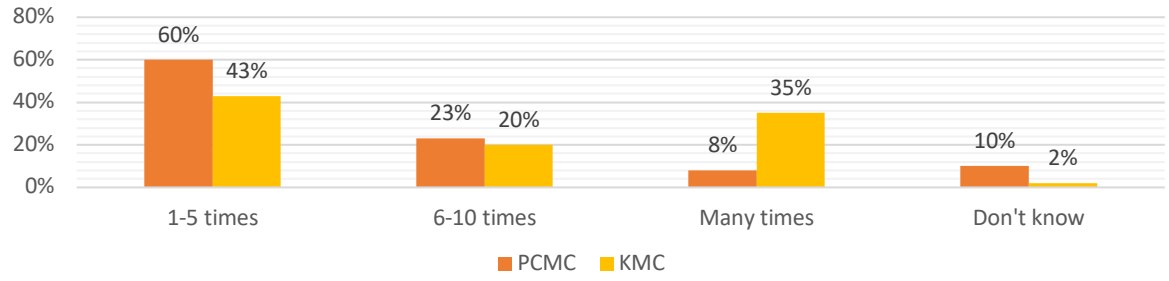

**Maximum respondents mentioned they came to know about the program through door to door visits and community meetings organised by Shelter Associate team members in PCMC (92%) and KMC (83%).** In PCMC, the remaining 8% of the respondents got to learn about the program from other beneficiaries. In KMC, 9% got to know from other beneficiaries of the OHOT program. Whereas, in Awachit Nagar, Kadam Wadi, United Agency and Dombar Wada respondents were informed by their respective corporators of the area.

*Figure 44: Program Information and Mobilisation*




**There was very good recall on interactions with Shelter Associates staff, and the average number of interactions were 5 meetings for PCMC and 10 meetings for KMC.** In PCMC, 60% respondents had interacted with the SA staff for 1-5 times during the course of program implementation. 23% of the respondents had interacted around 6-10 times, whereas 8% had interacted many times but didn't remember how many times. In KMC, of the total respondents, 43% of them interacted with SA staff a minimum of 1 to maximum of 5 times during the construction of the household toilets. On an average respondents interacted with staff members 10 times during the construction of household toilets. Subsequently, 20% interacted 6 to 10 times with concerned SA staff.

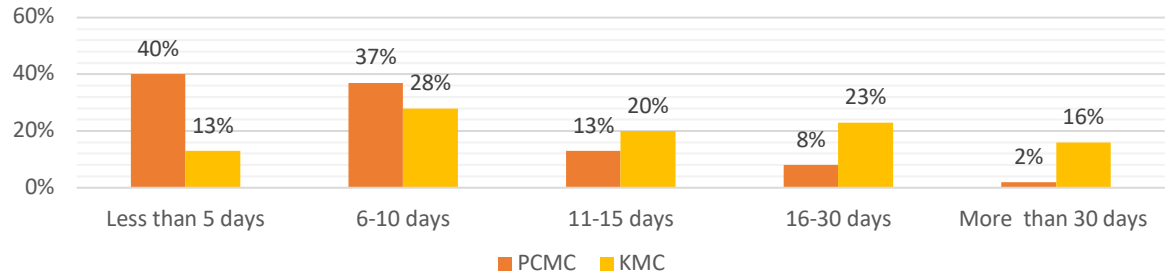
*Figure 45: Interactions with SA Staff*




**Across PCMC and KMC, 88% respondents stated that they decided the location of the toilet on their own, while 12% mentioned the location was decided in consultation with Shelter Associates.** In slums of KMC: Dombar Wada, Takala Khan and United Agency slums respondents decided the toilet location in consultation with concerned Shelter Associates members as there was lack of space to build the household toilet (Annex 26).

**Most toilets across PCMC and KMC were built within two weeks.** In PCMC, the time taken to build the toilet for 40% of the respondents was less than 5 days. For 37% of the respondents the time required was 6-10 days. The time taken to build the toilet and get it functional varied depending on the delivery of individual materials, labour availability, connection with the sewage line, and arranging the funds for construction. In KMC slums of United Agency, Awachit Nagar, Phule Wadi and Ambedkar Nagar slums 28% of respondents took 6 to 10 days to build the household toilets. The respondents from Ambedkar Nagar, Dombar Wada, Kadam Wadi and Bhagat Singh Vasahat took more than 30 days as they decided to upgrade their house along with the construction of household toilets i.e. 16%.

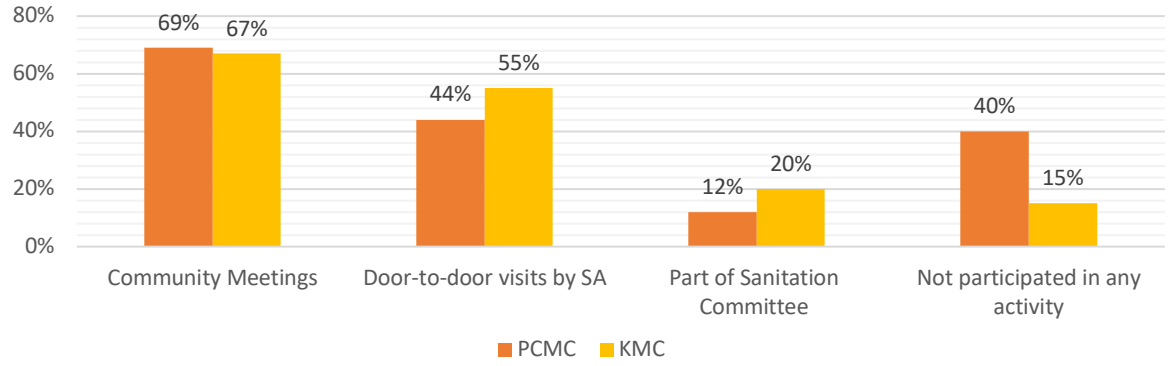
*Figure 46: Time taken to build toilets*




**Community meetings were the most popular form of engagement with Shelter Associates, across PCMC (69%) and KMC (67%).** As part of community meetings, information was shared on sanitation, general cleanliness, the OHOT programme, etc. SA staff would take transect walks of the slum and see the construction, usage and maintenance of the toilets, and conduct children's workshops to educate them about sanitation and cleanliness. Home visits were also common among PCMC (44%) and KMC (55%) where SA staff would visit homes to finalize toilet space, oversee the construction progress, interact with the community at household levels and clear any doubts that beneficiaries had. 40% of the PCMC beneficiaries did not take part in any activities. Possible reason for not attending any activities could be due to work timings it was not feasible to attend, another family member had attended but the respondent was not aware of the same. Whereas in KMC, 15% respondents from Ambedkar Nagar, Salokhe Park and Takala Khan did not attend any of the activities as they were occupied with their work.

**There were respondents who were part of the sanitation committees across PCMC (12%) and KMC (20%).** In PCMC, 3 respondents were from Balaji Nagar. Remaining 3 of the respondents were from Sanjay Gandhi Nagar, Vidhya Nagar and More Vasti. In KMC, respondents stated that they were quite occupied with their work-life hence they couldn't spare time to join the sanitation committee. Out of the total respondents, only 20% have joined the sanitation committee from United Agency, Kadam Wadi, Salokhe Park Bhagat Singh Vasahat and Phule Wadi.

*Figure 47: Participation in Program Activities*




*The programme was first launched in Rajan Nagar and Bondhre Nagar. An MoU with the residents on a bond paper of 100 rupees would be signed. Community meetings would be held. FGDs with different ages, genders would be held. We would recommend that people build it inside their home. We also began to tell them that they would get material until a certain point. Depending on what the requirement was, we would deliver a horizontal or vertical septic tank. Lots of thinking went into this. Shelter Associates team made recommendations to ensure there were no choke ups. We worked on building awareness around septic tanks- Yellow is bad and the waste should be black. We held corner meetings, sanitation workshops for young, girls taught them about good touch and bad touch, familiarised them with the institute. We learned a lot from the FGDs about the area.*
*- 35 Female, Shelter Associates Staff, KMC*

**Across both locations, ratings[16] were higher for interactions with SA staff in comparison to ratings on the raw materials provided for the toilets.**

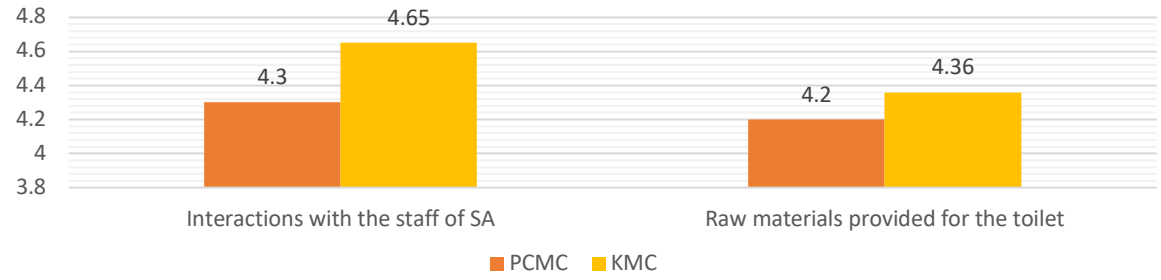
**The ratings on interactions with SA staff does show a direct association with the number of times the beneficiary had interacted with the SA team.** As frequency of interaction increases, the ratings of interaction increases as well. There is strong positive correlation (coefficient of correlation is 0.94) between frequency of interaction and rating of interaction (Annex 26).

**In PCMC, the quality of material was satisfactory for 84% of the respondents.** The issues faced by 14% of the respondents were the quantity of the material was not enough and they had to purchase more material on their own, the ventilation window was very small, the door or pot were damaged, and the tiles were slippery and risky to use by elders. In KMC, 87% of the respondents were satisfied with the quality of the material provided. Only 11% of the respondents were not satisfied with the material provided, they faced certain issues

[16] 5-point Likert scales were used to garner program feedback on interactions with SA staff and quality of material provided to build the toilet.

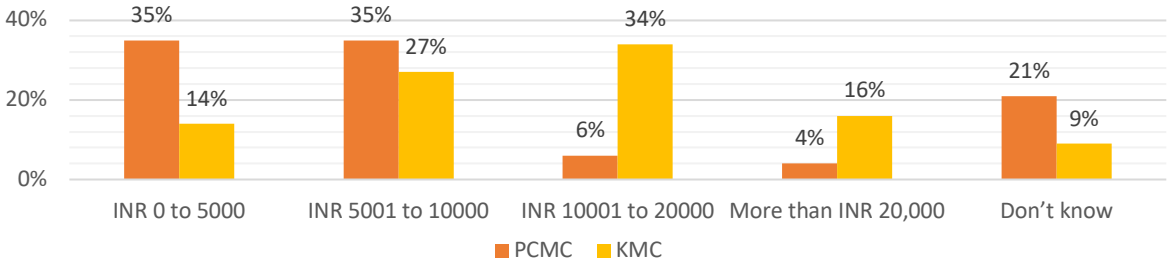
like insufficient material quantity, damaged doors, bricks, tiles and toilet pots. Some of the material was replaced but other things they had to get themselves. Around 13% PCMC respondents (7) and 12% respondents in KMC (30) rated material either as bad, very bad or average.

*Figure 48: Program Feedback and Rating*




**The average amount spent by the beneficiaries considered in the sample was INR 8,400 to build the toilet in PCMC, whereas the median amount spent was INR 7,000. In KMC, the average amount spent by the respondents on toilet construction is INR 18,345 and median is INR 13,000.** In PCMC, 35% beneficiaries spent up to INR 5000 for the construction of toilets, as they themselves did the mason work and built the toilet themselves. 35% of the beneficiaries had spent around INR 5001- 10,000 on the toilet construction. 21% of the beneficiaries were not aware of the expenditure. In KMC, 34% of the respondents from Phule Wadi, United Agency and Ambedkar Nagar spent INR 10,001 to 20,000 on construction of the household toilet. Subsequently, 14% of the respondents spent less than INR 5,000 in construction of the household toilets as some of them were masons so they built their own toilets hence their toilet construction expenditure decreased. On the contrary, 16% of the respondents from Kadam Wadi, Awchit Nagar, Dombar Wada and Takala Khan slums spent more than INR 20,000 in construction of the household toilets as they have also undertaken other house renovations compared to other households.

*Figure 49: Costs for Building the Toilet*

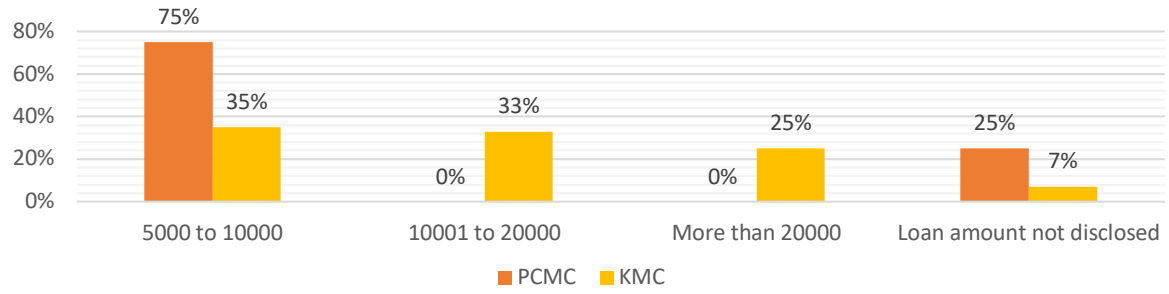



**Higher number of respondents in KMC (38%) took loans to build toilets than respondents in PCMC (15%).** PCMC beneficiaries had taken a loan to pay for the cost of labour and additional material that was required. In KMC, respondents needed money to build the toilet and took loans. (Annex 27 )

**KMC slum respondents took more value loans than those from PCMC slums.** In PCMC, 4 of the beneficiaries took a loan of INR 5,000. 1 of the respondents took a loan of INR 7,000 and 1 of the respondents took a loan of INR 10,000. 2 of the beneficiaries who had taken a loan were not aware of the amount. In KMC, of the 95 respondents who availed the loan, 67% availed a loan amount of between INR 5,000 to 20,000. Furthermore, from Awachit Nagar, Ambedkar Nagar, Phule Wadi and Kadam Wadi slums 25% of respondents have availed

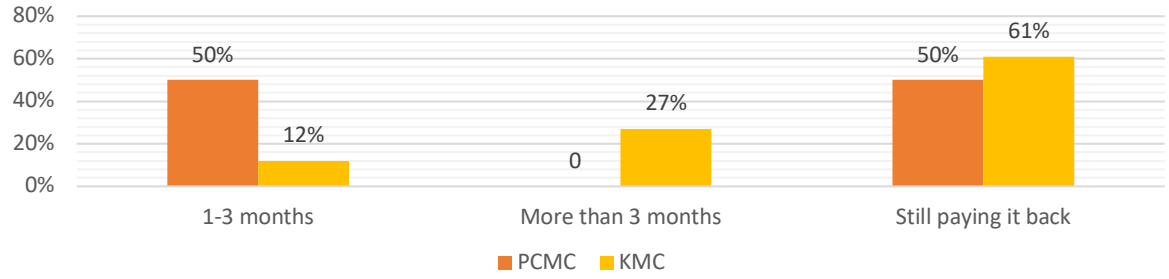
of a loan of more than INR 20,000 as they have upgraded their houses along with the construction of the household toilets.

*Figure 50: Loan Amounts*



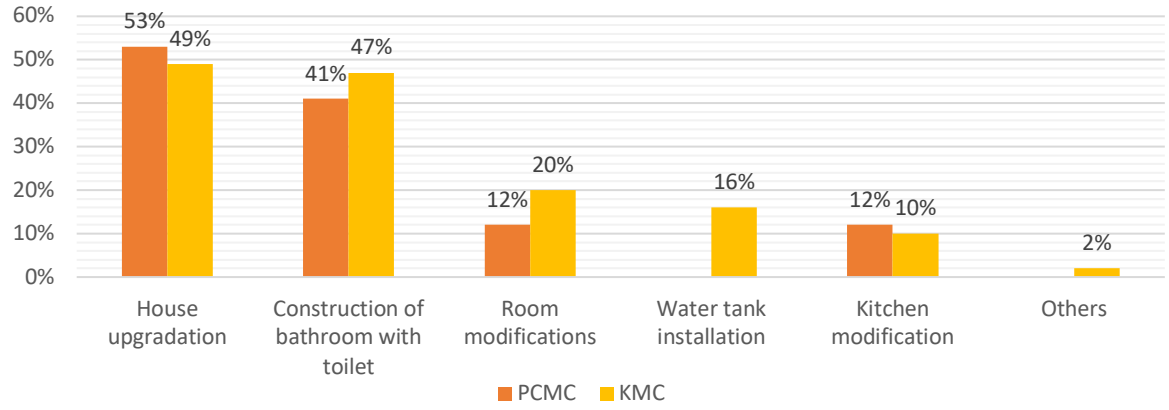

**A large number of respondents across PCMC (50%) and KMC (61%) are still paying back the loans they took for toilet construction.** In PCMC, due to Covid-19 lockdown and restrictions, income has been impacted and there is a delay in loan repayment. 50% beneficiaries paid the loan back in 1-3 months of the time after construction. In KMC, of the total respondents who availed the loan, some are still repaying their loan amount in Awchit Nagar, Phule Wadi, Ambedkar Nagar, Dombar Wada and Bhagat Singh Vasahat. Whereas 27% of the respondents from Ambedkar Nagar, United Agency and Kadam Wadi have repaid the loan in the span of more than 3 months. On the other hand, from Bhagat Singh Vasahat, Takala Khan and Kadam Wadi slums 12% of the respondents repaid the loan in the span of 1 to 3 months as their loan amount was comparatively small.

*Figure 51: Loan Repayments*



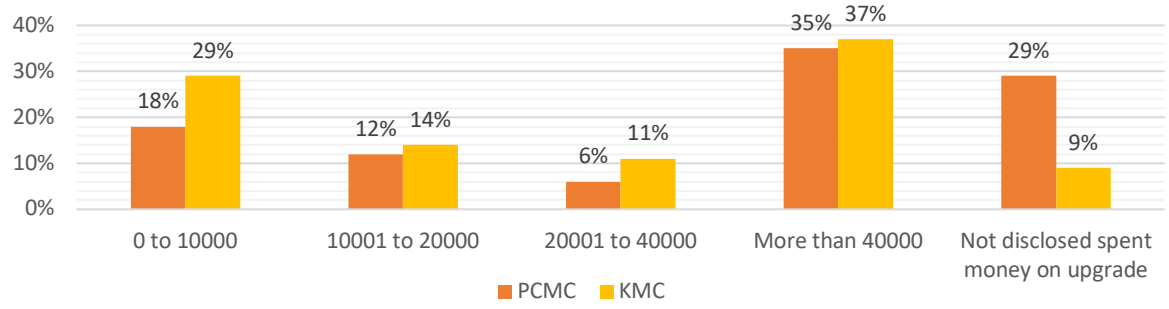

**House upgrades during the construction of toilets was seen in both PCMC households (33%) and KMC households (40%)** (Annex 29). In PCMC, 53% of the respondents undertook house renovations including building more rooms, constructing a second floor, modifying the house to create space for the toilet, changing the floorings of house, repainting the entire house, etc. along with building toilets. Other upgrades some beneficiaries undertook were building/renovating the bathroom (41%), room modifications (12%) or kitchen modifications (12%) to separate them from the toilet. In KMC, out of the 100 respondents who have upgraded their houses in the form of construction of second or more floors, flooring modification, wall and roof construction, painting the entire house, etc. These respondents are from Kadam Wadi, Awachit Nagar, United Agency and Phule Wadi. Furthermore, 47% constructed a bathroom along with their household toilets in Bhagat Singh Vasahat, Takala Khan, Dombar Wada and Phule Wadi. Since the space inside the house has decreased, some modified their rooms. Some installed water tanks as they were instructed by the SA team to use ample water to clean the toilets and a few renovated their cowsheds.

*Figure 52: House Upgrades along with Toilet Construction*




**Respondents from KMC spent more money on home upgrades than those living in PCMC slums.** In PCMC, 35% of the beneficiaries who undertook the upgrade spent more than INR 40,000 for the renovations and modifications. 18% of the beneficiaries spent up to INR 10,000 for the upgrades whereas 12% spent around INR 10,001-20,000 for the upgradation. 29% of the beneficiaries who had taken upgrade but were not aware of the expenditure as some other family member was handling the expenses. In KMC, of the total respondents who upgraded their house, 29% of them have spent up to INR 10,000 to upgrade their houses. Gradually, in Kadam Wadi and United Agency 14% spend a minimum of INR 10,000 to 20,000 on upgrades. From Awachit Nagar, United Agency and Takala Khan, 37% of respondents decided to upgrade their house as they spent more than INR 40,000. 9% of the respondents from Takala Khan, United Agency, Dombar Wada and Ambedkar Nagar were reluctant to disclose their amount spent on house upgrades.

*Figure 53: Money spent on Home Upgrades*




**While analysing loans between those who constructed only toilets and those who also undertook house renovations,** 51% of those who took loans only constructed toilets in KMC whereas in PCMC 63% only built toilets. The average amount of loan to build the toilet is INR. 16,894 whereas the INR. 79,763 is the average loan amount who have decided to upgrade their house along with the toilet construction.

*Table 8: Loan Details, disaggregated for construction type (KMC)*

| Type of Construction | Respondents | Average loan amount | Number of respondents still paying back the loan |
|---|---|---|---|
| Only Toilet | 48 (51%) | 16894 | 24 |
| Toilet + House Upgradation | 47 (49%) | 79763 | 34 |
| **Total** | **95** | | 58 |

*Table 9: Loan Details, disaggregated for construction type (PCMC)*

| Loan | Respondents | Number of respondents still paying back the loan |
|---|---|---|
| Taken loan to build the toilet | 5 (63%) | 4 |
| Taken loan to upgrade the house | 3 (37%) | 3 |
| **Total** | 8 | 7 |

# 4. SUMMARY OF RESULTS

Results and findings have been presented below on the basis of six key criteria (relevance, coherence, effectiveness, efficiency, developmental impact and sustainability) as represented by the Development Assistance Committee (DAC) of the Organisation for Economic Cooperation and Development (OECD).

- **Program Relevance**

As substantiated by qualitative profiles of slums, while CTBs are present in all slums, they are in dismal conditions and are not regularly maintained. With the increasing industrialisation and the lack of space in slums, open defecation is extremely challenging for people, especially women, children, elders and persons with disabilities. As per 79% respondents in PCMC and 81% respondents KMC, multiple challenges were faced while resorting to open defecation and using CTBs.

Maintenance and cleanliness of CTBs were not regular and the unavailability of water made it difficult to clean CTBs daily. CTBs were difficult to access for children, elders, pregnant women and persons with injury or disability, as the CTB would have overflowing water making the pathway slippery, and they would get tired of holding buckets in a long queue for using the CTB. Lack of privacy was also an issue as the CTBs didn't have functional doors or latches. Women respondents highlighted issues like lack of privacy and safety concerns as they needed company to go after sunset. Some respondents also mentioned having drunkards' presence in their slums hence they feared for their family members' safety. Flooding during monsoon made using CTBs difficult due to accumulation of water as the roof was not present in most of the CTBs. Lack of privacy was also a matter of concern especially for menstruating women because at some CTBs, the doors and latches were broken, therefore at times they had to practise open defecation.

As far as open defecation was concerned, respondents felt a lack of privacy while defecating in the open as several other persons used to come there for defecation. Due to bumpy terrain, the open field gets flooded during the monsoon season. Some respondents mentioned that at late evenings it was difficult to go for open defecation as there were no lights and they also mentioned getting bitten by snakes and scorpions while practicing open defecation. As to maintain privacy, respondents had to go very far from their houses to defecate in the open.

These facts highlight the high relevance of the program in building household toilets in these slums.

- **Program Efficiency**

While interactions with SA team members have high recall among respondents, participation in awareness programs and community meetings was only stated by 69% in PCMC and 67% in KMC. Many respondents state a financial strain after building toilets, especially since they took loans right before Covid-19 when they lost their jobs and had limited financial stability. Few respondents provided negative feedback on materials provided for the toilets, especially doors, tiles and pipes.

Maximum respondents mentioned they came to know about the program through door-to-door visits and community meetings organised by the Shelter Associate team. Community meetings were the most popular form of engagement with Shelter Associates, across PCMC (69%) and KMC (67%). As part of community meetings, information was shared on sanitation, general cleanliness, the OHOT programme, etc. SA staff would

take transect walks of the slum and see the construction, usage, and maintenance of the toilets, and conduct children's workshops to educate them about sanitation and cleanliness. Home visits were also common among PCMC (44%) and KMC (55%) where SA staff would visit homes to finalize toilet space, oversee the construction progress, interact with the community at household levels and clear any doubts that beneficiaries had.

Most toilets across PCMC and KMC were built within two weeks. The time taken to build the toilet and get it functional varied depending on the delivery of individual materials, labour availability, connection with the sewage line, and arranging the funds for construction.

Efficiency of the program is measured in terms of infrastructure of toilets and maintenance. Large numbers of households did not have handwashing basins, and soaps available in the toilets. There were also toilets where lighting and ventilation were inadequate. This showcases that while information on sanitation and hygiene is shared by the program, infrastructure can be strengthened to enable regular hygiene practices. However, the program was efficient in terms of building adequate drainage systems in these slums.

Results also showcase knowledge among participants on septic tanks, but information shared by them is limited and should be a focus, to ensure appropriate maintenance and continued use among households.

- **Program Effectiveness**

The program has been effective in improving access and getting people to use household toilets. However, 16% households in KMC and 12% households in PCMC, have at-least one person in the house who either used Community Toilets or Open Defecation.

Of those who stated reasons for not using toilets, using CTBs as a habit was the most common response. Another prominent reason for not using toilets was the discomfort at small home toilets. The data was indicative of the fact that behavioural change communication is an important factor in such interventions. Lack of water availability was also a reason for 100% persons not using the toilets. There were cultural beliefs, such as the male population think that toilets are built for women, one should not eat and defecate in the same room due to foul smell, etc. Few respondents reported drainage issues after building the toilet, due to clogging and overflowing of sewage chambers. Other issues that many of the respondents highlighted was rat infestation from the toilet pots.

Program effectiveness can be strengthened by improving water supply, waste management and drainage systems in these locations, along with behavioural change strategies to address myths and beliefs of communities.

- **Program Impact**

At an individual level, respondents stated time saving as they no longer had to travel to CTBs or open defecation areas and wait in queues to use CTBs. Female respondents reported that privacy has increased and the safety concerns around them going alone to the CTB, or open defecation spot has reduced. The number of women restricting liquid and solid consumption at night has also significantly reduced after household toilets. Women respondents also showcase improved menstrual hygiene practices with a significant improvement in the number of times sanitary products are changed during menstruation. The prevalence of UTI among female respondents has reduced in both slums.

At a household level, usage of HH toilets by all members was seen to reduce the morbidity rate. Respondents felt that their household incomes have improved because of having toilets in their houses, since they could get

to work on time (and hence work for longer hours). Household toilets have led to improved social status in terms of getting better marriage proposals, being able to invite guests over, etc.

At a community level, toilets have resulted in overall cleanliness of the slum, and an increase in property values and rents. For most respondents, the biggest advantage of having a toilet at home during the Covid-19 pandemic was convenience. They didn't have to step out of the house or take permission to go to the toilet in lockdown. Many respondents tested positive so having household toilets became a boon for them and others.

The largest percentage of persons across both locations feel that the key impact is improved access to vulnerable groups. The program is seen to have higher impacts on women, persons with disabilities and the elderly.

- **Program Coherence**

The program has collaborated with local Corporations which ensures smooth implementation and higher community level impacts, especially in terms of building better drainage systems and improving overall sanitation infrastructure in these slums. It is coherent with the national *Swachh Bharat Mission* and aligns perfectly to the scheme's priorities.

The slum-level and household-level data mapping undertaken by Shelter Associates adds considerable value for Government bodies to plan data-driven interventions to meet the gaps in the delivery of sanitation. The data from the infrastructure mapping informs the process of laying and upgrading the drainage lines in areas that are not equipped to handle the new channels of waste. The data is also utilised by the Municipal Corporation to distribute masks and other relevant materials in the Covid-19 context. In 2020-21, this data was utilised to roll out digital addresses to households across various cities in Maharashtra.

- **Program Sustainability**

Sustainability of program impacts is highly dependent on the advocacy measures undertaken with communities on cleaning and maintenance measures and if CTB conditions are improved. Since many men of households still use CTBs, it is important to consider CTB maintenance and promoting higher awareness among people on waste management, good toilet practice and basic hygiene and cleanliness. These factors, if considered, will lead to the program having much higher potential for sustainability of impacts.

# 5. RECOMMENDATIONS

The recommendations presented below recognise the complexities of large scale behavioural change and difficulties faced while strengthening the public delivery of services to informal settlements (Fig. 50).

*Figure 54: Factors affecting improved access to sanitation*


Based on study results and research team observations, the following action areas can be considered:

**1. Revisit the toilet design to improve WASH amenities**

Toilet infrastructure should be a focus, for the eventual objective of toilet use, and improvements in health and hygiene among communities. WASH amenities include water storage points, handwashing basins, dustbins and waste disposal units, electricity and lights, along with good ventilation.

- *Since most households store water in the toilets in buckets and drums, there is a need to create spaces for water storage in toilets.*
- *Handwashing basins were found in very few toilets. This should be addressed by including handwash basins in the toilet design.*
- *Availability of lights and ventilation should also be a focus during construction and design.*
- *Based on the findings where in-house toilets are seeing more disadvantages, toilets could be constructed outside for small houses, if feasible.*

**2. Strengthen community engagement and post-program tracking**

Behavioural change takes time—usually longer than we prefer, and hence mobilising communities and motivating them to build toilets is not enough. It is important to hand-hold and work with people for a longer period of time to ensure the program is relevant, effective, impactful and sustainable in the long run.

- *There is a need to include a follow-up component to the project to ensure communities are visited on a regular basis to address problems and long-held beliefs. Ideally, the beneficiary should be tracked over 2-3 years to ensure all members are using toilets and face no difficulties.*
- *Additional community awareness and advocacy activities should be organised, preferably by capacitating Sanitation Committees to do so. These should focus on handwashing, toilet cleaning and maintenance, and general hygiene practices. Infrastructure provided in toilets should support the practices that are advocated, i.e. handwashing basins for handwashing practice.*

**3. Focus on the next set of related and critical outcomes for safe sanitation**

To ensure sustainability of the significant progress made on toilet access and ensure continued usage of facilities created, it is important to provide sufficient water connections for sanitation systems to work. Proper collection, containment, treatment, disposal, or recycling of faecal waste accumulated in septic tanks is crucial.

- *There are significant relationships between water availability, toilet usage and cleaning. Further, the availability of water at a household level impacts various outcomes like morbidity trends, and hygiene practices. Working with local corporations for improving regular water supply should be prioritised.* Innovations like *CDD's Decentralized Wastewater Treatment System (DEWATS) designed to encourage the development of smaller, more affordable systems to treat wastewater closer to the point of generation, enabling more effective water reuse for toilet flushing, could be explored. Options for wastewater treatment should be identified based on feasibility, which include:- Household-level treatment (Septic tank with an anaerobic filter connected to surface water drainage channel),-Small communal wastewater system (Baffled septic tank or septic tank followed by anaerobic filter or constructed wetlands) and- Off-site (local) small-scale treatment systems (Waste stabilization ponds, Reed beds)*
- *All areas where septic tanks were installed had a bad stench owing to them. Septic tanks have to be maintained better to ensure long term usage of toilets and sustainability of impacts. This includes regular desludging, treatment and disposal/reuse of faecal matter generated from toilet usage. Disposing of human waste in open lands/fields or in the river/lake/pond can cause water borne diseases. Faecal Sludge Treatment Plant should be introduced with the help of the local government.*
- *Moreover, specific septic tank installation training should be provided to masons, because if the septic tank is not installed properly it can cause stench in the entire area. (In KMC, many of the respondents were occupied in masonry so to save themselves from the extra expenses of septic tank installation, they built toilets and installed septic tanks themselves.)*

**4. Maintenance of CTBs should be a priority**

If impacts on health, safety and privacy want to be brought about among communities, CTBs should be a focus. Men want to use CTBs and this should be addressed since CTBs are close and accessible, especially for men and youth. Specific improvements needed in CTBs include:

- *Proper doors and latches should be available in each toilet block*
- *CTB cleaning should be done on a daily basis, not only with water but with liquid toilet cleaner*
- *To reduce mosquito infestation CTB water tanks should be covered with lid cover and tanks should be cleaned once in a while*

- *Each CTB block must have a minimum zero watt bulb inside each toilet block*
- *CTBs must have dustbins to dispose of trash*

**5. Strengthen Sanitation Committees**

Sanitation Committees must be strengthened to collaborate with local bodies and officials, and undertake three main activities in the slums.

- *Since all the surveyed slums have open gutter lines, timely cleaning of drainage is required, which can be propelled by active Sanitation Committee members*
- *Regular visits should be made by the Municipal Corporation garbage vans in respective slums, which can be ensured by members.*
- *Awareness sessions can be organised by the committee which mainly focus on waste segregation, and not disposing garbage in the open drainage lines.*

*Awareness on garbage disposal in slums. People put garbage in sewage lines only which clogs the drainage and chamber overflow. Cleanliness inside homes has improved, but not outside. Our sewage pipes keep choking up. Bigger sewage pipes are needed*
*- Female, 45 years, Balaji Nagar, PCMC*

*We had started work on wet/dry waste segregation, but were not able to follow through. We need to work on this. Our work on waste management was separate from the main project but these things are interlinked. We try to address critical needs, but we need more corporation involvement. We have a letter from the corporation, but MoUs at the administration level and improvement in drainage systems would help to fasten the process*
*- SA Implementation Staff, KMC*

**6. Explore Innovations to strengthen the program**

- ***Samagra Sanitation:*** *Samagra functions as an agent of behavioural change with user-friendly toilet design and a unique "LooRewards" loyalty programme. Samagra is presently working on eco-friendly and sustainable toilets that can convert human waste into electricity and give away bio-fertilizes as a by-product. With sufficient funds available, Samagra's mission is to open up "Poop Franchises" which will combine Poop Rewards and the renewable waste-to-fuel toilets to build sanitation networks in urban as well as rural India. The organization is currently making a profit in about 40% of its sites and over the next six months, Samagra hopes to break even before setting up operations in three additional Indian cities.*
- ***Magic Genie Eco Toilet:*** *The Magic Genie Eco-Tech Smart Green Toilet is an integrated solution that provides "toilet as a service". These self-cleaning toilets do not require a sewage or water connection and save upto 300,000 litres of water per seat per year. Operated and managed by the A2Z Group, these portable toilets require minimum manual interference and are suitable for both high- footfall locations as well as remote areas.*
- ***Solar Powered Urine Diversion (SPUD) Toilets from Africa****: 100% waterless and chemical-free, this toilet model is not only affordable but also user-friendly and can be easily installed in rural parts of India. Moreover, this model is low maintenance, saves water and is one of the most advanced composting toilets in the world.*

- ***Garv Stainless Steel Public Toilet Infrastructure****: Indestructible and smart – Mayank Midha's stainless steel smart toilet launched in September 2016 is a comprehensive and sustainable solution to end open defecation in rural India.*

**7. Facilitate Government Scheme Linkages**

A very large number of respondents mentioned their poor housing conditions and the need for support in improving housing structures. There could be synergies built with Government schemes to address this important need of the community. The relationships already existing in these communities could be further developed to improve living conditions.

- *Beneficiaries of Economically Weaker section (EWS) and Low Income Group (LIG) seeking housing loans from Banks, Housing Finance Companies and other such institutions are eligible for an interest subsidy at the rate of 6.5% for a tenure of 20* years or during tenure of loan whichever is lower.*
- *Under the Credit Linked Subsidy Scheme for EWS/LIG families, repairing work to the existing house can be undertaken in houses which are kutcha, semi pucca and require extensive renovation to make it into a pucca house. Though for repair the area is limited to 30 sq.m. and 60 sq.m. of carpet area for EWS and LIG category respectively.*

Cost sharing and affordability of toilets should be considered. 40% respondents took loans which means affordability should be a factor and there should not be a one size fits all to construct toilets. Support can be decided based on financial conditions and household incomes since 61% are still paying back the loans.

- *The Credit Linked Subsidy under the PM Awas Yojana gives subsidized loans for repairs and extension of house as well for EWS/LIG households. This can also be used as a support mechanism when beneficiaries are looking to take on additional loans which might be more expensive.*

# LIST OF ANNEX

**Annex 1: Levels of Impact reviewed through this assessment**

| | |
|---|---|
| Individual Level | Time saving |
| | Improvement in ease of access to toilets |
| | Increase in privacy |
| | Improvement in personal hygiene and cleanliness |
| Household Level | Improvement in ease of access for elderly/children/disabled |
| | Reduction in household expenditure to treat infections and water borne diseases |
| | Reduction in safety concerns for family members around toilet usage |
| | Improvement in family health |
| | Increase in monthly household income |
| Community Level | Improvement in general cleanliness of the area |
| | Helped in exchange community cohesion |
| | Increase in property value |
| | Increase in social status |

**Annex 2: Slum-wise breakdown of vulnerable households in KMC and PCMC**

| | **KMC** | | | | **PCMC** | | |
|---|---|---|---|---|---|---|---|
| **Sr. no** | **Slum Name** | **Number of Respondents** | **Vulnerable Groups** | **Sr. no** | **Slum Name** | **Number of Respondents** | **Vulnerable Groups** |
| 1 | United Agency | 46 | 6 | 1 | Balaji Nagar | 19 | 1 |
| 2 | Ambedkar Nagar | 40 | 15 | 2 | More Vasti | 13 | 1 |
| 3 | Awachit Nagar | 32 | 5 | 3 | Sanjay Gandhi Nagar | 9 | 2 |
| 4 | Phule Wadi | 26 | 3 | 4 | Vidhya Nagar | 7 | 2 |
| 5 | Takala Khan | 26 | 6 | 5 | Shanti Nagar | 4 | 3 |
| 6 | Bhagat Singh Vasahat | 24 | 5 | | | | |
| 7 | Kadam Wadi | 23 | 5 | | | | |
| 8 | Salokhe Nagar | 18 | 6 | | | | |
| 9 | Dombar Wada | 18 | 6 | | | | |
| | **Total** | **253** | **57** | | **Total** | **52** | **9*** |

* 11 households in Balaji Nagar in PCMC were not traceable for details on presence of vulnerable groups while determining final sampling. As a result, this number of 9 vulnerable households is likely an under-representation of the actual number of vulnerable households visited.

## Annex 3: Profiles of Respondents

| Sr.no. | Type of Stakeholder | KMC/PCMC | Name | Age | Gender | Association with SA |
|---|---|---|---|---|---|---|
| 1 | Community Leader | KMC | Rajashree Srikant Solanki | 54 | Female | Support Staff |
| 2 | Community Leader | KMC | Kavita Vaibhav Mane | 40 | Female | Corporator in 2019-20 |
| 3 | Community Leader | PCMC | Rekha Bapu Yadav | 45 | Female | Community Member |
| 4 | Community Leader | PCMC | Sushila Pratap Bansode | 55 | Female | Community Member |
| 5 | Government Staff | KMC | Vijay Patil | NA | Male | Chief Sanitory Officer, KMC |
| 6 | Government Staff | PCMC | Asha Ravot | NA | Female | Ward Officer, PCMC previously but now Assistant Commissioner in PMC |
| 7 | SA Implementation staff | KMC | Shankar Ganpati Shrimangala | 38 | Male | 12 years with SA |
| 8 | SA Implementation staff | KMC | Noor Jehan | 50 | Female | 21 years with SA |
| 9 | SA Implementation staff | KMC | Nitatai Avinash Deshmukh | 35 | Female | 6 years with SA |
| 10 | SA Implementation staff | PCMC | Ishwar Kamble | 30 | Male | 5 Years with SA |

## Annex 4: PCMC Slum Profiles

**1. Balaji Nagar**

The streets were extremely narrow in this area. Since the roads were narrow, the pipelines were also narrow and this worsened the already poor drainage situation. This area was surrounded by the open drainage line, which looked visibly dirty. This was the only area where human excreta was visibly seen in streets.

This area had different terrain in different parts. Some of the houses that were located at a low altitude, had plastic sheets to prevent water leakages[SW1] . There were homes which were situated at a height as well. Due to the narrow roads and narrow pipes, houses on a height had issues around easy availability and good flow of water. [SW2] Robberies also occurred in Balaji Nagar.

Street dogs were a menace here which affected people engaging in open defecation and there were many cases of dog bites in the area. The open defecation spots were right next to the open drainage line which was parallelly close to the industry walls. The industry people would reportedly drive away those they found sitting for ODF.

There were CTBs with both women and men blocks. Drainage of the CTBs were poor and had severe leakage issues, where waste water went into people's homes. This resulted in health issues among residents owing to unhygienic surroundings. One CTB was built but was not in use. The chambers in CTBS were overflowing due to drainage issues and even open in some places. Residents had to call PCMC for chamber cleaning every 8-15 days. The research team was even asked if they were from the government and could help with cleaning. Some respondents also mentioned that some men would sleep in the girls CTB at night, so women had to resort to ODF on the open drainage line at night. Some respondents also noted that the males would use the Maharashtra Industrial Development Corporation (MIDC) toilets [SW3] when at work.

In terms of the OHOT program, individuals approached the research team to inform them that 4 household toilets *(not on the list)* were not functional. Some respondents had an understanding that they would recover money (spend now and recover later) and that they must spend on labour charges now and they will be compensated later. Some respondents mentioned that rats were a challenge for those who had toilets inside. Other respondents mentioned that sometimes, as part of the OHOT product provision, the arrival of the door was delayed, and in some cases, the 10ft pipe was not found to be adequate.

**2. More Vasti**

The roads in the area were very narrow, and water was overflowing all over. Some pockets also had kutcha homes, with many households having tin sheet material in house construction. There was an *Ayush* PHC in the vicinity.

This was one area where open defecation had long been prevalent. Respondents mentioned that they would go to the general open ground area next to the highway. They would use sarees to cover while open defecating earlier.

One 1 CTB was visited which had 4 toilets for males and 4 for females. Some men did come and use them whilst the research team was present in the slum, but they were very dirty. The area outside the CTBs was strewn with garbage and water/sewage water was flowing out of the CTB. Next to the CTB, there was a slope to go up to the main road. Some women mentioned that they had fallen near this slope.

The corporation's mobile toilets would arrive each day as well, in the past- there were 4 for men and 4 for women.

In one part of the pocket, people had multiple toilets. While one was built by SA another was built by PCMC (as part of Swacch Bharat Abhiyan). These homes were concentrated in one part of the slum.

One community leader (at whose home SA meetings would be held) had stated that people's dignity had increased after the toilets had come.

**3. Sanjay Gandhi Nagar**

In this area, internal roads were not dirty. They were narrow but clean. The streets were quite clean as compared to Shanti Nagar. Women in this community were sanitation workers, so they used their connections to get the area cleaning done. Flooding could be an issue in the monsoon. There was an existing sewage system that was built by the corporation prior to the toilet building. The garbage disposal norm had been to go and dump the waste in the common dustbin on the main road, which was picked up infrequently.

Kids practiced open defecation infrequently, but there were many instances of dog bites.

There were 2 CTBs in the vicinity, the female one was paid (INR. 30 per month) and the other male one was free. The male CTB which the research team visited had 10 toilets. Cleanliness was bad in the CTB. There were no door locks. The women's CTB, where a 30 rupees charge was to be paid, was reportedly cleaned each day with water. One CTB had a bathing space. All the CTBs lacked disability access.

In terms of the household toilets, there were multiple complaints of doors and pots broken. Some respondents mentioned that if money is given instead, they would make the entire toilet rather than just pay labour charges. This would improve the quality of the construction. Some respondents complained of space issues since the toilet was built.

**4. Shanti Nagar**

There was a sewage line in the area, although drainage was not covered widely. Water flowed on the roads.

There were 1 CTB with 5-6 toilets in the vicinity of the area the research team visited, approximately 150 meters away. There were 8 toilets in the closest women's CTB. There were 10 toilets in the closest men's CTB. There were no bathing spaces in the CTB. The level of cleanliness was bad. It was dirty inside and outside. The door was missing,

the lock was missing. Cleaning was infrequent, as per one person who had come to use the CTB. There was no payment to use the CTB. There was no running water inside the CTB. There was a water station outside the women's CTB where the person had to fill water and take it to use in the CTB. This would sometimes run out of water. Plus, it was a breeding ground for mosquitoes. There are no lights in the CTB. People would use torches to visit the toilet. Both the male and female CTBs lacked disability access.

**5. Vidhya Nagar**

On one side of this area, there were mines. This appears on the SA map as a large area with a green cover in the middle of the area. Visibly, this place seemed to have more well-to-do homes. While the research team were visiting the area, the PCMC members were digging to fix a pipeline issue. Street lights were widely available in the area.

In the areas the research team visited, the roads were broad, which contributed to lesser drainage issues. However, the roads inside were narrow and broader drainage lines were needed. In this area, the team encountered multiple homes that had their toilets on the upper floor.

2 CTBs were present in the area with the men and women toilets either in the same building or side-by-side. The CTBs here looked visibly better, although a couple toilets did have excreta lying in them. The steps had dried water on them and other stains. These CTBs were located at a height. They also had a huge platform outside. While they did have a slope, it was very steep and was not disabled-friendly. The gutter outside the CTB was very dirty. As compared to the other CTBs visited, the CTB's here were cleaner than other places but dirty nevertheless. In the CTB visited, lights were found in every toilet.

People in Vidhya Nagar mentioned that men did not use the household toilet.

## Annex 5: KMC Slum Profiles

**Awchit Nagar**

Awachit Nagar had a very wide geographical expanse. Housing structures were divided in the following manner: 20 % kutcha, 40 % semi-pucca, and 40% pucca. On average, house sizes were approximately 250-300 sq. ft. The people in the area were engaged in occupations such as Construction labour, House help, Vegetable vendor, Auto driver, Painter, and Government jobs, Electrician, Sweeper, Cook, Painter, Ward boy, and Salesmen. Construction labour, House help, auto driving, sweeping and painting jobs were available to be taken up in the area vicinity while those engaged in the other professions had to travel farther. The Pradhan Mantri Aawas Yojana scheme was availed by some residents in the area along with an old age pension scheme. Palak Manch Samvedna NGO was engaged in improving kids' education. No other entity was engaged in sanitation improvement in Awachit Nagar.

With regard to garbage disposal, the garbage van would come once a day to pick up the waste. KMC members would come to clean the gutter line once every six months. Due to the open gutter lines at some of the places, smells were very prevalent in the slum. Before SA intervention, some houses already had a septic tank. SA helped households to connect with the KMC drainage line and provided material for the same. The presence of one sanitation committee was noted in this slum. ODF was practised by approximately 40-50 persons in the dumping yard.

A total of 18 CTBs were noted in Awachit Nagar, of which the research team reviewed 5.

- In CTB 1, there was no access to street lights at night. It was very difficult to access and even used this CTB due to the unavailability of water. This CTB had 5 male toilets which were used by approximately 100 males. The female CTB had 5 toilets which were used by approximately 60 females. It was cleaned once a day and usage was free of cost.
- In CTB 2, there were 10 male and 7 female toilets. 50 males and 12 women used the male and female toilets respectively. Usage was free of cost. However, doors and latches were broken, and there were no lights in

the toilet blocks or running water available. This CTB was cleaned twice a week and was found to be very dirty.

- CTB 3 was only for males. It was used by 40 males in Awachit Nagar even though they have access to HH toilets because of habit. The toilets were very dirty, and there was a dominant smell in the CTB. Lighting was not available and doors were broken. Usage was free and it was cleaned twice a week.
- CTB 4 had 10 male and 10 female toilets, used by 40 males and 45 females respectively. While lighting around the area was adequate, the toilet blocks did not have lights. While usage was free, the toilers were very dirty. There was no water facility available. The toilets were cleaned once a week.
- CTB 5 had 7 male and female toilets. They were used by 120 males and 100 females respectively. is situated near the dumping yard of Awchit Nagar. It was very dirty and the lights were inadequate. It was cleaned once daily. While KMC had built this CTB, maintenance was not ensured. ODF was practised just outside this CTB.

**Ambedkar Nagar**

Ambedkar Nagar was another big slum area within KMC jurisdiction. Some families mentioned that their families had been living in Ambedkar Nagar for more than 2 generations. As regards to housing structure, 70% homes were semi-pucca, 20% homes were kutcha while 10 % homes were pucca. The average house area was 400 sq.ft. People living in the area were engaged in occupations such as cleaning, masonry, plumbing, painting, house help, and peons. Those who were engaged in work in proximity to the area worked as sanitation workers, masons, plumbers, painters, house help, and cooks. Reportedly, the Ramai Awas Yojana had been utilised by 10-15 beneficiaries to build home structures in 2 installments. Similarly, the Pant Pradhan Awas Yojana had been utilised by some beneficiaries to build houses in a 3-part instalment process. No other organisation was noted to be active and engaged in the Ambedkar Nagar area.

With regard to garbage disposal, the disposal car would come to pick up waste every day. Previously there used to be garbage bins, but they had been removed since a lot of waste accumulation occurred. These bins were located close to homes and would smell a lot. Gutters were cleaned on alternate days. Sanitary workers lived here. So they ensured that cleaning occurred frequently. Street lights were present. The drainage situation would get very bad in the monsoon. On one side were fields where water would accumulate and overflow into the houses and CTBs that were close to the fields. Drainage was mostly open all over the slum. ODF was sometimes practised by kids on the internal streets.

There was no sewage line running across this area. Septic tanks had become prevalent. 100 households had toilets prior to SA intervention and SA gave 100 more households toilets. The waste from the toilets went into the gutter directly. However, since all homes had septic tanks, SA had told people to treat the waste properly. They have been told that as long as it is grey, proper care was being exercised by the family around waste disposal, however if the waste was yellow, then there was a problem in the processing of the waste.

3 CTBs were identified in Ambedkar Nagar

- CTB 1 was available for males only. It had 6 toilets. Approximately 75 persons used the toilets in the CTB. It was cleaned once daily. It was very dirty with overflowing water visible all over. Usage was free. But, the lights were missing.
- CTB 2 was only for usage by females. It had 8 toilets that were used by approximately 20 females. It was cleaned once every 2 days. There were fields located behind the CTB. During the rains, water would accumulate around the CTB and women would be afraid of using it. Lots of tall grass was visibly evident around the CTB, and the possibility of snakes was stated by close by residents. No water was available inside. Users had to take water, which was available outside in a concrete storage structure, and go inside. The water however, was very dirty looking and seemed very unhygienic for use. Usage of this CTB was free.
- CTB 3 had 3 toilets for males and females respectively. In addition, it also had 3 bathrooms for males and females respectively. It was cleaned once every day. Water was only available for the women's toilets. The

male CTB did not have water. The approach road to this CTB was particularly bad as there was waste strewn outside. There was no arrangement for garbage disposal. Usage was free.

**Phule Wadi**

In PhuleWadi, housing structures were distributed in the following manner: Kutcha-50%,Semi-pucca-40%, and Pucca-10%. The average household size was 300 sq. ft. Daily wage labour, auto driver, painter, garage business were noted as common jobs. Residents who were engaged in daily wage labour and auto driving were engaged in the vicinity of the area.

The Phule Wadi slum had clean roads. Majority of the households had water meters installed with 24x7 running water supply. Every month households would get water bills and people should use water cautiously. In the slum, most of the roads are located on the main road, therefore, most of the houses get access to the main road. Street lights were not adequate

There was no drainage line before SA intervention. Very few households were connected to a drainage line/septic tank before SA. Presently, a garbage van would come twice a day to collect the trash. No government scheme, NGO or sanitation committee was noted to be functional in the area. ODF was not noted to be practiced in the area..

2 CTBs were identified in Phule Wadi.

- CTB 1 had 5 male and 5 female toilets. Approximately 40 males and 30 females used the CTBs per day. It was cleaned once daily but still requires more cleanliness. When the research team visited, lights were not present. Usage was free. This CTB was located in the centre of the slum.
- CTB 2 had 10 male and 10 female toilets. Approximately 50 males and 60 females used the toilets each day respectively. It was cleaned once daily and was relatively clean. Those who had a large family used the CTB and would also clean the toilet after using it. Usage of this CTB was free.

**Takala Khan**

As regards to housing structures, houses were approximately 20% kutcha, 70% semi-pucca, and 10% pucca. The average house area was 200 sq. ft. The main occupations that people were engaged in included masonry, construction labour, sweeping, house help, auto driving, and plumbing. Those who were engaged in close by areas included auto drivers, construction labour, painters and plumbers. The presence of the sanitation committee was noted in this area. No other organisation was noted to be engaged in this area.

The roads were bumpy and muddy. The garbage van would come once a day to pick up waste. The area is generally clean as compared to other areas, however, the narrow internal roads are not clean. An absence of foul smell was noted in the area, likely due to the absence of septic tanks in the area and a sewage line in place. There were insufficient streetlights in the area.

There was no drainage line before SA intervention and very few households were connected to a drainage line/septic tank before SA. Co-operation between SA and KMC led to a new drainage system being laid out in the Takala Khan area. While data on drainage cleaning frequency was not specifically identified, ODF was not practised in this area.

2 CTBs were identified in Takala Khan.

- CTB 1 had 9 male and 6 female toilets. It was used by 50 males and 50 females respectively. The cleaning frequency was not fixed. Water is available outside the CTB but no one uses it as no one ever cleans the tanks. No lights are available inside the toilet blocks.
- CTB 2 had 6 male and 5 female toilets. While the male toilets were used by 30 males, the 25 females used the female toilets. Those who used the CTB would come here as a result of habit. It was cleaned once every

two days, and was very dirty. There were no lights in the CTB. Liquor bottles were seen inside the CTB, which indicated that this was being used for other reasons. Usage of the CTB was free.

Challenge: The provided map by Shelter Associate didn't have 1 CTB mapped.

**Kadam Wadi Kapoor Vasahat**

As regards to housing structures, houses in this area were approximately 20% kutcha, 60% semi-pucca, and 20% pucca. The average house area was 350-375 sq. ft. The main occupations that people were engaged in included daily wage labour, cooking, house help, construction labour, masonry, vegetable vendor, auto drivers, sweepers. Those who were engaged in close by areas included auto drivers, construction labour, sweepers, and masons. No government scheme and NGO was functional, but one sanitation committee was noted to be functional.

While area cleanliness was relatively better, there were areas where garbage was strewn over the roads. A garbage van would come daily to collect the trash and separate wet and dry trash. There were a handful of working street lights available in the slum. The majority of the households were connected with septic tanks.

Before SA intervention, very few households were connected to a drainage line/septic tank before SA. Presently, most of the households and CTBs had a septic tank. Kids were seen defecating outside the CTB. Reportedly 5-7 kids would defecate in the open.

While 2 CTBs had existed before, one CTB had been demolished. The CTB structure was bad and it was being used by drunkards. Instead, the area corporator had made benches. 1 CTB that existed was visited by the research team in Kadam Wadi Kapoor Vasahat.

- CTB 1 had 20 male and 10 female toilets. They were used by 50 males and 50 females respectively. Tenants mainly used the CTB and water was available in the CTB. But the CTB was dirty and the stench from the CTB spread across the street. No lights were available inside the blocks. Usage was free. Although the cleaner would come daily to clean the toilet blocks, the CTB was not as clean as it should be.

**Salokhe Nagar**

A majority of the semi-pucca (60%) houses were observed in Salokhe Nagar followed by kutcha houses (25%) and Pucca (15%). On average, house sizes were approximately 300-375 sq. ft. Most of the people were engaged in job roles such as construction labour, auto driver, cook, house help, and sweeper. No NGO and sanitation committee was noted to be functional in the area. Reportedly, KMC had aided people in constructing their houses and toilets under the GharKul Yojana.

Due to rain, the roads were muddy. Due to rain the water accumulated at different places of the slum. The approach route was very narrow and bumpy. People were also seen throwing garbage on the road.

An open gutter connection made a stink in the area very prevalent. Before SA intervention, 2 households had connections to KMC drainage lines. Once in three months, the drainage lines were cleaned by KMC. Twice a day, a garbage van would come to collect the trash. People were still practicing ODF in this slum. ODF was practised near CTB 2 and in an open field.

4 CTBs were noted in Salokhe Nagar.

- CTB 1 was situated outside of the slum area. A total of 4 toilets were there for male and female each. On average, 25 males and 25 females respectively used the toilets in CTB on a daily basis. Usage of the CTB was free. The CTB was not cleaned. There were no streetlights around this CTB and the toilets were extremely dirty and unhygienic. There was no water availability in the CTB.
- CTB 2 was located outside of the slum area. 12 toilets were there for males while 10 toilets were available for females. Approximately 200 people (100 males and females) used this CTB daily. Usage of the CTB was

free. No one would come to clean the CTB. Very dirty and unhygienic toilets were observed. No lights were available inside the toilet blocks.

- CTB 3 was only for females' usage. The 12 toilets were used by approximately 30 females on a daily basis. While usage of the CTB was free, water was not available nor were there adequate lights. The toilets were extremely dirty and unhygienic. No one would come to clean the CTB.
- CTB 4 has a western-style commode. A total of 8 toilet blocks were there out of which 4 were for male and 4 were for females. On average, 40 male and 40 female used this CTB daily. The CTB didn't have bulbs, and it was difficult for people to come at night. The toilets were cleaned once a week. Usage of the CTB was free.

**Bhagat Singh Vasahat**

Out of the total households in the slums, 80% were semi-pucca while 10% were pucca and kutcha respectively. On average, house sizes were approximately 250 sq. ft. Most of the people were daily wage labour, painters, beggars, cleaners and sweepers. No government scheme, NGO or sanitation committee was noted to be functional.

Due to high mosquito infestation in the slum, some of the people had been diagnosed with chikungunya, malaria, and dengue. Twice a day a garbage van would come to collect the trash. However, due to an open gutter line, the entire area had a stench. Streetlights were not adequate and their functioning had been affected due to recent monsoons. No drainage line was available before SA intervention. Prior to SA intervention, 6 households were connected to a drainage line/septic tank.

3 functional CTBs were noted in Bhagat Singh Vasahat. There was another CTB however, it was not functional. Those who had a large family used CTBs regularly.

- CTB 1 had a total of 5 toilets for male and female each. On average, 70 males and females each used this CTB on a daily basis. Usage of the CTB was free. All the toilets were cleaned daily once. However, the toilets were extremely dirty and unhygienic. The structure of this CTB was dilapidated and the area around the CTB didn't have enough streetlights.
- In CTB 2, 10 toilet blocks were functional for male and female each. Approximately 60 males and 50 females respectively use this CTB daily. Usage of the CTB was free. All the toilet blocks were cleaned daily once. However, the male toilets were very dirty as compared to female toilets. No lights were available on the street nor inside the toilet blocks.
- In CTB 3, 6 males and 12 toilet blocks were functional for male and female respectively and one open bathing space was available. More people use this CTB. Approximately 80 males and 100 females used this CTB on a daily basis. CTB 3 was comparatively cleaner than other CTBs because people who used it themselves cleaned the toilet after using it. The users had agreed on this rule to clean the toilet after usage. Usage of the CTB was free.

**Dombar Wada**

During the survey, enumerators observed approximately 50% semi-pucca houses, 40% pucca houses and only 10% kutcha houses. The average house size was approximately 200 sq. ft. Residents were engaged in scrap business, construction labour and house help work. No government scheme, NGO or sanitation committee was noted to be functional.

The streets were extremely narrow in this area. The internal roads of the slum were also very narrow and uneven. This area was surrounded by the open drainage line, which looked visibly dirty. Kids were seen littering in the middle of the street and on the open gutter line, and defecating on open roads. Since it was raining, the roads were all muddy. The stench was unbearable in the area. Very few working streetlights were observed. There was no drainage line available before SA intervention. Garbage vans would come once a week hence people threw trash on the street and in the open gutter line.

2 CTBs were noted in Dombar Wada. Dombar Wada CTBs were used by the people of the nearby Yadav Nagar area.

- CTB 1 was used by the people who do not have household toilets. People from Yadav Nagar area would also come here to use the toilet. Out of 20 toilets, 10 toilets were for males and 10 were for females. Nearly 100 male and 100 females use this CTB on a daily basis. Usage of the CTB was free. All the toilet blocks were cleaned daily once. The CTB structure however was noted to be dilapidated.
- CTB 2 had 9 toilets of which 5 were available for male and 4 were for females. On average, 60 males and 60 females each used this CTB daily. Usage of the CTB was free. All the toilet blocks were cleaned daily once. The toilets were extremely dirty. No lights nor water was available in this CTB.

**United Agency**

Of the total households, 70% were semi-pucca, 20% were kutcha and only 10% were pucca in this slum. Average house size was approximately 180-200 sq. ft. Residents were engaged in professions such as masonry, construction labour, vegetable selling, plumbing, peon, and security guard. No government scheme and NGO was functional, but one sanitation committee was functional.

United Agency had one main road with all houses located alongside this broad main road. However, due to open gutter lines, stench was quite prevalent in the entire area. The United Agency did not have adequate streetlights. Liquor consumption was found to be high. A liquor manufacturing company was situated beside the slum area. All the households were connected with the septic tank. There was no drainage line before SA intervention, and very few households were connected to septic tanks before SA. Once a day, a garbage van would come to collect the trash. ODF was practised in this area, in the fields that surrounded the slum on one side. Respondents mentioned that people had been bitten by snakes while practicing ODF.

1 CTB was noted in United Agency.

- In CTB 1, out of 15 toilet blocks, 5 were accessible for male and 10 were for females. Approximately 80 people use this CTB, out of which approximately, 30 male and 50 female use this CTB on a daily basis. Liquor bottles were seen inside the blocks. Latches were not there inside the CTB. The CTB was visibly very dirty. It was cleaned once every two days. Usage was free.

There was another CTB situated near an open field area, however it was non-functional. Rather than using this, CTB people preferred to practise ODF.

## Annex 6: Disaggregation of sample over age and disability

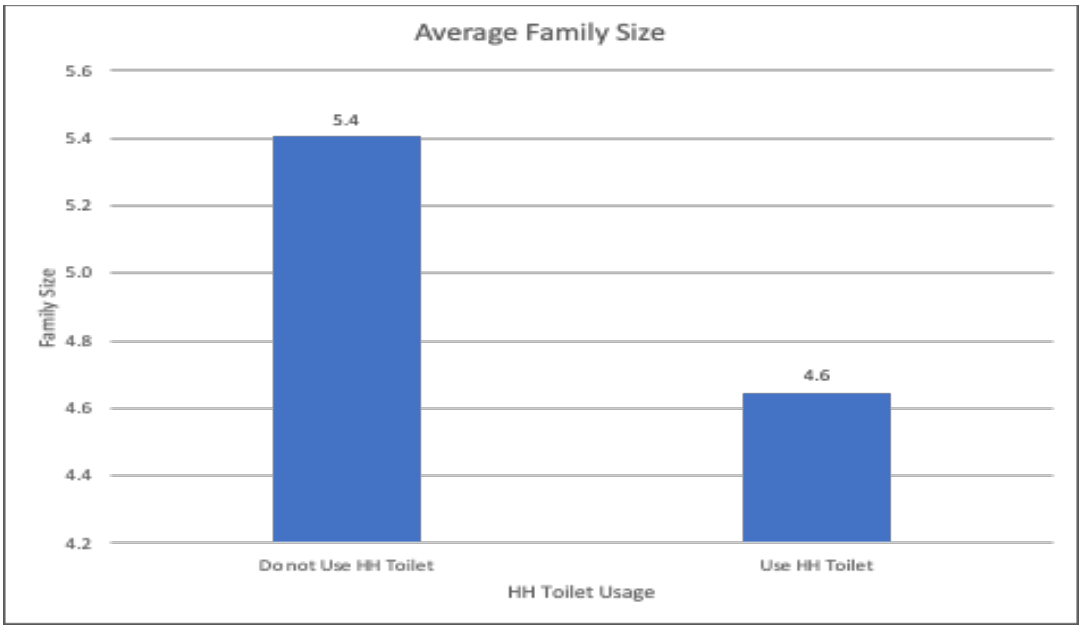
| | **KMC** | | | | | **PCMC** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Visual Impairment** | | **Locomotive** | | **Total** | **Hearing Disability** | | **Locomotive** | | **Total** |
| **Age** | **Male** | **Female** | **Male** | **Female** | | **Male** | **Female** | **Male** | **Female** | |
| 19-30 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 |
| 31-40 | 0 | 1 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 |
| 41-55 | 0 | 0 | 3 | 1 | 4 | 0 | 0 | 0 | 0 | 0 |
| Above 55 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 2 | 0 | 3 |
| **Total** | **0** | **1** | **6** | **3** | **10** | **1** | **0** | **2** | **0** | **3** |

## Annex 7: Gender, Age Disaggregation on Toilet Impact Responses

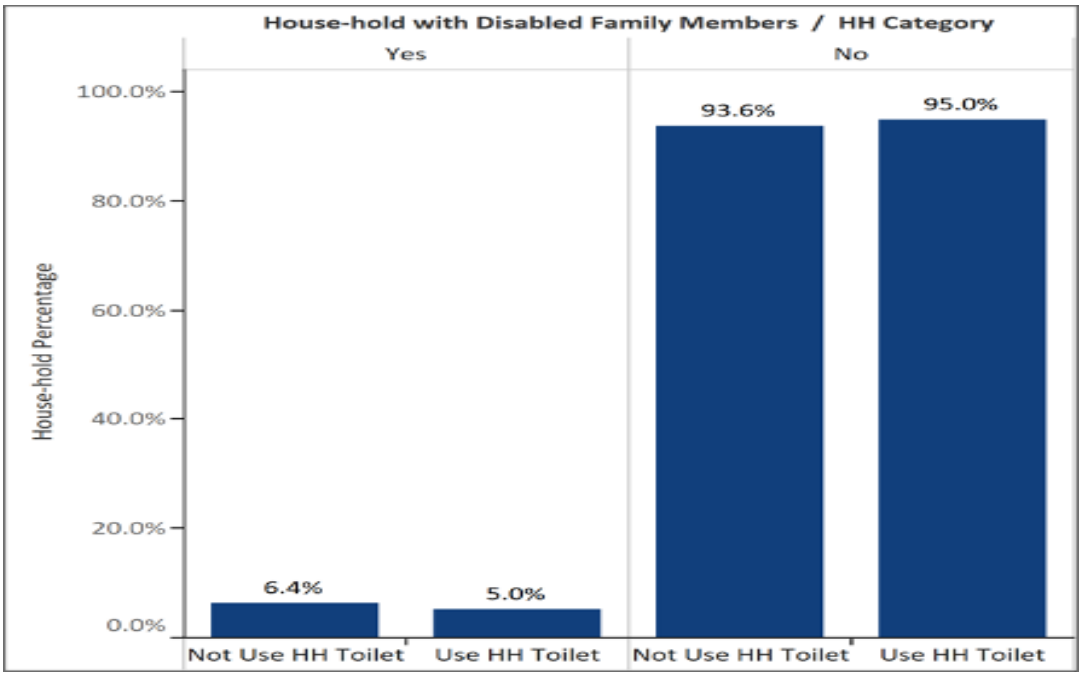
| Impact Areas | Female (n=185) | Male (n=118) |
|---|---|---|
| Decreased Expenditure on Water Borne Diseases | 25% | 10% |
| Improved Access to Vulnerable Groups | **82%** | **89%** |
| Improved Health | 62% | 42% |
| Improved Personal hygiene and cleanliness | 60% | 61% |
| Improved Privacy | 65% | 73% |
| Improved Savings on Time | 89% | 92% |
| Improvement in Social Status | 44% | 63% |
| Improvement in Community Cohesion | 18% | 25% |
| Improvement in Ease of Access To Toilet | 87% | 91% |
| Improvement in General Cleanliness | 48% | 58% |
| Improvement in Household Income | 15% | 12% |
| Improvement in Property Value | 28% | 33% |
| Improvement of Family Members Safety Around Toilet Usage | 68% | 53% |

| Impact Areas | 17-24 (n=36) | 25-40 (n=120) | 41-60 (n=106) | 61-90 (n=43) |
|---|---|---|---|---|
| Decreased Expenditure on Water Borne Diseases | 8% | 23% | 19% | 16% |
| Improved Access to Vulnerable Groups | 78% | 90% | 81% | 86% |
| Improved Health | 42% | 56% | 58% | 49% |
| Improved Personal hygiene and cleanliness | 56% | 70% | 53% | 58% |
| Improved Privacy | 56% | 76% | 68% | 60% |
| Improved Savings on Time | 81% | 93% | 92% | 86% |
| Improvement in Community Cohesion | 14% | 30% | 16% | 12% |
| Improvement in Ease of Access To Toilet | 81% | 97% | 84% | 81% |
| Improvement in General Cleanliness | 36% | 70% | 42% | 37% |
| Improvement in Household Income | 11% | 24% | 8% | - |
| Improvement in Property Value | 31% | 37% | 26% | 16% |
| Improvement in Social Status | 42% | 59% | 52% | 37% |
| Improvement of Family Members Safety Around Toilet Usage | 50% | 69% | 66% | 44% |

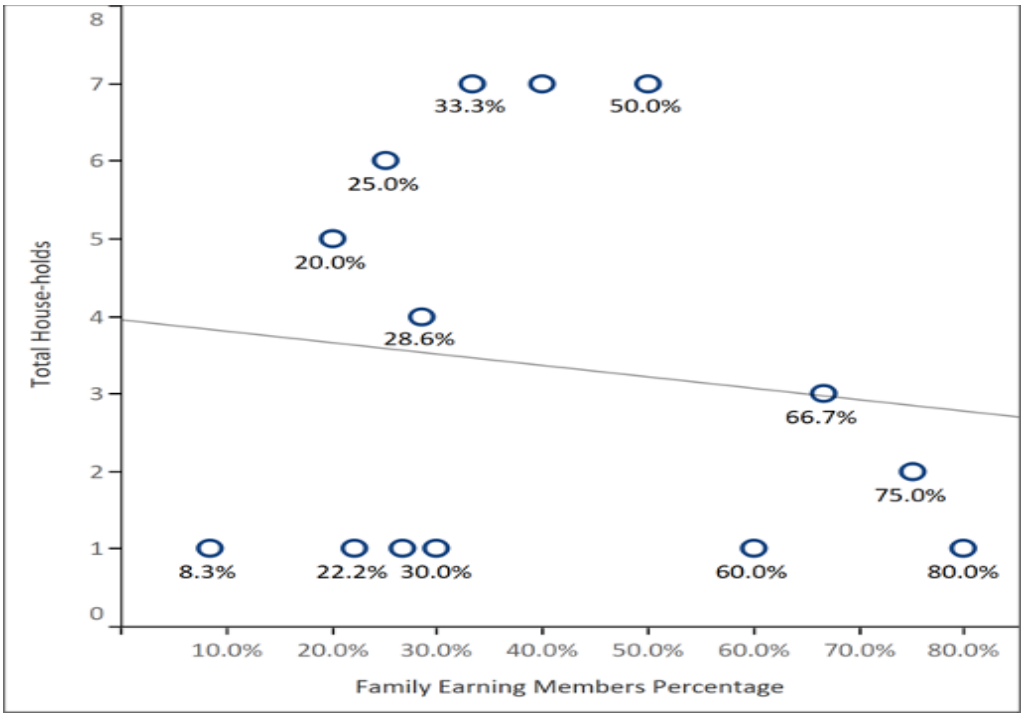
**Annex 8: Relation between Family Size and Toilet Usage**



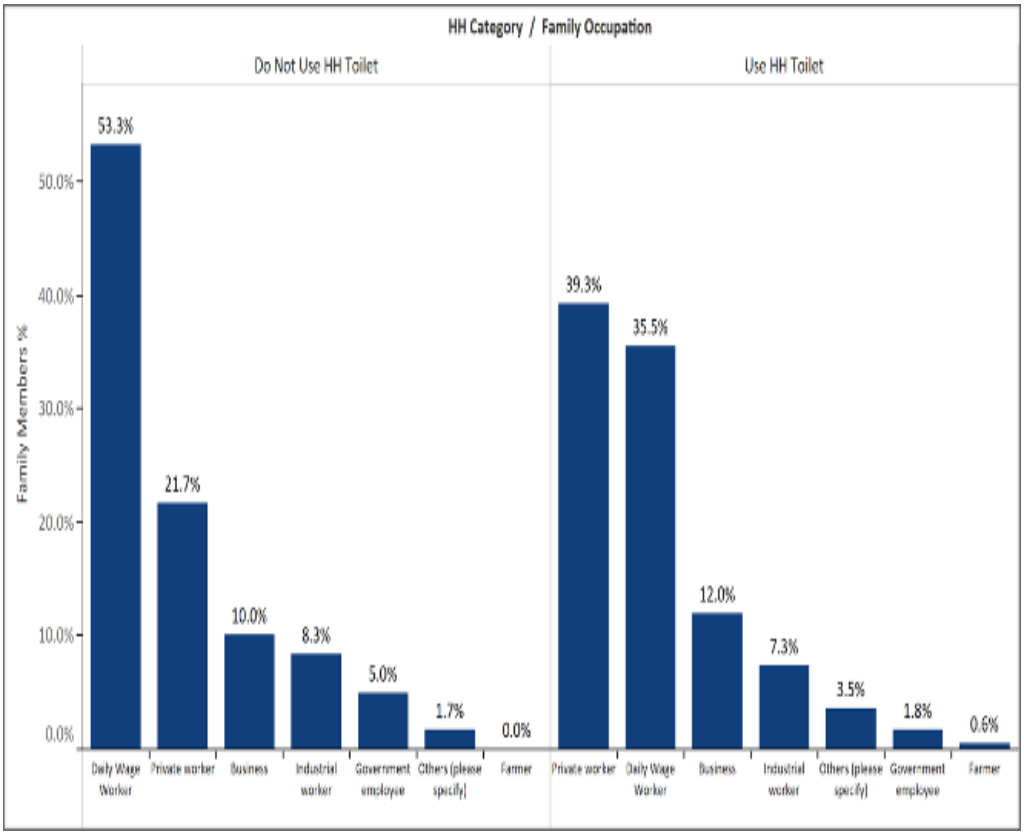

**Annex 9: Relation between Households with Disabled Persons and Toilet Usage**



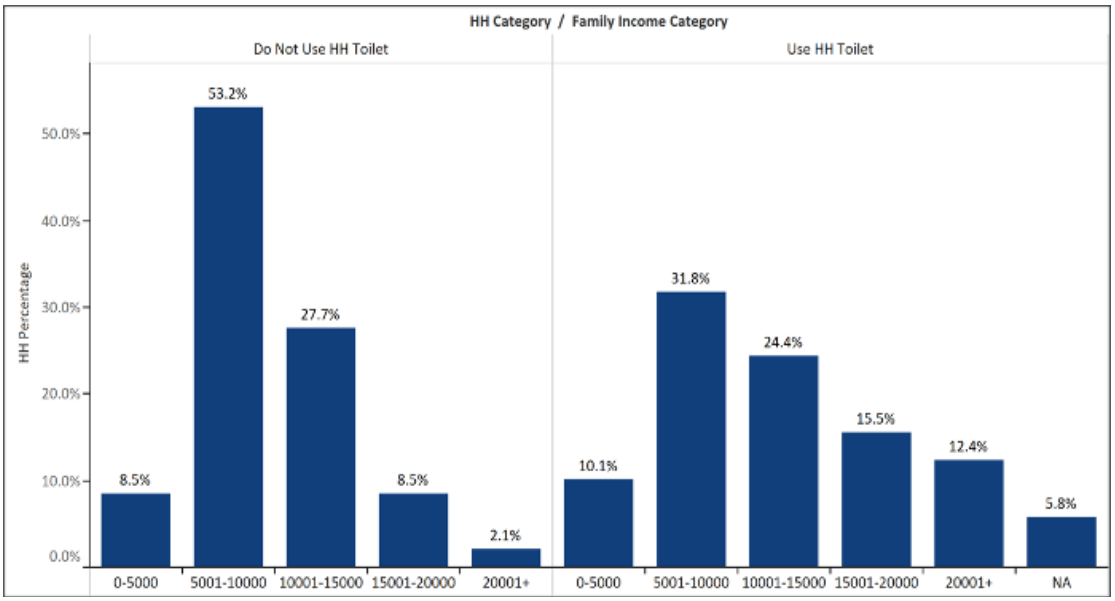
**Annex 10: Relationship between Earning Members and Toilet Usage**



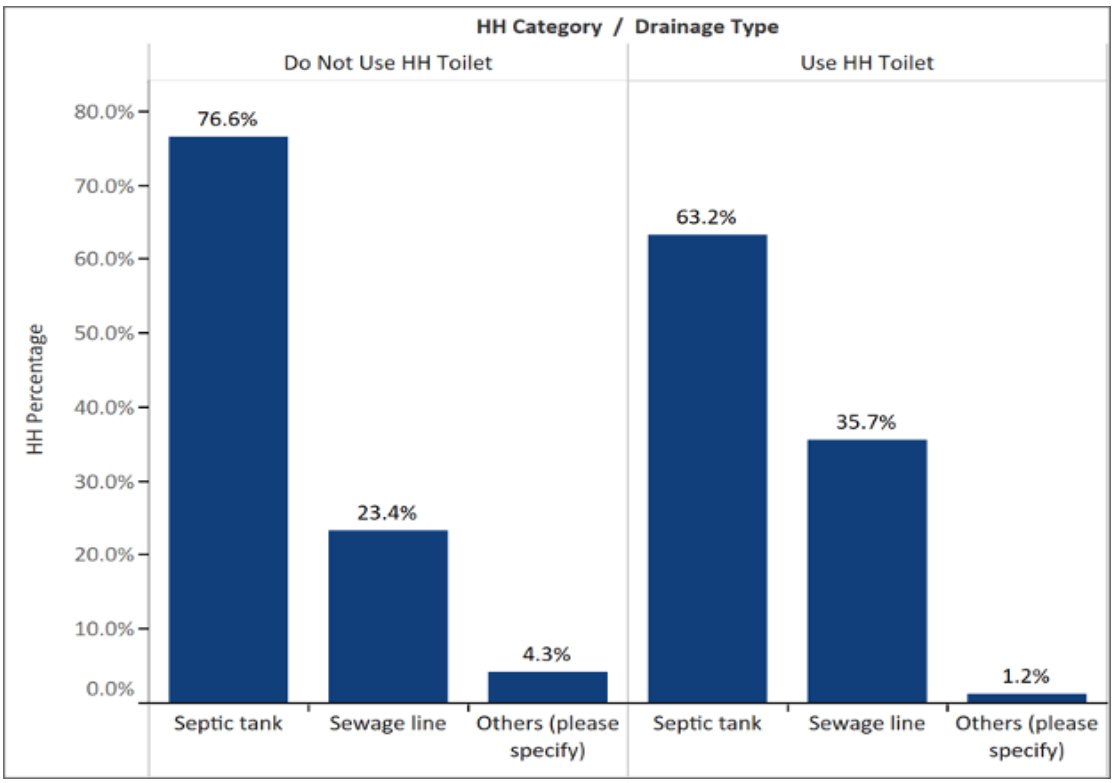

**Annex 11: Relationship between type of occupation and Toilet Usage**



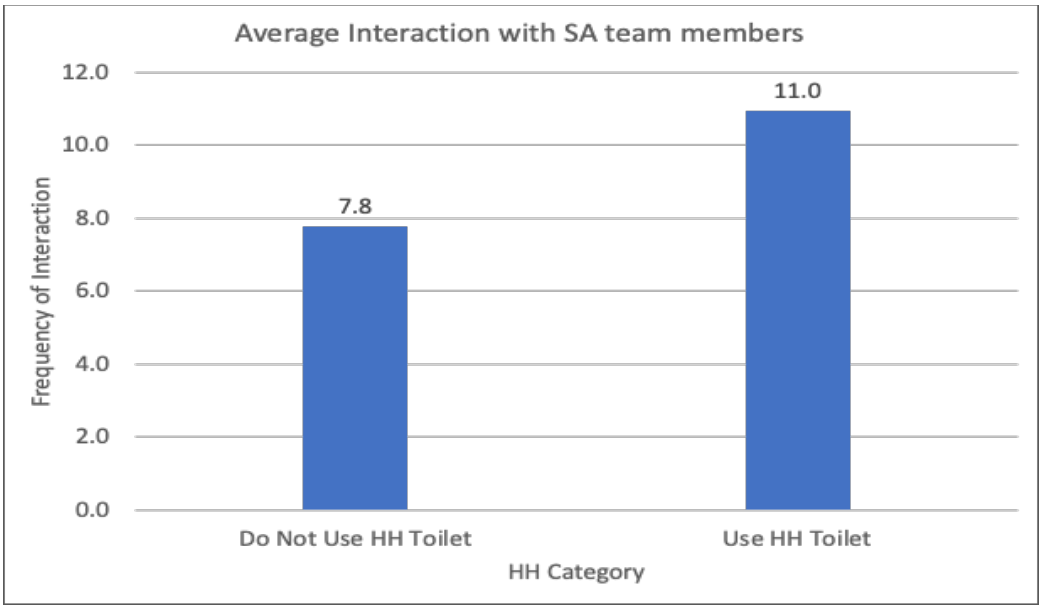
## Annex 12: Relationship between Monthly Household Income and Toilet Usage



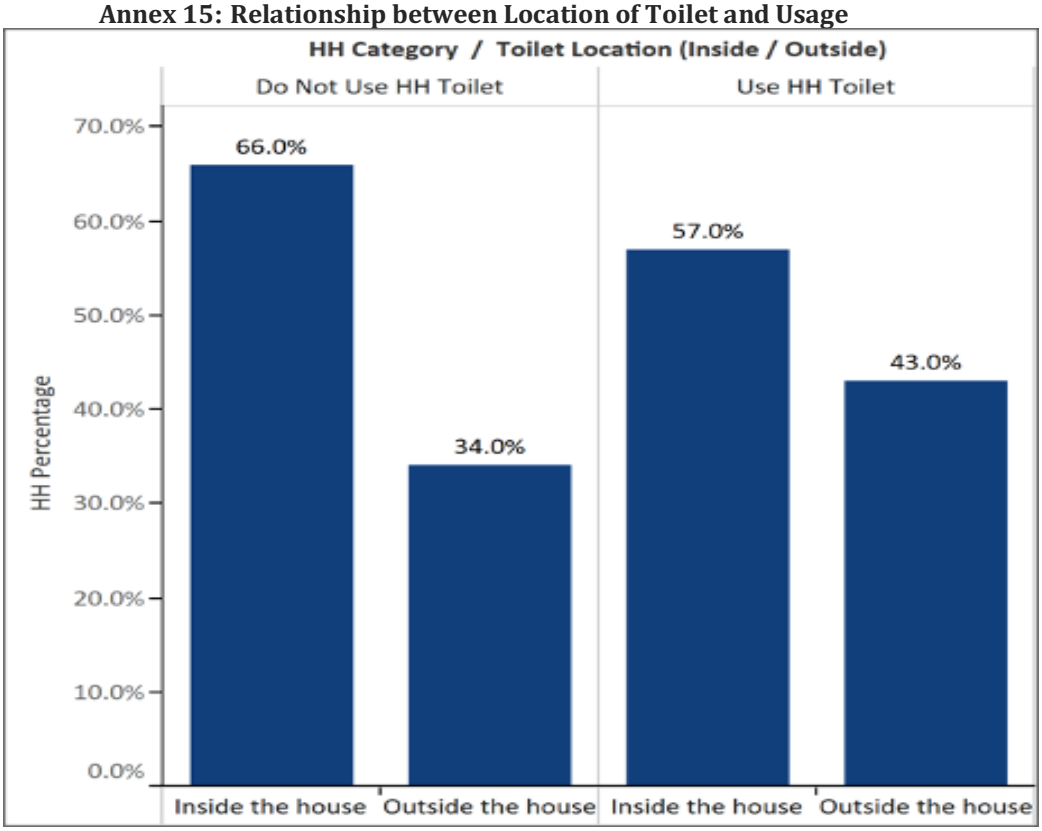

## Annex 13: Relationship between Type of Drainage and Toilet Usage



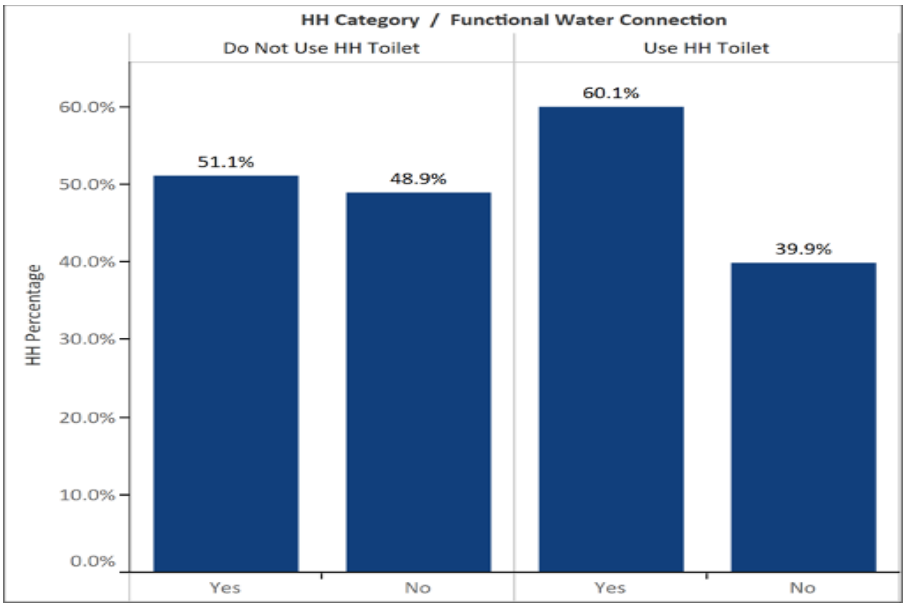
**Annex 14: Relationship between Interactions with SA Team and Toilet Usage**



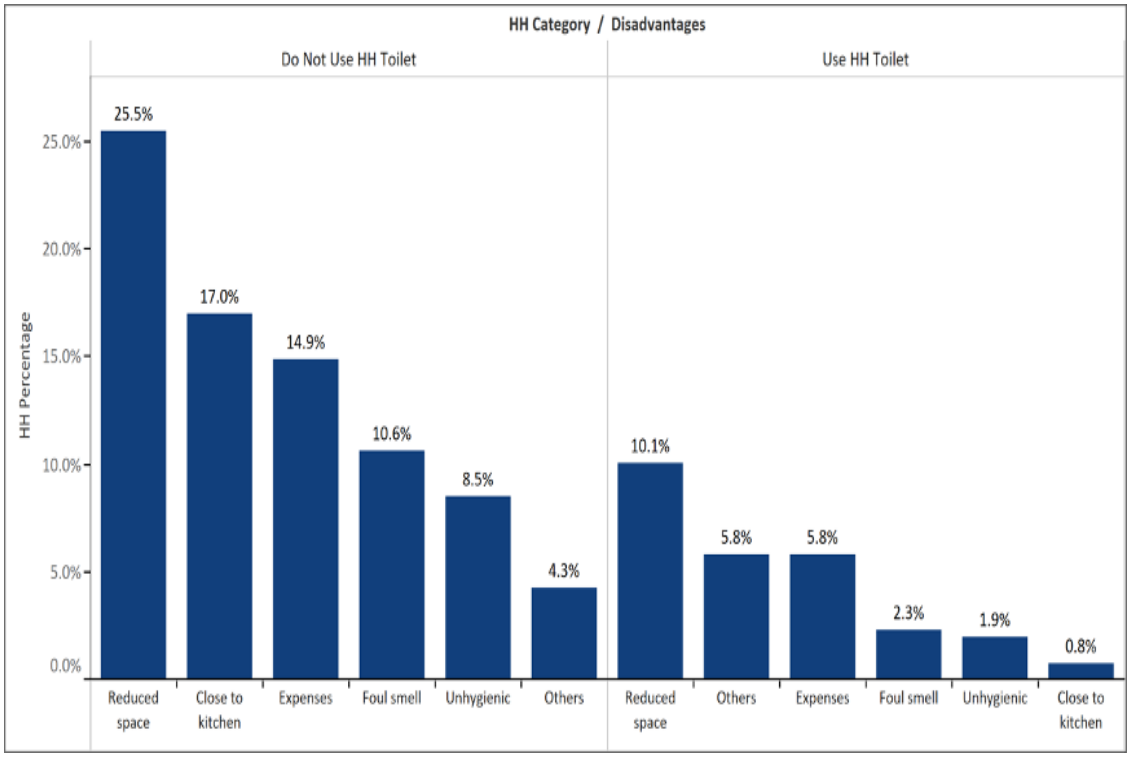

**Annex 15: Relationship between Location of Toilet and Usage**



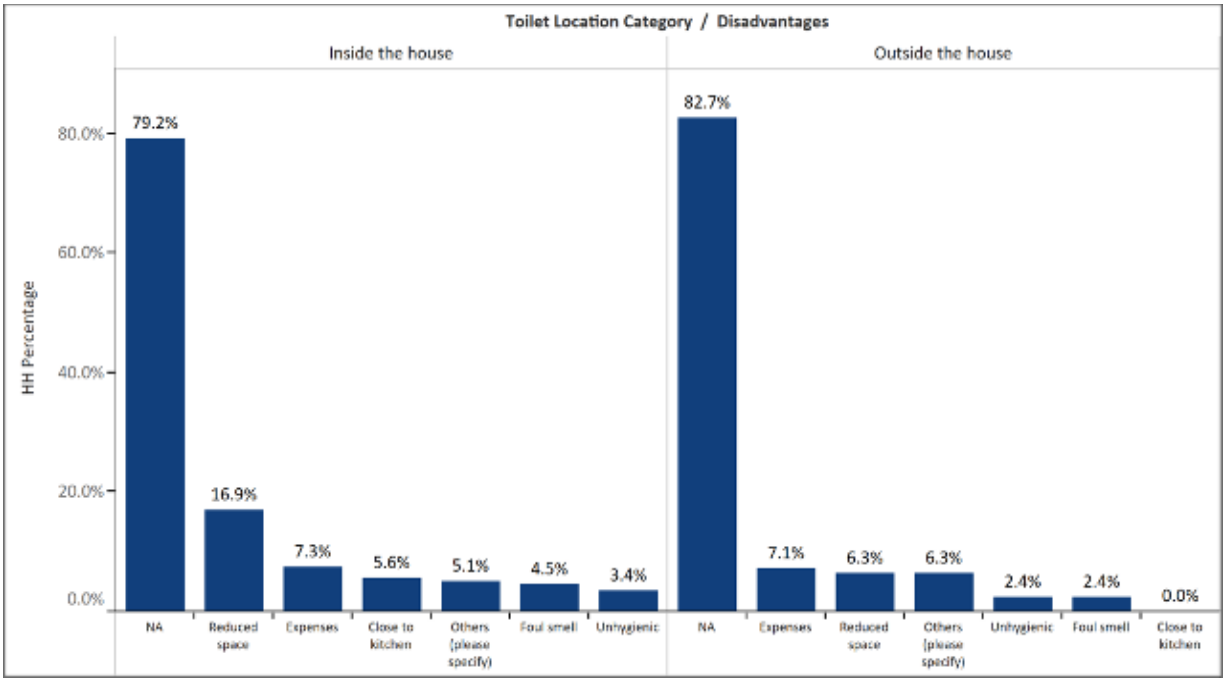
**Annex 16: Relationship between availability of water connections and toilet usage**




**Annex 17: Relationship between Toilet Usage and stated Disadvantages of Toilets**



**Annex 18: Relationship between toilet location and Disadvantages of Toilets**




**Annex 19: KMC (breakdown of facility used prior to household toilet)**

| Time spent on walking one way to CTB in minutes | CTB (n=246) | % | Open defecation(n=47) | % | Total responses | Respondent Percentage (n=253) |
|---|---|---|---|---|---|---|
| 1 to 5 minutes | 178 | 72% | 28 | 60% | 206 | 81% |
| 6 to 10 minutes | 45 | 18% | 14 | 30% | 59 | 23% |
| 11 to 15 minutes | 14 | 6% | 4 | 8% | 18 | 7% |
| More than 15 minutes | 9 | 4% | 1 | 3% | 10 | 4% |
| **Total** | **246** | **100%** | **47** | **100.00** | **293** | |

**Annex 20: Cost to use CTBs**

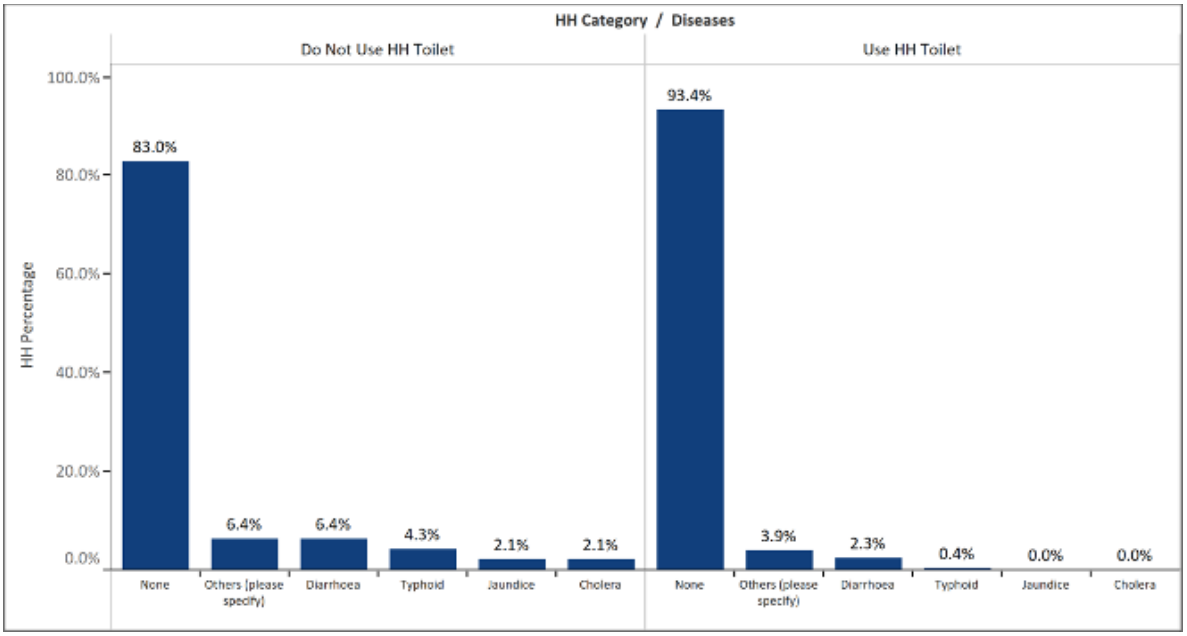
| | PCMC | | KMC | |
|---|---|---|---|---|
| **One trip CTB cost** | **Respondents** | **Respondent percentage** | **Respondents** | **Respondent percentage** |
| Free | 39 | 83% | 250 | 99% |
| Rs. 5 per visit | 0 | 0% | 2 | 1% |

| | | | | |
|---|---|---|---|---|
| Rs.15 per month | 1 | 2% | 0 | 0% |
| Rs.30 per month | 5 | 11% | 0 | 0% |
| Rs.50 per month | 1 | 2% | 0 | 0% |
| Rs.600 per month | 1 | 2% | 0 | 0% |
| **Total** | **47** | | **252** | |

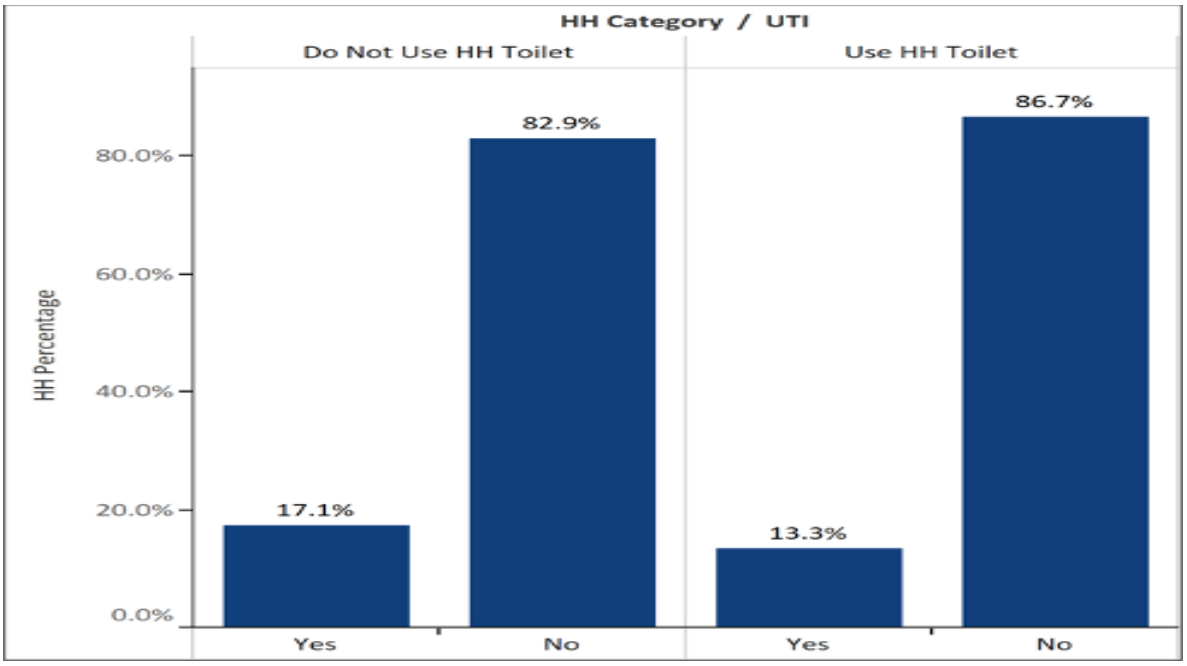
### Annex 21: Sanitary Material Used

| **Material Used During Period** | **PCMC** | | **KMC** | |
|---|---|---|---|---|
| | **Responses** | **Responses Percentage** | **Responses** | **Responses Percentage** |
| Cloth | 6 | 15% | 13 | 19% |
| Single use sanitary pads | 26 | 67% | 56 | 82% |
| **Total** | **32** | | **69** | |

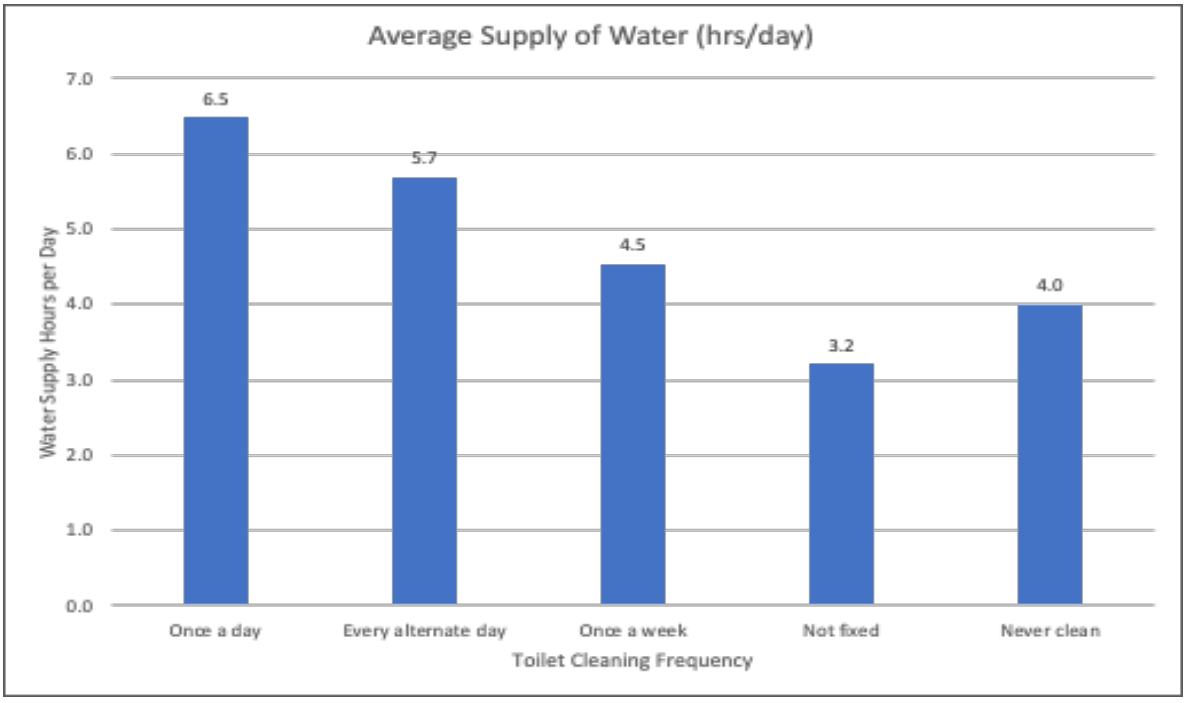
### Annex 22: Relationship between Prevalence of Waterborne Diseases and Toilet Usage



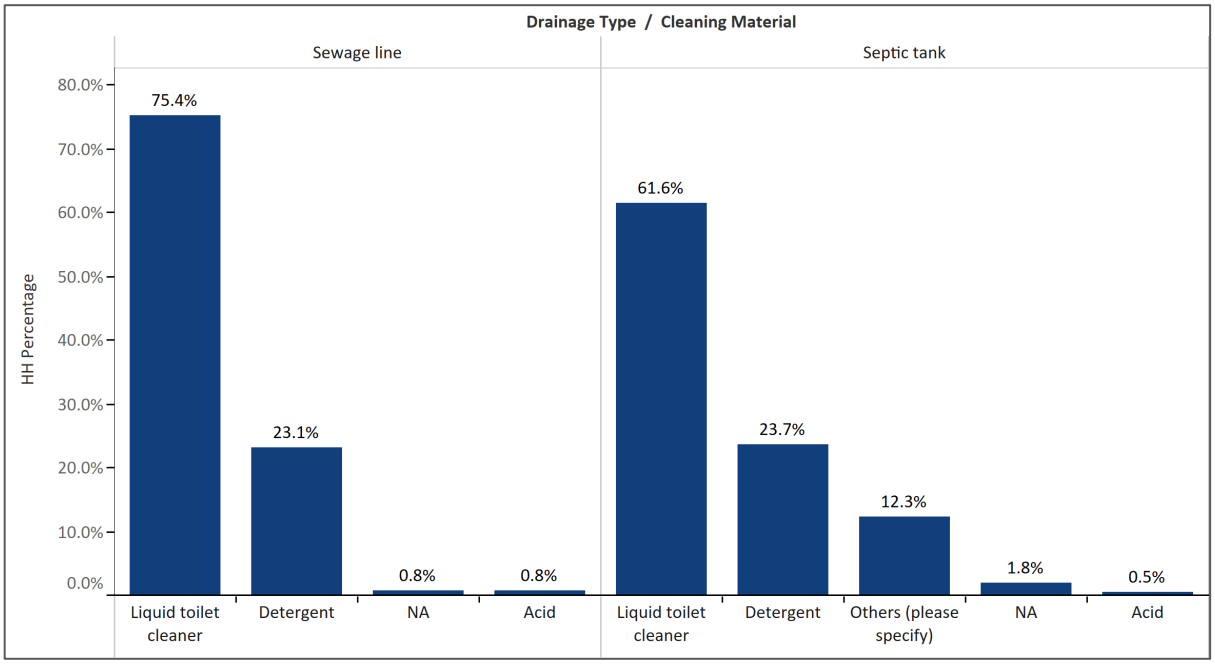
**Annex 23: Relationship between Prevalence of UTI infections and Toilet Usage**




**Annex 24: Relationship between toilet cleaning and water availability**



## Annex 25: Relationship between Type of Drainage and Toilet Cleaning Materials




## Annex 26: House Size

KMC House Size

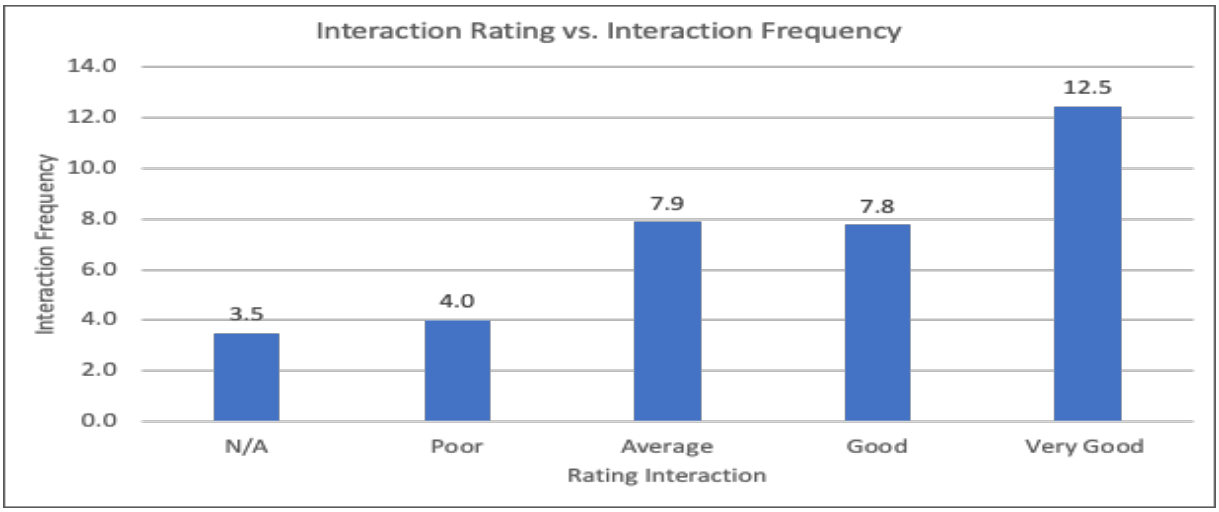
| **Room and household size** | | |
|---|---|---|
| **Slum Name** | **Average no. of room/household** | **Average house area (in sq.ft.)** |
| Ambedkar Nagar | 2 | 454 |
| Awachit Nagar | 2 | 244 |
| Bhagat Singh Vasahat | 3 | 399 |
| Dombar Wada | 3 | 376 |
| Kadam Wadi | 2 | 275 |
| Phule Wadi | 3 | 311 |
| Salokhe Nagar | 2 | 260 |
| Takala Khan | 2 | 258 |
| United Agency | 2 | 241 |
| **Overall** | **2** | **309** |

PCMC House Size

| **Slum Name** | **Average rooms/ household** | **Average house area (in sq.ft.)** |
|---|---|---|
| Balaji Nagar | 1.7 | 327 |
| More Vasti | 1.3 | 300 |

| | | |
|---|---|---|
| Sanjay Gandhi Nagar | 1.7 | 363 |
| Shanti Nagar | 1.5 | 325 |
| Vidhya Nagar | 2.0 | 424 |
| **Overall** | **1.6** | **340** |

**Annex 27: Relationship between number of interactions and rating on interactions**




**Annex 28: Availed of Loans**

| **Did you take a loan to build the toilet?** | **PCMC** | | **KMC** | |
|---|---|---|---|---|
| | **Respondents** | **Respondent Percentage (n=52)** | **Respondent Percentage (n=52)** | **Respondent Percentage (n=253)** |
| No | 44 | 85% | 158 | 62% |
| Yes | 8 | 15% | 95 | 38% |
| **Total** | **52** | **100%** | **253** | **100%** |

### Annex 29: House Upgrades

| House Upgrade | PCMC | | KMC | |
|---|---|---|---|---|
| | Respondents | Respondent Percentage (n=52) | Respondent | Respondent Percentage (n=253) |
| No | 35 | 67% | 153 | 60% |
| Yes | 17 | 33% | 100 | 40% |
| **Total** | **52** | **100%** | **253** | **100%** |

# DISCLAIMER

Except as acknowledged by the references in this paper to other authors and publications, the evaluation described herein consists of 4th Wheel's work as part of the requirements of HT Parekh's Design, Monitoring and Evaluation Learning System. Primary quantitative and qualitative data collected throughout the evaluation process remain the property of the communities and families described in this document. Information and data must be used only with their consent. The 4th Wheel has not performed an audit and does not express an opinion or any other form of assurance. The 4th Wheel advises that neither it nor any partner, director or employee undertakes any responsibility arising in any way whatsoever, to any person other than HDFC and HT Parekh Foundation in respect of the matters dealt with in this report, including any errors or omissions therein, arising through negligence or otherwise, howsoever caused. The 4th Wheel disclaims all responsibility or liability for any costs, damages, losses, liabilities, expenses incurred by such third party arising out of or in connection with the report or any part thereof.