INFRASTRUCTURE, GENDER AND VIOLENCE: WOMEN AND SLUM SANITATION INEQUALITIES IN DELHI

RESEARCH REPORT

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ABBREVIATIONS

AAP	Aam Aadmi Party
CTCs	Community Toilet Complexes
DUSIB	Delhi Urban Shelter Improvement Board
JJCs	Jhuggi jhopri clusters
NGOs	Non-Government Organisations
OD	Open defecation
WASH	Water, Sanitation and Hygiene

ACKNOWLEDGEMENTS

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INTRODUCTION

In Delhi, as in many other Indian cities, millions of men, women and children who live in slums and informal settlements have to daily confront the lack of adequate sanitation facilities. These sanitation inequalities have a greater impact on the health and socioeconomic status of women and girls because of their greater social vulnerability to sexual violence; there is also the role played by biology in their need for privacy, safety and cleanliness. Men and boys, on the other hand, tend to use public urinals and open defecation (OD) sites generally more frequently, because their need for privacy during these sanitation activities is not such a cause for concern. In addition, women and girls are forced every day to risk using precarious spaces for their sanitation activities that may expose them to gender-based violence and harassment and not satisfy their biological and socio-cultural needs. These urban sanitation inequalities also negatively impact the time women have available for paid employment as well as their daily domestic responsibilities, as they have to spend each morning queueing for toilets or getting up earlier to go with other women to OD sites. For adolescent girls this can often mean being late for school, which threatens their education and future life choices.

India failed to meet Millennium Development Goal No. 7 (adopted by the United Nations in 2000) relating to halving the proportion of people without access to basic sanitation. In terms of toilet usage across India, the Census 2011 found that 81 percent of urban households had a private toilet or latrine. But when it came to slum households, only 66 percent had a toilet, meaning that 34 percent had to either use a community or public toilet or resort to OD (Ministry of Housing and Urban Poverty Alleviation & National Buildings Organisations 2013, p. 60). In reality, there are an estimated 41 million urban dwellers still practising OD because of a lack of access to improved sanitation (WaterAid 2016). OD is a compulsion, not a choice, and creates particular risks and imposes a variety of harms upon women and children that men and boys do not suffer.

In the context of Delhi, which is the focus of this report, the Delhi Urban Shelter Improvement Board (DUSIB) in 2011 estimated that 420,000 households, or about 15 percent of the city's population, were living in jhuggi jhopri clusters (JJCs)[1] (Sheikh & Banda 2014). When DUSIB surveyed 56,980 of these households living in 589 JJCs the results showed that 22.3 percent of the participants were practising OD. While 55 percent of households in these JJCs statistically had access to a community toilet complex (Janwalkar 2015), the overcrowding, distance to be walked, the insecurity and lack of maintenance and repair of these sanitation facilities quite often force women and girls in particular to resort to OD.

Who or what is responsible for such socioeconomic consequences of the lack of adequate sanitation infrastructure in Indian cities which perpetuate gender inequalities? How do harms like gender-based violence impact the everyday lives of women and girls living in slums in particular? This project report examines these issues using the notion of infrastructural violence and then examines the harms and suffering caused by a lack of sanitation infrastructure in two long-established localities in Delhi: Mangolpuri and Kusumpur Pahari. Mangolpuri is a resettlement colony in the northwest region of Delhi with an estimated population of more than 350,000. It is interspersed with eight JJCs clusters of varying sizes. Kusumpur Pahari is located in the heart of south Delhi, near Jawaharlal Nehru University, and now has five blocks of JJCs and an estimated population of nearly 50,000.

INFRASTRUCTURE AND GENDER-BASED VIOLENCE

Generally, infrastructure has largely been considered a technical apparatus that is designed and managed by urban planners, government officers and civil engineers. Such a view though has created misconceptions about the nature of infrastructure and a consequent lack of recognition of the political, cultural and socioeconomic assumptions built into it, along with the harms inflicted when they malfunction or are completely absent in everyday lives (Rodgers & O'Neill 2012). Infrastructure – sanitation infrastructure or the lack of it in particular – shapes how people relate to each other and the city in which they live. In their study on the politics of OD in Mumbai, Desai, McFarlane & Graham (2015, p. 100) use the following broader definition of sanitation infrastructure:

> “ *By 'infrastructure', we are referring both to material configurations – toilets, water connections, etc, which of course are made and unmade through not just physical but also social, economic, political and ecological processes – and social configurations, such as women coordinating with other women to make or unmake systems that enable everyday urban life. This latter use of infrastructure includes, for instance, routinized social arrangements for using particular open spaces at particular times for defecation, and they too are infrastructures because we take infrastructure to be, expansively, systems that enable urban life to collectively take place* ”

One approach to understanding the harms inflicted when urban sanitation infrastructures malfunction is to use the concept of infrastructural violence that seeks to identify the political economy underlying the socio-spatial production of suffering in contemporary cities (Rodgers & O'Neill 2011). There are two notions of infrastructural violence: active and passive. 'Active' infrastructural violence is that which 'has been designed to be violent, whether in their implementation or in their functioning … [and therefore] focuses upon the conscious development of infrastructure to regulate normative social and territorial relations' (Rodgers & O'Neill 2011, pp. 406-7). Today 'active' infrastructure violence can be witnessed in Indian cities when government agencies bulldoze slums or illegal settlements to make way for road, rail, housing and other infrastructure projects. The suffering and disadvantages of these residents are then compounded by the displacement and dislocation inflicted when they are resettled on the urban periphery in locations lacking basic services.

The second notion, that of 'passive' infrastructural violence, relates to the socially harmful effects deriving from urban infrastructure's limitations and omissions. 'This physical exclusion from urban infrastructure, and the corporeal suffering that marks the bodies of those affected, only serves to facilitate forms of social exclusion that fundamentally questions notions of citizenship, rights and membership claims by the poor and otherwise vulnerable' (Rodgers & O'Neill 2011, pp. 406-7). In this report the focus will be on this notion of physical exclusion from sanitation infrastructures. When women and girls from slum communities are forced to enter dangerous spaces daily to satisfy their biological needs due to their physical exclusion from sanitation infrastructure, they are often exposed to gendered, caste and class-based forms of both physical and emotional violence which can produce immediate and lifelong multiple harms, sufferings and exclusions. O'Reilly (2016a, p. 54) has argued that:

> “ *In urban India women will reject substandard public or community latrines in favour of open defecation if they perceive the bodily harm or the risk of gender-based violence to be greater using the latrine. Women's fear and stress then, is not a problem with sanitation, but with social inequalities that put women at risk of gender-based violence. Having access to sanitation does not mean being able to use it due to fear; lack of access to water; or the inability to manage fecal sludge when the latrine is filled. Community survival goes beyond provision of water and sanitation, as communities comprise diverse membership, not all of whom have equal access to resources and a community that supports access* ”

While gender-based violence occurs in every society, these everyday experiences of violence and suffering vary according to the class, locality, age and physical abilities of women. In the Indian context, research suggests that such violence against women and the anxiety over it recurring impose a burden of fear and an ongoing legacy of stigma (Bhattacharyya 2015) and shame. This translates into poor women and girls having to make calculations about risk every day when undertaking their sanitation activities. These are the imposed risks of passive infrastructural violence. Women and girls do not have a choice (Phadke 2012) due to the lack of accessible sanitation infrastructure in slums and informal settlements. While women and girls bear the brunt of passive infrastructural violence associated with a lack of sanitation infrastructure, men and boys also suffer social harms. They too have to queue at overcrowded toilet blocks, venture into often precarious spaces for defecation and use either dirty and smelly urinals or convenient walls, roadsides and empty spaces in the public gaze. Husbands, sons and brothers are also hindered from taking any action against those men who harass their wives, sisters, daughters and mothers because of the threat of violence posed by the perpetrators.

PROJECT RATIONALE

This research project on gender, urban sanitation inequalities and everyday lives in Delhi seeks to contribute to filling the gap in our understanding of how the lack of provision, and/or poor maintenance of sanitation infrastructure has become a tool for the social exclusion of millions of poor urban residents – women and girls specifically. In a study on gender, slums and cities, Chant & McIlwaine (2016, p. 93) have noted that:

> " *despite the importance of WASH [Water, Sanitation and Hygiene], there is very little research on the everyday experiences of infrastructural and service provision (or lack thereof), which brings to bear the point that this issue must be conceptualised beyond the framework of technocratic interventions to address specific problems, how it becomes imbued with wider power relations, and how, in turn, provision can become a tool for subjugating or empowering certain groups within cities.* "

This research report therefore argues that 'passive' sanitation infrastructural violence occurs in cities such as Delhi because of two factors. The first is the lack of political will at all levels of the Indian state to take a systematic approach to the planning, implementation and maintenance of sanitation infrastructure. In the case of Community Toilet Complexes (CTCs), the failure of urban local bodies and agencies to take responsibility for designing toilets that satisfy women's biological and socio-cultural needs, along with a lack of regular cleaning, maintenance and water supply, frequently render them unfit for use. This occurs because government sanitation policies have not been based on funding the construction and maintenance of the entire whole sanitation service chain – from toilets, to cess pits and septic tanks, the sewers that transport waste across cities, the waste treatment facilities and the disposal and reuse systems. Instead, many slum communities are provided with CTCs that are often without a water supply and are connected to septic tanks with the promise of sewer connections later. This rarely eventuates because the politicians who garnered votes through their construction may no longer be there to support the community or ensure that water tankers arrive, or that the toilets are cleaned or tanks emptied. The CTCs then quickly become dirty and unfit due to overcrowding as there are not enough seats for the number of residents in that locality and because septic tanks are more prone to blockages than those connected to sewer lines. This often leaves women and girls with no choice but to go back to using dangerous spaces for OD.

The second is the continuing lack of analysis of gender as a process (based on unequal power relations) in the policy, design and location of public and community toilets. Merely building more toilets to achieve targets set by governments will never solve urban India's sanitation poverty because time and again they remain unused due to degradation and the lack of safety for women and girls. The responsibility for a lack of gender analysis for sanitation projects lies with policymakers, planners, government departments and international development organisations. For many years 'gender mainstreaming' was highlighted in water, sanitation and hygiene policies, programmes and projects. At best what has transpired is the formulation of policies that do not add to the vulnerabilities of women and girls (O'Reilly 2010). Real efforts to address gendered inequalities are rare, as this means addressing gender roles head-on. The reality is that when it comes to facilitating women's participation in sanitation projects, those in charge of designing and implementation are often more concerned with technical solutions that enable the toilet complex to be built according to a deadline, rather than encouraging a community process that will allow women to challenge existing spatial inequalities in society (where men control household and public spaces), or even understanding the priorities of the people they are planning and designing for. 'Understanding community participation involves understanding power: understanding the ability of different interests to achieve what they want. Power depends on who has information, skills, confidence, and in many situations, it depends on who has the money' (Beltao 2016, p. 197).

METHODOLOGY

The majority of the 31 participants in this research project were women living in JJCs in Mangolpuri and Kusumpur Pahari. The exceptions were the three women living in the formal resettlement colony part of Mangolpuri. They were selected randomly as the interviewer was walking through each locality. Usually these women were sitting outside their jhuggis engaged in some aspect of household work or conversing with family or friends. Once a participant had shown an interest in participating in the survey they were given a Participant Information sheet and then asked to sign a Consent Form.

The survey questionnaire combined quantitative and qualitative approaches in that the comments made by the participants when answering questions were also recorded. The statistical data gathered from participants included information about themselves (age, years of residence, marital status), their household (caste, religion, head of household, education levels and assets), access to toilet facilities or OD sites, access to water, everyday experiences of harassment and violence when using toilets or OD sites, coping strategies and suggestions for designing safe and clean toilet complexes. Six recorded interviews were also conducted with three women (who had been surveyed) from each locality, who had shown an interest in the project, to provide a more in-depth picture of the daily challenges relating to access to sanitation facilities.

The structure and content of the questionnaire was modified after a trial run with several participants. Given the very personal nature of the questions relating to gender-based violence that can be experienced when using the toilet complexes or OD sites, several modifications of the text of the questions were required. A particular challenge was creating a set of questions suitable for women across all age groups – the concerns and experiences of younger women were different from those of their mothers and elderly women. To accommodate these varied experiences, separate sections for younger and older women were included and this improved the process of delineating these disparate stories. One challenge that persisted, however, was that while interviewing younger women, their mothers would often contribute comments. For example, Priya, living in one of the jhuggis in Mangolpuri, said she had not experienced any gender-based violence when using the mobile toilet complex while her mother related a different story of the various incidents she had experienced, seen or heard about. While, statistically, the survey included only the answers provided by Priya, the space for comments and observations allowed her mother's opinions to be noted.

This tendency of two or more women answering questions was not limited to mothers and daughters. As the participants were usually sitting in groups outside their jhuggis, it was at times difficult to ask only one woman to respond to the questions. Often what happened was that a conversation with all of them ensued, with one person taking charge. These women would all continue to give their own answers to the qualitative sections of the survey, while the quantitative details would be noted down for only one person. In case of a starkly different response from any of the women in the group, a note would be made. But the responses of all of the women in the group would be considered in totality, and not as separate individual participants. Through the course of the fieldwork it was observed that women tended to be more outspoken and forthcoming in groups as opposed to when interviewed alone. Being in a group seemed to generate higher levels of trust and confidence in the survey process, and therefore helped elicit more descriptive responses. Several times, more nuanced stories were elicited from conversations amongst the women. For example, in the case of Aarti (from Kusumpur Pahari), it was only her conversations with the other women that revealed her husband was an alcoholic who would not pay for a toilet in their home in spite of having the money to do so.

Another challenge was the need for private spaces to survey women about gender-based violence issues given that most were sitting outside their jhuggis, in busy lanes. Only a couple of women agreed to be interviewed in their homes. This meant that many of the questions relating to experiences of violence and harassment were left unanswered or were answered with hesitation. In several cases, the consistent interjections from other people walking by meant that the mood of the conversation could never reach the point of intimacy required for dealing with very personal issues like sexual violence. For example, Meena, who lives in Hanuman Camp in Mangolpuri, agreed to be surveyed in her home and was freely discussing her problems associated with the lack of toilets and related gender-based violence until the arrival of her husband. Afterwards she just gave brief responses and hurried to finish the survey. Another example is Roopa, who also lives in Hanuman Camp, whose responses were interrupted by the entry of her alcoholic father who began to scream at her when accused of being drunk. Although he eventually left, this incident marked a major interruption to the conversation. Other interruptions were often unavoidable as most of the fieldwork was done at daytime when the women were generally busy with household work and attending to the needs of their children.

The interviewer also had to negotiate the issue of assumptions being made about the nature of the survey by the men in several households, such as the interviewer being a political agent or coming to ask for votes. In one incident in G Block in Mangolpuri, the interviewer was called out because the 'uncle' with a shop outside the lane had questions. What followed was an interrogation about which political party or government body had organised this survey. This meant that the interviewer was at times linked to the lack of promised political action in these slum areas, and at other times viewed as a possible conduit to political power who could bring about some improvements in basic services.

Report format

The report format is based on the harms and suffering that emerged in relation to the lack of adequate sanitation infrastructure in Mangolpuri and Kusumpur Pahari. It begins with an overview of the existing sanitation facilities and how this influences the toilet usage and OD practice of the participants and their households. We then discuss such aspects as the experiences of gender-based violence and harassment, psychosocial stresses and the economic impacts on individuals and households resulting from passive infrastructural violence. This is followed by a discussion on the coping strategies that the participants have developed over many years and what impacts they have had on their health and well-being. The last section examines who or what is responsible for the perpetuation of this sanitation-based passive infrastructural violence and offers some suggestions relating to CTC design and operation that could improve the safety and well-being of the women and girls living in Mangolpuri, Kusumpur Pahari and other slums and informal settlements.

As this is an ethnographic study, extensive use has been made of the comments given by many participants when answering our survey questions. These are in Italics. Where appropriate, a brief discussion of existing literature and research findings have been included at the start of the various sections.

FIELD SITES AND CHARACTERISTICS OF PARTICIPANTS

The two field sites were chosen on the basis that the Cities of Delhi project at the Centre for Policy Research had already completed substantial research in both localities.

Mangolpuri

Mangolpuri is a large resettlement colony in the northwest region of Delhi that was established as a consequence of the city beautification drive during the Emergency (1975-77). Residents were evicted from JJCs in areas such as Kirti Nagar, INA, Rajendar Nagar, etc. in the central areas of Delhi and resettled on plots of 25 square yards in Mangolpuri, which then lay at the periphery (Centre for Policy Research 2017). Since then the population of Mangolpuri has grown to around 300,000-350,000 today (Heller et al. 2015). Currently it is stereotyped in mainstream media as a hub of violent activity. Historically Mangolpuri witnessed many incidences of violence in the aftermath of the assassination of Prime Minister Indira Gandhi in 1984 (Anon 1984). Today, Mangolpuri is a reserved assembly constituency (Centre for Policy Research 2017) that also includes Mangolpur Kalan to the north and Mangolpur Khurd to the northeast, both urban villages. To the south of the resettlement colony, across the Outer Ring Road, is Mangolpuri Industrial Area. Mangolpuri is interspersed with eight JJCs of varying sizes in blocks Y, F, G, D, X, K, L and Q (Delhi Urban Shelter Improvement Board 2017).

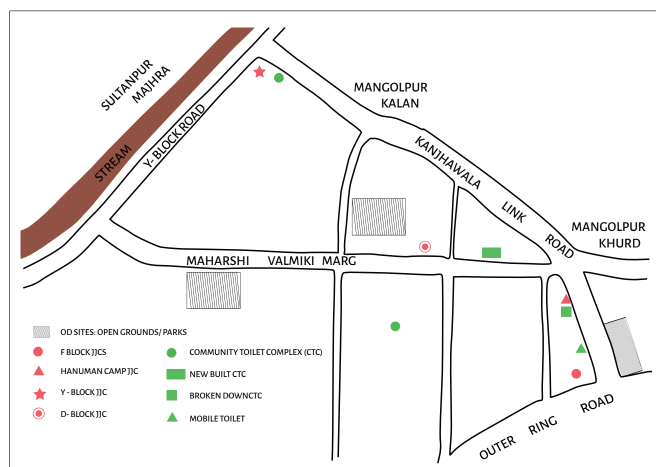
The resettlement process in Mangolpuri was carried out by the Delhi Development Authority during the 1970s, but control of the area was eventually transferred to the Delhi Urban Shelter Improvement Board (DUSIB). DUSIB continues to own the land on which the eight JJCs are located, but the residents of the resettled area have been given a 99-year lease on their plots (Mehra et al. 2015). The onus of construction of houses was laid on the plot beneficiaries. Today, the area around the resettled plots, which is dominated by multi-storeyed residential buildings, has evolved into a busy commercial area. Starting off as barren land, Mangolpuri has now become a dense colony with a large population, heavy traffic, busy markets, schools and hospitals. It is also very well connected to the rest of the city via roads as well as the Peerhagarhi metro station. Recently, an Industrial Training Institute was also opened in the area, offering opportunities to residents to improve their skills and socioeconomic well-being (Delhi Government 2017).

There has been an incremental improvement in service provision over the last 40 years in the Mangolpuri resettlement colony. This has included the provision of metered electricity connections in the early 1980s, followed by the laying of water pipelines. CTCs were built in the 1980s and have now been largely replaced by private toilets as sewer lines were laid about 10-12 years ago (Centre for Policy Research 2017). The exceptions are those CTCs being used by residents living in the JJCs, which have become a point of tension within Mangolpuri today. There now appears to be a consistent drive to demolish the CTCs and build spaces for community engagement activities such as marriage halls in their place. What makes this drive problematic is the fact that these CTCs continue as the primary and perhaps only access to sanitation for the people living in the JJCs in Mangolpuri. Of the 18 CTCs currently in Mangolpuri, only seven are functional (Centre for Policy Research 2017). The rest have become degraded structures often filled with garbage. The levels of service vary across the JJCs. Anita, who lives in Y Block, said that 'this is the only colony with such low levels of services. We have a really bad toilet and water situation. The drains are never cleaned and the toilets are broken.'

While the history of the eight JJCs remains unclear, it does seem fairly certain that they were established somewhere around the late 1970s and early 1980s (going by information from the respondents, many of whom have lived there for over 30-35 years). It is interesting to note that not only is the service provision in these JJCs different from that in the resettlement colonies, it also varies from one JJC to another. For example, two JJCs located less than a kilometre apart may have completely different kinds of access to basic services such as water and toilets. For example, the jhuggis in F Block get 24x7 access to water, while Hanuman Camp, barely a kilometre away, still struggles for water access twice a day. For our research, we studied the sanitation practices of women living in four of the eight JJCs in the area.

Photo 1 A: laneway in Mangolpuri showing a private toilet

Map of Mangolpuri



Kusumpur Pahari

Kusumpur Pahari is an informal settlement in the heart of south Delhi near Jawaharlal Nehru University. Today it comprises 4,909 households spanning an area of 1,73,251 square metres (Delhi Shelter Board 2017) on land owned and administered by the Delhi Development Authority, which is a central government body (Delhi Urban Shelter Improvement Board 2017). The development of Kusumpur Pahari (categorised as a JJC) is overseen by DUSIB, which is an agency under the Government of National Capital Territory of Delhi (Delhi Government 2017 and Heller, Mukhopadhyay, Banda & Sheikh 2015).

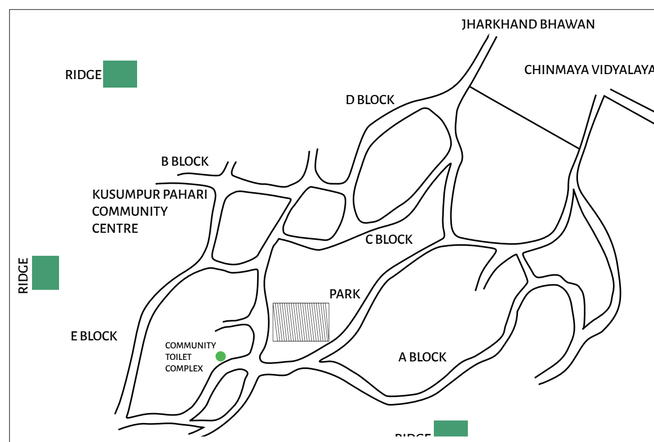
The categorisation of Kusumpur Pahari as a settlement colony has remained a point of contention, as different government bodies have recognised the area under different categories. The Delhi Government's Revenue Department categorises Kusumpur Pahari as a 'village' (Delhi Government 2017) while DUSIB has included it in its list of JJCs (Delhi Urban Shelter Improvement Board 2017) as of January 2017. This inconsistency in categorisation has created ambiguities regarding the status of service provision and the legality of Kusumpur Pahari. Today, Kusumpur Pahari is characterised by small houses and narrow lanes. Many of the houses are brightly painted and potted plants along with small terrace gardens are ubiquitous throughout the settlement. Kusumpur Pahari continues to grow through the construction of new houses deeper into the Delhi Ridge area.

Established in 1975 by the labourers working on the JNU site (Rahul 2010), Kusumpur Pahari lies at a slight elevation contiguous with a strip of the Aravalli Range that is part of the Delhi Ridge. Since then, it has continuously grown into five blocks with a population of nearly 50,000 today (Heller et al. 2015). Residents are mostly lower caste migrant families that have come to Delhi from many parts of India including Haryana, West Bengal and Tamil Nadu. These residents are part of Delhi's expansive urban poor, employed in the informal sector as daily wage labourers, domestic workers, cleaners, auto drivers, etc. (Acharya & Patra 2017). Today, some 40 years after establishment, individual houses in Kusumpur Pahari still do not have access to piped water and so have to manage their daily water needs by collecting it from Delhi Jal Board tankers and the local bore wells. For this reason, a common sight in Kusumpur Pahari is that of water cans lined up outside doorways and along winding corridors all over the colony. Most households have a dedicated bicycle for carrying these water cans to and from access points. Many households also now have legally metered electricity connections (Heller et al 2015), but this development is recent and the installation process is ongoing. Most families in Kusumpur Pahari do not have private toilets in their homes because of the cost of building one and the lack of space due to the very small plot sizes. As there is only one functional CTC in the entire colony, many residents are forced to practise OD in the nearby Ridge area

Kusumpur Pahari and Mangolpuri both have a regularised process to elect the pradhan, in which the candidates are often affiliated with political parties. The pradhan acts as an arbitrator between the residents of the colony and the state, ensuring efficient functioning of government schemes and negotiating with the government for better service provision. The pradhan also assists state agents in administration and electoral logistics (Rahul 2010).

Photo 2: Laneway in A block, Kusumpur Pahari

Map of Kusumpur Pahari



Characteristics of participants

The women and girls who participated in this survey ranged in age from 17 to 60 years. There were five women in the 20-24 age group, eight women in the 25-29 age group, three in the 55-59 age group, two each in the 15-19, 45-49 and 55-59 age groups, and one in the 60-65 age group, which provided a good diversity of experiences. Twenty were married, nine were single and two were widowed.

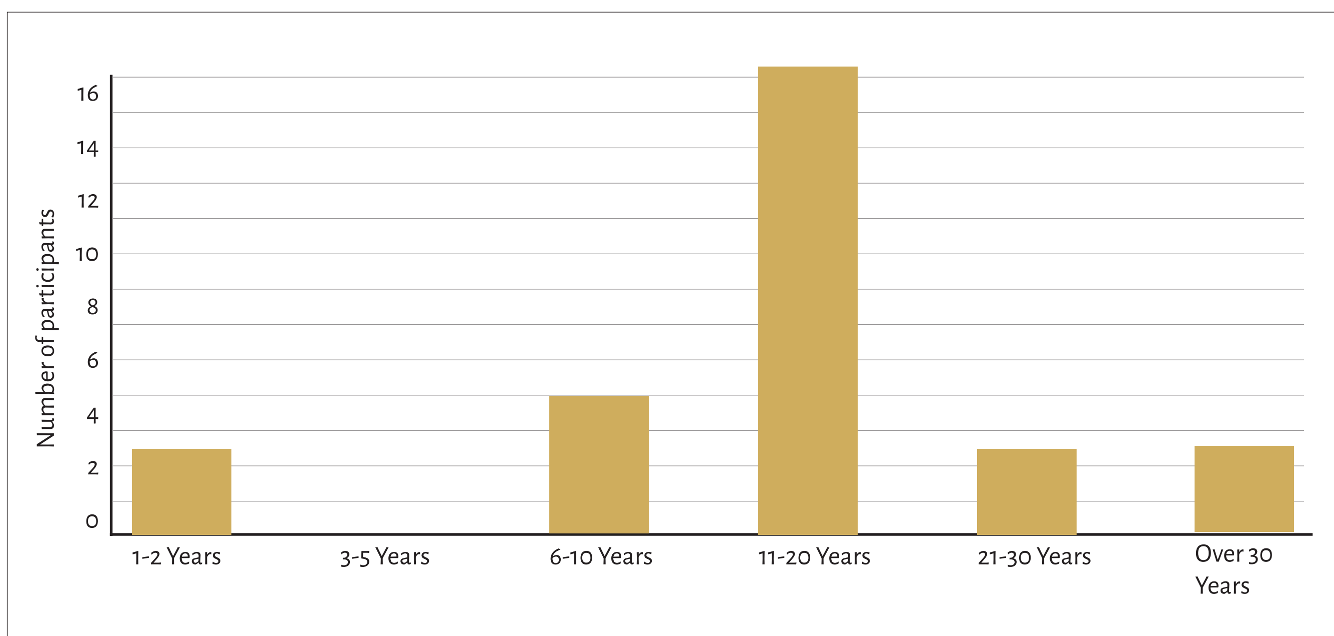
Only one participant in the survey did not own her jhuggi. Sixteen women lived in households that had used self-construction, 10 were built by contractors and three had been bought from a previous owner. This is a higher level of home ownership than the national average of 69 percent and that reported from slum households of 70 percent in Census 2011 (Ministry of Housing and Urban Poverty Alleviation & National Buildings Organisations 2013). This high level of home ownership is probably a reflection of the long-established nature of the two localities, and the fact that more than 50 percent of participants had lived in either Mangolpuri (12 women) or Kusumpur Pahari (four) for 11-20 years. All households had electricity, 26 had an electric fan, 30 had a mobile phone and 22 had a cooler or an air-conditioning unit. There were 15 households comprising four to five adults and 10 with one to two adults. Eight women said that someone in their household had a disability.

Themes and findings from fieldwork sites

Four themes emerged from the surveys and interviews. They were:

- Sanitation infrastructure: gender, toilets and open defecation
- Harms caused by passive infrastructural violence
- Coping strategies and health impacts
- Suggestions for building gender-sensitive toilets

Graph 1 Length of residence in both localities



SANITATION INFRASTRUCTURE: GENDER, TOILETS AND OPEN DEFECATION

In Delhi, there are usually three types of toilets found in slums and informal settlements: individual toilets which have been constructed by households, CTCs built and maintained by DUSIB or non-government organisations (i.e. Sulabh International) which go through a tender process to operate and maintain CTCs and public toilets under the authority of civic agencies.

Today there are 757 slums and JJCs in Delhi (DUSIB 2017) and many of their residents still do not have access to a CTC (Heller et al. 2015). To address this sanitation inequality, DUSIB plans to construct 200,000 community and public toilet complexes across the city during the next five years, of which 150,000 will be in slum clusters. As most slums and JJCs are not connected to sewerage systems, putting up even mobile toilets in these localities is a difficult technical challenge for DUSIB. During 2014-15, DUSIB constructed 4,500 community toilets and had plans to construct an additional 10,000 more by the end of April 2017. There has also been a focus on repairing and upgrading of existing toilet blocks. DUSIB now claims that 80 percent of toilet blocks have water taps and that cleaning is being done on a regular basis (Haider 2016 and 2017).

Many aspects of this lack of sanitation infrastructure are clearly visible in Mangolpuri and Kusumpur Pahari to any observer.

Condition of sanitation infrastructure in Mangolpuri and Kusumpur Pahari

Household toilets

The survey found that 15 out of 31 households (48 percent) had built a private toilet (see Table 1), which is possibly a reflection of the long-established nature of both localities. For example, in a study of the more recently established resettlement colonies of Bawana (2004) and Bhalswa (2000) in the northwest corner of Delhi, it was found that only 30-40 percent of households had built their own toilets connected to septic tanks (Jagori & Women in Cities International 2011).

In Mangolpuri, seven participants lived in households with sewer line connections and two had toilets connected a septic tank. Three of the households were in G and Y blocks of the resettlement colony which were connected to sewer lines 10-12 years ago. Four households in the D Block JJC also had sewer connections, as a result of a collective effort of lobbying the local MLA to get a sewer line installed. The two households with a septic tank connection were in F Block and Hanuman Camp.

In Kusumpur Pahari there were seven households with a private toilet. This consisted of two households with septic tanks (in A Block), three connected to a cess pit (A and B blocks) and two connected to drains (C Block).

Community Toilet Complexes

In Mangolpuri there are mobile toilets in F Block and a broken-down CTC next to Hanuman Camp. A newly constructed CTC (see Photo 10 below) has just opened on Maharishi Valmiki Marg which is 10 to 15 minutes walking distance from Hanuman Camp.

According to participants in Kusumpur Pahari there is only one functioning CTC in B Block to service 20,000 jhuggis. There is another CTC in D Block which is currently being renovated after falling into a state of disrepair.

Photo 3: Broken-down toilet complex being used by residents of Hanuman Camp in Mangolpuri

Table 1 Household toilets

	Mangolpuri	Kusumpur Pahari	Total
Total number of households with toilet	9	6	15
Connected to sewer	7	-	7
Connected to septic tank	2	2	4
Cess pit	-	2	2
Empties into drain	-	2	2
Shared access with extended family		2	2

Photo 4: Mobile toilets being used by residents of F Block

The CTCs were being used by 11 households but on an everyday basis by only ten households. The other participant, Hena who lives in B Block in Kusumpur Pahari, said she only used the CTC during the day and had access at night, or in an emergency, to a toilet built by an extended family member who lived nearby.

Photo 5: The only functional toilet complex in Kusumpur Pahari situated in Block B

Open defecation

In Mangolpuri the main OD sites currently include the 'park' opposite the F Block JJC and the broken- down CTC next to Hanuman Camp. In Kusumpur Pahari participants reported using forested areas on the Ridge. Drains are sometimes used in evenings or at night.

There were 14 participants (six in Mangolpuri and eight in Kusumpur Pahari) who said they used OD sites, but only nine did so on a daily basis. The other participants reported practising OD occasionally or only at night when the CTC was closed.

Patterns of toilet usage

The patterns of usage of private toilets, CTCs and OD sites across both Mangolpuri and Kusumpur Pahari were found to be variable and this created many overlaps, as shown in Charts 1 and 2 below. For example, several participants with household toilets still occasionally used CTCs or OD sites. Similarly, when CTCs are closed, participants reported having no choice but to use OD sites. Many factors were associated with this variability of use and are similar to those reported by Biran et al. (2011) in their study of usage of community toilets in poverty pockets in Bhopal. They found that 'convenience and access, facility age, cleanliness and cost, all facility-related features, emerged as having the greatest impact on usage rates, largely independent of individual household characteristics' (p. 852). In addition, they found that living at some distance from a community toilet block, particularly if it had limited opening hours, was a predictor for OD.

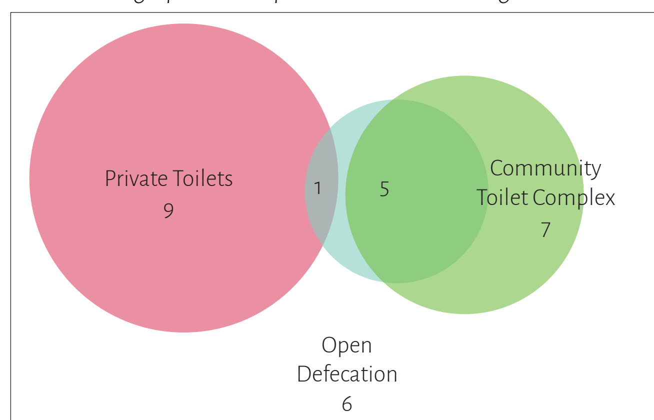
Photo 6: Open defecation site opposite F Block JJC in Mangolpuri

Households with private toilets

While all of the members of the nine households with a toilet in Mangolpuri used their household toilet every day, Seema, who has lived in Y Block in the Mangolpuri resettlement colony for more than 10 years, occasionally resorts to OD because she has difficulty in climbing stairs. 'The toilet in our house is on the second floor and sometimes, because of my old age, I am unable to climb the stairs. In case of emergency, I just pee in the drains. If the government is building toilets, then I'll build one downstairs.'

Photo 7: *A path in A Block, Kusumpur Pahari, that leads towards the Ridge OD site*

Chart 1 Mangolpuri overlaps in toilet and OD usage



The usage pattern in Kusumpur Pahari, however, was found to be quite different. The often acute water shortage forces members in four of the seven households with a toilet to use the CTCs or OD sites every day because overuse creates a smell. In three of these households, it is only the men who do so. Kavita of A Block said, 'We have a toilet in the house now, but we try to keep its use basic and minimum because there is not enough water for everyone to use it all the time, and also getting it [the cess pit] cleaned will be expensive and cumbersome. My brothers can afford to go out easily. Sometimes even I go out. Only use it when we absolutely need to.'

Using in-laws' toilet at night

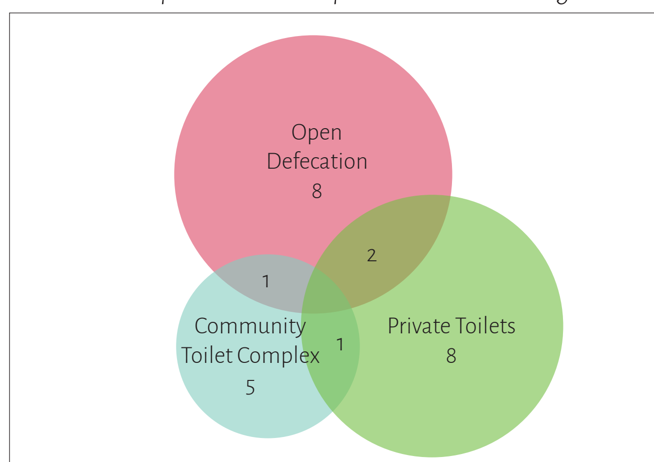
Two women in Kusumpur Pahari have access to an extended family member's toilet at night. One is Hena, who lives in B Block. She uses the CTC there during the day, except when it is closed between 1 pm and 4 pm. Then she has no choice but OD. At night she has access to the nearby toilet built by her in-laws. The other is Simran, who lives in A Block and goes to the Ridge for OD during the day. But in an emergency (particularly at night), she has access to her uncle's toilet as he lives opposite her jhuggi.

Using both the CTC and OD

In Mangolpuri several women said they use the mobile toilets in F Block during the day and in the evening. But when they are closed at 10 pm, they go to the OD sites. Priya who lives in F Block said, 'Most people here do not have toilets, so they are compelled to follow the same sanitation pattern as us. Use the mobile toilets in the day, and defecate in the open (in the park nearby) at night and in case of emergency. Some can't afford to use the mobile toilets since they are costly [the price has been increased from Rs 1 to Rs 2 recently] and the very few people with space and money have private toilets in their homes. But the majority lie in the in-between [category] of using the mobile toilets and open defecation.'

Meena who has lived in Hanuman Camp JJC in Mangolpuri for more than 10 years described a slight variation to this pattern of toilet usage. 'People who don't have time use the broken-down CTC. Others, who have the money to spare, use the mobile toilets.

Chart 2 Kusumpur Pahari overlaps in toilet and OD usage



Nobody here has private toilets – at least in this part of Hanuman Camp. Only the houses on the side, the edges of the colony near the main road, have toilets.'

OD only

Only two of the 10 women who said that they use the OD sites every day did not combine this with using the CTC. Six of them only resorted to OD at night when the toilet blocks were closed.

Summary of toilet usage findings

Our findings on how private and community toilets are used in Mangolpuri and Kusumpur Pahari highlight the frequent inaccuracy of statistics collected in household surveys. Persons conducting such surveys would generally presume that if a household has a toilet facility there is no need for further questions on other sanitation activities. But as this survey has shown, some members of those households with private toilets still use CTCs or OD sites often due to issues such as lack of water in the case of Kusumpur Pahari, or the inconvenient location within a household for an elderly woman. For those participants whose households who use CTCs every day, their patterns of usage are determined by the opening hours. When CTCs are closed during the day, or after 10 pm, residents are left with no choice but OD.

HARMS CAUSED BY PASSIVE INFRASTRUCTURAL VIOLENCE

Our survey and interviews have identified three types of harms:

- Gender-based violence and harassment experienced when going to a CTC or OD site
- Psychosocial stresses
- Economic impacts on individuals and households

Gender-based violence, harassment and sanitation

Rates of gender-based violence have been increasing globally, but particularly so in developing countries because of increasing levels of urbanisation, poverty and inequality coupled with rising crime and drug use rates (Chant & McIlwaine 2016). Statistics suggest that in India a woman is harassed in a public space every 51 minutes. Bhattacharyya (2016) has argued that there are several intersecting factors such as unequal gender relations, deeply held practices of discrimination against women and girls, and gendered social and cultural norms along with poverty and unemployment that contribute to sexual violence against women in India. This renders public spaces male-dominated and risky for women. All forms of gender-based violence result in physical, sexual or psychological suffering for women and girls, in private or public life and in varying degrees (Bhattacharyya 2015).

These harms and suffering, or vulnerabilities, that women and girls living in slums and informal settlements may encounter every day when making their sanitation choices are one of the most significant of the gender inequalities experienced in urban settings. O'Reilly (2016b, p. 21) has termed these vulnerabilities 'toilet insecurity' and suggested that such insecurity 'is more than the uncertainty facing a woman or girl when she goes for open defecation or to a public toilet. It also includes an inability to tell anyone if an incident occurs' because of the shame that would bring to an individual and their household. These sensitivities, or inability to tell, in relation to gender-based violence, and particularly those associated with sanitation behaviours, have contributed to the under-reporting of such incidents. These sensitivities have also posed ethical and methodological challenges for researchers with the result that most studies have been qualitative, rather than quantitative or randomised trials (Sommer et al. 2014).

Today, there are only a limited number of studies available on gender-based violence and sanitation behaviours. The results of this survey reflect the findings of the research by Bapat & Agarwal (2003), Kulkarni, O'Reilly and Bhat (2017), Tiwari (2015,) Hulland, Chase, Swain, Biswal & Sahoo (2015) and Sahoo, Hulland, Caruso, Swain, Freedman, Panigrahi & Dreibelbis (2015) done in slums and informal settlements in India. Similar findings on the prevalence of gender-based violence and sanitation have been reported from slums in Nairobi (Amnesty International 2010a and 2010b). A recent study by Belur, Parikh, Daruwalla, Joshi & Fernandes (2016) in two slums in Mumbai (Dharavi and Nehru Nagar) explored whether a lack of access to sanitation facilities, poor toilet design and location, unsafe approach roads and a lack of police presence are facilitators of gender-based violence. Based on a survey of 142 women (92 percent of respondents used public or community toilets), they found that the fear of crime was greater than their actual experience and that perceptions of insecurity varied for toilet types and locations. Most participants felt that the provision of better lighting and a regular police presence could reduce their fear of gender-based violence around toilets.

Findings on harassment and experiences of violence in Mangolpuri and Kusumpur Pahari

In our survey, participants were asked if they had ever experienced harassment or physical violence. This has meant that the statistics are inclusive of past (i.e. before the household had a toilet) and more current experiences for those women using CTCs or OD sites. It also includes second-hand accounts of such incidents. The decision to include this variable data was made on the basis of the fact that as gender-based violence is a very personal and difficult topic, there may have been a tendency to discuss it as having happened to a family member or relative. Therefore, the data in Graph 2 below (which is based on the responses of all 31 participants) should only be treated as an indication of the prevalence of gender-based violence and harassment relating to sanitation activities in Mangolpuri and Kusumpur Pahari.

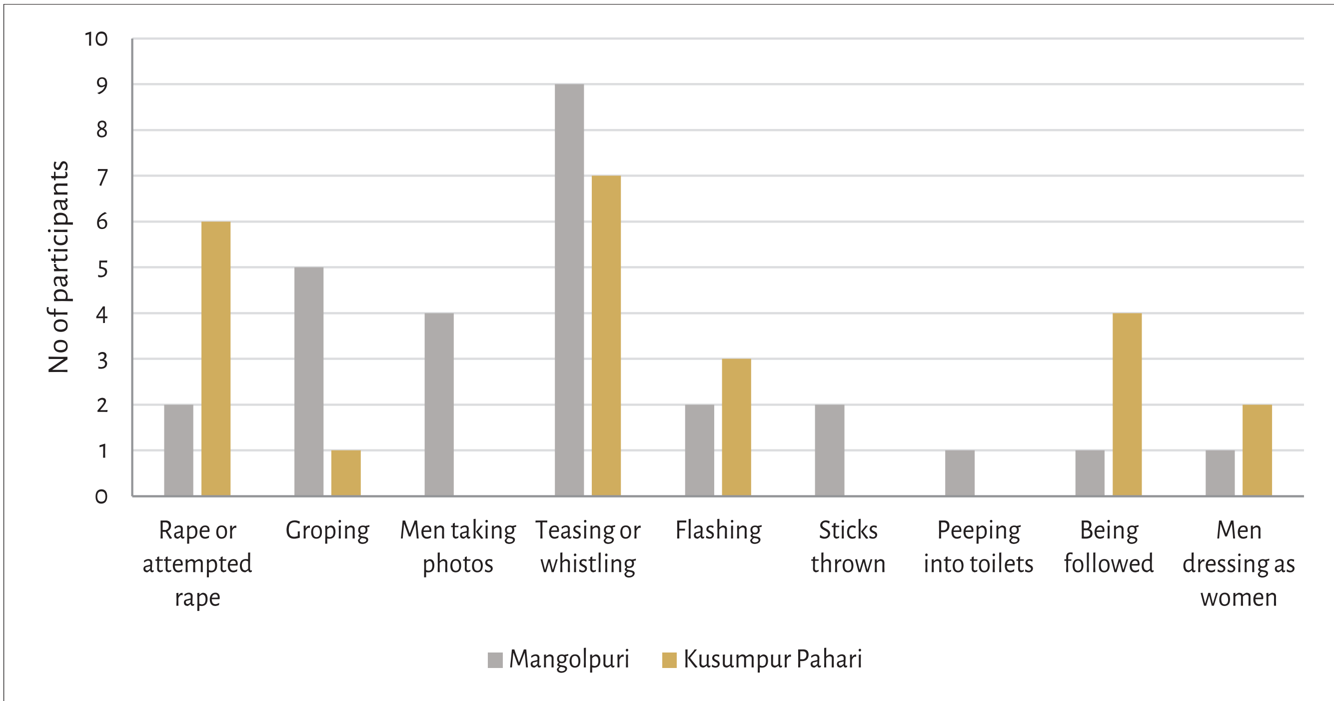
Teasing and whistling (32 percent) was the most prevalent type of harassment reported, followed by rape or assault (16 percent) and groping (12 percent). But it should be noted only nine participants reported a direct experience of violence or harassment and 14 had heard stories about harassment and violence or knew someone who had suffered a violent assault or harassment. For example, eight participants said they had experienced or heard about an incidence of rape or assault. Another eight participants said they had not experienced any assaults or harassment in relation to sanitation activities, which is a reflection of those women living in households with toilets who do not have to use CTCs or OD sites.

As Graph 3 next page shows, the greatest numbers of incidents of harassment and violence took place at OD sites (14 responses) followed by CTCs (nine responses). Nine women said they experienced some form of violence or harassment nearly every day.

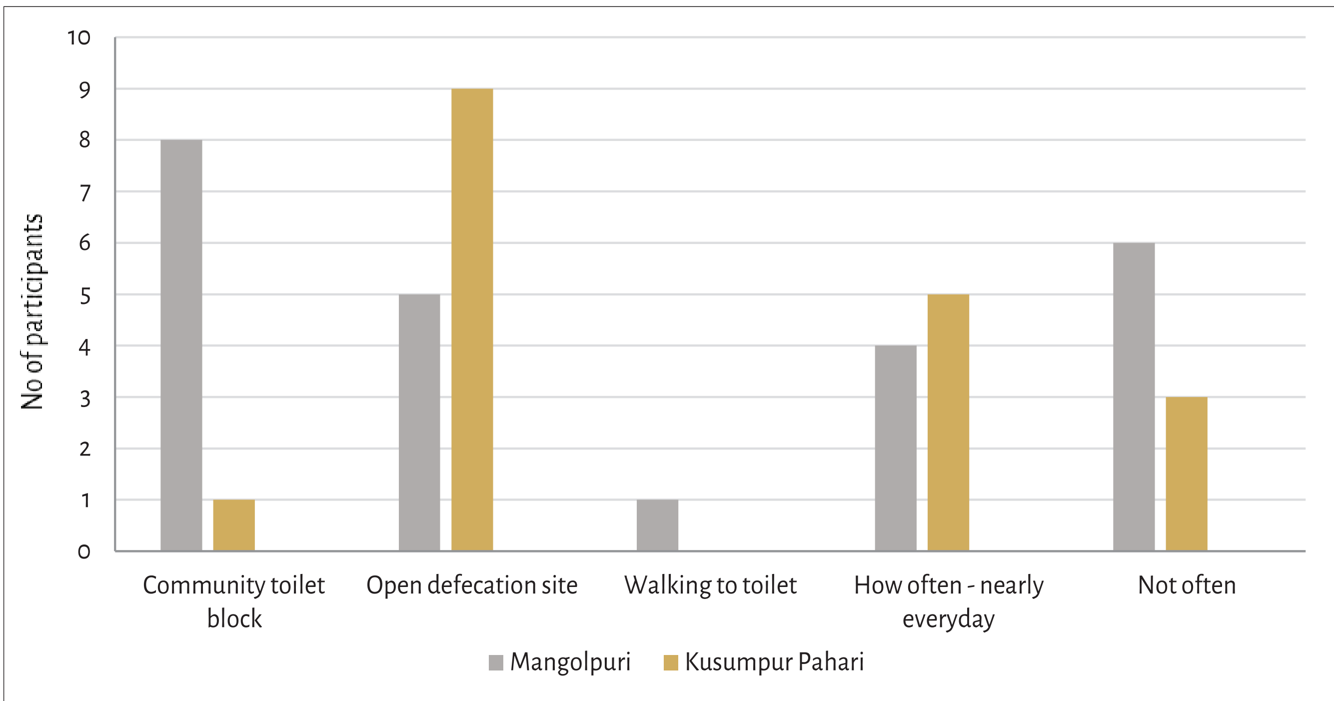
Comments on harassment and violence from the participants

Anju (Mangolpuri), who uses the CTC every day and reports that she has infrequently experienced harassment such as groping, teasing and whistling while queuing to use the CTC, said, '*The boys hang around there smoking and doing drugs. And no one can tell them to leave either. If we tell them to leave then they say this is their toilet too,*[3] *so who are we to ask them to leave?*'

Graph 2: Types and Incidences of harassment or violence



Graph 3: Location and frequency of harassment and violence



Prabha (Kusumpur Pahari) said that the incidences of '*men harassing women has gone up tremendously. Every other day we hear new stories of some boy following a girl, or teasing or something or other. Earlier we would only hear such stories every once in a while. If there was a toilet for women, or more security, things would be different. What, there are about 20,000 jhuggis in Kusumpur Pahari. Can one toilet block accommodate all? Obviously not – how can we all use one?*'

Neeta, who lives very close to the Ridge in Kusumpur Pahari, often hears the fights and screams that take place in the OD site. She said they *'once heard a group of women chasing a man who tried to attack someone while peeing. It has never happened to me or anyone in my family but we have heard several stories, and sometimes we even hear disturbing noises from the open defecation ground*.'

But women in Mangolpuri and Kusumpur Pahari report that they also fight back, both physically and verbally, against potential attackers. This could be a reflection of the fact that many of these women have lived in these localities on average for at least 20 years, and so have had longer times to develop counter strategies against these men and boys involved in harassment or assault.

Who are the men and boys who harass?

When asked where do these men live who harass and violently assault women, 45 percent of the participants said they did not know them, and thought they were perhaps from the next colony or elsewhere and that this is the main reason they are never punished for their crimes. Only two women said they knew any of these men.

Asha (Mangolpuri) commented, *'These are strangers from other colonies. Boys from our colony, or those we know, would never dare to commit such acts.'* Rani is a young woman living in G Block and has a household toilet, but said she is often exposed to harassment in public spaces in Mangolpuri. *'There is a great deal of impunity related to these crimes of harassment and sexual violence. The boys know that nothing will be done to them so they have become very violent and criminal.'*

Reena (Mangolpuri) who also has a private toilet, said that she *'used to see them around the colony sometimes but don't know them personally or know their names. This is the reason they escape punishment too.'*

Psychosocial stresses

Psychosocial stresses relate to the fear, stress and shame that women suffer because of the harassment, teasing and intimidation they experience when going about their daily sanitation activities. The studies by Sahoo, Hulland, Caruso, Swain, Freedman, Panigrahi & Dreibelbis (2015) and Hulland et al. (2015) of sanitation-related psychosocial stress in rural, urban and tribal area sites in Orissa used three categories: environmental (barriers to access, animals and insect attacks), social (privacy, social restrictions and conflict) and sexual/gender-based violence. They found that the impacts of these stressors were modified by a woman's life stage, living environment and level of access to sanitation. In the case of the 20 women living in slums, two-thirds reported stressors relating to gender-based violence. These 'women rarely expressed a sense of agency to change their sanitation situation and commonly said things like, "What else can we do?" Rather, their responses to sanitation-related psychological stressors suggested attempts to cope with the undesirable realities causing sanitation-related stressors to arise' (Sahoo et al. 2015, p. 87). Hulland et al. (2015, p. 14) found that 'even stressors that occur less frequently may still be high severity issues, and that the intensity of stressors vary by life stage, and geographic location'.

In her examination of the relationship between urbanisation and gender-based violence, McIlwaine (2013) suggested that women remain silent about this abuse because of the fear and stigma that may be inflicted on them if it is reported, and said this is:

> " *partly related to the social and institutional characteristics of the city [and] … the ways in which gender-based violence correlates with constructions of fear and mobility, which, in turn, affects women's well-being … However, it has also long been acknowledged that women experience greater fear of violence, and that this is linked to wider patriarchal inequalities that influence women's confidence to negotiate the city in terms of using public transport and operating freely in open public spaces (p. 73)* "

When discussing fears and stresses relating to the risks they face when going to CTCs or OD sites, participants gave the following examples based on their experiences:

- Fear of being bitten by snakes, dogs and other animals in forest defecation sites in Kusumpur Pahari
- Fear of injury when defecating on slopes and hillsides (particularly during the monsoon), on roadside or in drains
- Fear of sexual assault or rape
- Fear of having to go out at night
- Fear of younger children being abducted if they go alone to OD sites
- Fear of walking across spaces where men and boys are gathered on the path to a toilet block
- Fear of disease from using unclean toilets
- Stress of not being able to report incidences of harassment or violence due to bringing shame on themselves and their household, or facing revenge from perpetrators
- Stress of worrying about their safety and that of their daughters
- Stress of having to 'control' body functions
- Stress of not being able to ask guests to visit because you do not have a toilet

The everyday fear of sexual assault or violence
In this study a third of participants said they experience fear every day when they have to go to the CTC or OD site. This is similar to findings from a study by Lennon (2011) involving women living in three slums in Delhi's North East district, which found the fear of sexual violence against themselves or female relatives the dominant theme in responses. This fear related to using CTCs, OD sites and being in public spaces in general. Going out during the day or at night was considered a dangerous activity for most participants.

The stress of not be able to report an incidence of violence or harassment
Anu (Mangolpuri) said that while incidents of harassment and violence happen often, *'official figures wouldn't show that. People refrain from complaining to the police because that mostly leads to more harassment, and attacks the dignity of their daughters. But in reality, it is a frequent occurrence.'*

Veena (Kusumpur Pahari) spoke of why she has been reticent to report an incidence of violence. *'Men dress up as women to attack girls and women who go to the forest to defecate. I have experienced such incidents many times, and whenever I would tell other women about it, they would ask me why I am telling everyone, that I should be ashamed and not tell the whole world what happened.'*

Fear of disease and injury
Roopa (Mangolpuri) finds the CTC very dirty and is constantly worried about disease, but as the other option of OD is worse, she has to use it. The CTC also generates a sense of fear of injury for her elderly mother as she has to climb the narrow stairs to the mobile toilet every day, carrying a container of water and trying to keep her balance. *'My mother has been injured once. The stairs are very rickety and we also have to carry a can with water for flushing and washing as the mobile toilets are not connected to a water supply.'*

Impact of fear of violence on women's mobility
For Usha (Kusumpur Pahari), a particular fear that discourages her from using the CTC in B Block is the park on the way to the toilets. *'That park is a very bad area and strange men loiter there. They pass lewd comments and stare in an uncomfortable way at girls going into the toilet. Though nothing has ever happened to me, I have heard of incidents where drunk men sitting at the park have attacked women.'*

Aarti (Kusumpur Pahari) had a similar comment. *'Half the men here are drunks. Somebody or the other gets into a fight every day. Men will be drunk, lying on the road, screaming obscenities. Women can't cross over and go out at night. In fact, no one can.'*

Impact of a lack of a toilet on a household's social relations
Priya (Mangolpuri) made a comment on how the lack of a household toilet causes harm to social relations by creating shame for a household. *'No guests come to our house because we have no toilets. It becomes very uncomfortable if they come here and have to use the washroom. They aren't used to using open grounds or public toilets, and we feel ashamed that we have to make them use such facilities. That is why we don't have any guests at our place.'*

Economic impacts on individuals and households
Economic harms are caused by a lack of adequate sanitation facilities in two ways. First, there is 'lost' time incurred in having to often walk for 10-20 minutes to reach a CTC, wait in a queue and then return home. A Water and Sanitation Program (2011) report has estimated that in 2006, an extra 78.6 billion hours were spent by both urban and rural populations in India accessing shared community toilets and OD sites, based on a single visit per person per day using an extra 20 minutes of their time. The economic cost of this lost time due to having to walk and wait at CTCs or OD sites was estimated at Rs 477.5 crore (USD 10.5 billion). This finding is supported by report from the Centre for Urban and Regional Excellence (CURE) in 2006. In a baseline study for a WASH project that CURE is implementing in 13 informal settlements in Delhi, long waiting times were often cited as a reason for the non-usage of community toilets (34 percent) along with the toilets being too far away (23 percent).
This report (CURE 2016) also highlighted the second economic impact, which is the cost of fees for the use of a CTC. High user charges were given as a reason for not using a CTC by 23 percent of participants, which means their only option becomes OD. This finding is supported by a study of the socioeconomic dynamics in slums in Kisumu, Kenya, by Simiyu (2015, p. 992-3) who found that:

> " *Economically the urban poor find it irrational to pay for sanitation services, especially at communal sanitation facilities. It makes economic sense for a poor person to find an alternative at his neighbour/friend/relative's dwelling, use open defecation, or use flying toilets rather than using the meagre resources he has to pay for use of communal facilities. Unlike water, a sanitation service is not a 'tangible commodity' that can be bought. Therefore, as long as the urban poor have other alternatives where they do not have to walk for a distance for access and use a sanitation facility and/or pay for use of sanitation facilities, it may take quite a while before there is behavioural change from the use of unimproved sanitation to the use of communal facilities* "

Desai, McFarlane & Graham (2015) in their research on two slums in Mumbai also found that the per use charges could be viewed as a method of control over access to sanitation infrastructure and a way of determining who uses a toilet complex. Such control or limitations on access often led many residents to practise OD either on a daily or intermittent basis.

Nearly half the participants in this survey who use a CTC said that it took 6 to 15 minutes to walk each way, while another 37 percent said they took 16 to 30 minutes to walk each way. This is the case for Prabha (Kusumpur Pahari) who said, *'It takes about 10-15 minutes to reach [the CTC]. The whole business would take half an hour or more.*

So it is not worth it [for me]. This forest is very close by. I can't waste 45 minutes every time I have to pee.' Meena (Mangolpuri) echoed this. The mobile toilets are *'very crowded, and it takes a lot of time. I don't use it because I have a lot of household work, and spending so much time every time I need to defecate or urinate is not conducive for me. It is also quite expensive at Rs 2 per use.'* Alka, a relatively new arrival in Kusumpur Pahari, raised the problem of how coping with a baby means she has to opt for OD. *'The toilets are too far, and I have a very small baby. The whole process of going, using and coming will take me half an hour. Who will take care of my baby for half an hour?'*

Preeti (Mangolpuri) has found the cost of using the CTC to be prohibitive. *'It's too expensive at Rs 2 per use. The open defecation ground and the public toilet are at the same distance, but one is free and the other is not. The toilet is mostly dirty anyway, so what's the use of paying Rs 2?'* For Aarti (Kusumpur Pahari) the cost of using the CTC is beyond her household budget. *'It's Rs 2 per use, which means if we are unwell and we go four times, that's Rs 8 in one day for one person. We can't afford that.'*

COPING STRATEGIES AND IMPACTS ON HEALTH AND WELL-BEING

The individual strategies adopted by participants to cope with everyday gender-based violence relating to sanitation activities are similar to those reported by Kulkarni et al. (2017, p. 179), who found that '[w]omen's greatest exercise of power lies at the most intimate scale: that of bodily control. In response to these issues, women and girls have developed strategies and coping mechanisms to deal with the challenges of sanitation in the slums'. Truelove (2011, p. 148) presented similar findings that women 'must discipline their bodies around a lack of accessible and private sanitation, or face public shame, humiliation and embarrassment'. In their study of women living in four slums and unauthorised colonies in Delhi, Sharma, Aasaavari & Anand (2015, p. 72) found that women adjusted their biological need to use the toilet to the opening hours of CTCs, or when they were less in demand.

In our survey, 18 women reported that they took measures to protect themselves when going to the CTC or OD sites (see Table 2). The most common coping strategy was going with a group of women at night and during the daytime, along with asking their husband to accompany them. But measures to control bodily functions were also important. Nine women said they tried to stop themselves needing to go to the toilet at night through careful or restricted eating.

At the household level one coping strategy is to build a private toilet. While this issue is examined in terms of gender and intra-household decision-making in Section 9, an example of collective action by women in Mangolpuri – which enables them to build household toilets – in response to the fear and violence they experience, is discussed later in this section.

Some coping strategies

Measures to reduce food and water intake

Prabha (Kusumpur Pahari) said that at night *'if we have to go, we try not to. Think we'll go in the morning. And then eventually we get constipated. Then we have to take medication again to break constipation. Even gas. Gas happens a lot.'*

Rupali (Mangolpuri) said that when she was a younger she *'would hardly eat. This is the truth. I would always be sick because I'd starve myself. I wouldn't go to the toilet because I disliked going so much. I used to go once in two or three days, and only when it was empty. My stomach used to hurt because I'd stopped eating or was eating very less.'* ***Strategies at OD sites***

Table 2: Types of coping strategies

QUESTION	NO OF RESPONSES
1. Do you take measures to protect yourself when going to the toilet/OD site?	
• Yes	18
• No	2
2. What measures do you take?	
• Go with a group of women in daytime	8
• Go with husband	7
• Go with a group of women at night	11
• Go early in morning	7
• Answering back	4
• Always go with daughter	4
• Throws sticks at men	2
3. Do you take measures to stop going to the toilet at night?	
• Yes	9
• No	16
4. What are these measures?	
• Careful eating	5
• Drinking little water	4
• Reduce eating in the evening	7

Rupali (Mangolpuri) had to use the OD site when the CTC was closed and described one of the coping strategies she and several other girls used. '*This park [near D Block JJC] according to me was safe. It is very big, and was made only some five years ago, so a lot of girls would go there. It was fine that way. Of course one couldn't go alone. One of the girls would be peeing and the other one would keep watch. That's the way it worked. But of course one would always defecate in fear. What the person would do in 10 minutes at leisure, she would have to finish off in two minutes. Couldn't do it in peace.*'

Coping with the poor maintenance of CTCs

Priya (Mangolpuri) discussed how her mobile phone was part of her strategy to cope with the lack of maintenance and fear of harassment at the mobile toilet block. '*Earlier there were lights in the toilets, but now the lights have become dysfunctional. Often we have to take our cell phones with us so that we can use the torchlight on our phones. This is very uncomfortable since we have to squat, hold our balance, use one hand to wash and the other to hold our phones. Sometimes we make our friends or sisters shine the light from the outside, in which case we have to leave the door a little ajar.*'

Collective action by women to get private toilets

In Mangolpuri women in D and Y blocks JJCs have initiated collective action to enable their households to build private toilets that are either connected to the sewer system or empty into the drains. In D Block JJC all of the 38 households got together to make this demand of the then Congress MLA, Rajkumar Chauhan. All households now have a private toilet. Rupali recounted how this was achieved. '*We went to him and told him about our troubles relating to toilets. He said that the sewer lines were only laid in the main road … and he couldn't put them in the side lanes. It was during election time, so we told him that we would only vote for him if he managed to give us access to good sanitation services. He agreed and connected the main sewer line to our JJC. We each paid Rs 2000 [and collected Rs 50,000-60,000] to get lines inside the colony connected, and then we all built toilets.*' Rupali feels that their collective approach was successful because the Congress office was located nearby, D Block only has a small number of jhuggis, and all the families lodged complaints about their lack of access to toilets.

In Y Block the women want the drains widened so that a household toilet can empty into them due to the lack of a sewer line. Anita from Y Block said, '*We are thinking we'll come together and collect money, and then go ask the government to put in proper drains here. Then after that we'll build our own toilets once that system is in place … We are willing to pay Rs 200-300 per household ourselves. We women have agreed about that. Since women are the ones who suffer the most because of the [toilet] unavailability. At night, when the toilet block is closed, we have to go defecate in the open near the large drain on the main road, but that area is filled with drunkards and drug addicts. So we women feel insecure going there.*'

Impact of coping strategies on health

In relation to the impacts on their health from these coping measures, eight women thought such measures were affecting their health in terms of causing constipation, loss of dignity or reputation, gastroenteritis and stomach complaints, and urinary tract infections. But it should be noted that as this was not a public health survey, follow-up or more detailed questions were not asked of participants.

Photo 8: A group of women in F- block Mangolpuri

INDIVIDUAL STORIES FROM MANGOLPURI

Roopa is 26 and has lived in a JJC in Mangolpuri for more than 10 years. She is married and has a daughter. They own their house which was built by a contractor. Her father is the head of their household, which has eight adults, three children under 12 years and one male infant. Her brother, who works as a cleaner, is the major contributor to household income. Roopa doesn't have a job but would really like to work. Their household has electricity connection, an electric fan, colour TV, mobile phone, refrigerator and a cooler. Her father was educated to 4th grade. Roopa completed 5th grade but had to leave school because the uniform was changed from salwar suit to skirt and her father did not approve. All the children now in the household are attending school.

Roopa's household does not have a private toilet so all household members use the CTCs (mobile toilet) every day. She says the mobile toilet complex is apparently cleaned every day but she has never managed to use a clean toilet. As the other option of OD is worse, they have no choice but to use it. The fee per use Rs 1 for women and children and Rs 2 for men. There are 12 toilets for women and approximately 1,500 or more people living in her JJC. Roopa does not consider these toilets to be safe for women and girls, because the doors are broken and many lights do not work. But she says the caretaker does try not to let the potential 'eve teasers hang around. These toilets are located on the edge of the JJC and it takes her nearly 10 minutes to walk there.

Roopa views her household's access to sanitation as being worse than her neighbours' because their house is in the interior of the colony. Many households on the edge of the JJC have built private toilets. All households in this JJC get piped water, but have to go to a tube well for any extra requirements which can take up to three hours to fetch.

Roopa has occasionally experienced harassment when using the mobile toilets. These incidents include flashing, peeping and stones being thrown at her. Climbing the steps to the mobile toilet and carrying water is also risky, particularly for the elderly and those with a disability. Her mother has been injured climbing these stairs. While Roopa regards the mobile toilet as unsafe for women and girls, it is an improvement over the old broken-down CTC nearby. Several times she encountered '*ill-intentioned men who would dress up as women, hide their faces in dupattas and attack unprepared women*'.

To cope with the threat of harassment or assault, Roopa goes to the mobile toilets at night with a group of women. She also answers back to the men harassing her but says '*I am still careful because I am worried that they may want to take revenge. You never know what to expect. They can tease, they can rape.*' She has discussed her concerns about the safety of the mobile toilet with her father, as head of the household, but he is not interested in these problems faced by women and girls because he is an alcoholic. She consciously tries to stop herself needing to go to the toilet at night and attributes her constipation and stomach acidity to this.

If money was available, Roopa thinks the household would build a private toilet despite her father's disinterest. When asked for her suggestions about the design of a clean and safe community, Roopa listed as her priorities bins for the disposal of sanitary napkins, more lighting, the need to consult women if a new toilet block is being built, doors that close and have locks, and a western style toilet for elderly and disabled women.

Anu is 55, was born in Delhi and has lived in a JJC in Mangolpuri for more than 30 years. Her family built their jhuggi themselves by acquiring bricks, over time, from nearby building sites. She is married and has three daughters – one who lives with her and two elsewhere. Her son now lives with her following the death of his wife. Her household also includes three grandchildren. As her husband is an alcoholic and drug addict, Anu has been head of the household for many years. She worked as a domestic cleaner for nearly 30 years but now her son, who drives a garbage truck under contract, provides the monthly income.

Four years ago Anu built a private toilet connected to a septic tank which was financed by selling a piece of her wedding jewellery. The bricks for the construction were collected from building sites. '*We've collected bricks from everywhere to build this house.*' The whole household uses it every day. She did this after seeing a man leering at her eight-year old granddaughter from a car, when she was defecating in the open area near the JJC. She had also often experienced harassment (teasing and whistling), along with some injury (falls into gullies and being hit by stones thrown at her) while using the nearby OD site. She decided to build the toilet for the safety, dignity and reputation of her grandchildren and herself. The cost of using the CTC was also a factor. '*How long could we continue paying Rs 2 each time to pee and poop? I am also old now, have aches and pains in my legs – the mobile toilet used to be high up and we had to climb some stairs. It was very difficult.*' As the household has access to piped water 24 hours a day, flushing and keeping the toilet clean is not a problem.

Her educated daughters, who are now married, working and doing quite well, '*want to see their parents also living comfortably*'. Her house has been upgraded from a shanty and been provided with various household items. Her son bought her an air conditioner. '*They have brought all this improvement, all this construction. My daughters have insisted that we live better and they have helped us to live better. They are doing so well so they want to see their parents also living comfortably.*'

INDIVIDUAL STORIES FROM KUSUMPUR PAHARI

Veena is 27 and has lived in Kusumpur Pahari for less than 10 years. She is married with a daughter and two sons. Her family built their jhuggi themselves. Her mother-in-law is the head of the household which has four adults. Her daughter has a disability due to a recent illness. Her husband contributes the most to the household's monthly income from his job as a cleaner. Veena does not have a job but has completed 8th grade. While there is a CTC in B Block, it is too far away from their house for them to use. All the adults use the Ridge for OD while the children use the drains. Like most people in Kusumpur Pahari, Veena's husband usually spends more than an hour a week filling five cans of drinking water from the Delhi Jal Board water tanker. The household can also get two cans from the tube well once a week.

Veena has experienced some form of harassment or assault nearly every day at the OD ground. This includes teasing, whistling, groping, flashing or men following her as she walks there. She has also tripped on stones and is afraid of being attacked by the pigs that hang around there. Such experiences mean that Veena fears what might happen every time she goes to the OD site. Her coping strategies include going with a group of women at night, or asking her husband to come with her if it is late. She has experienced men 'dressing up as women' at the OD ground. '*They'll wrap a shawl around themselves and then of course appear like women. [They] sit there and wait for a chance to attack women. They'll pounce from the back. One time this happened to me also.*'

She also goes out early in the morning when other women are present. Veena and the other women often answer back when men tease and harass them. They also throw stones or sandals at them. She reflected, 'I never knew how to swear until I came here.' Veena also takes measures to try to stop herself needing to go to the toilet at night such as avoiding spicy food, and not eating too much in the evening. But some of these actions have caused stomach pains.

Veena has discussed her fear of being harassed or assault at the OD site with her husband and the possibility of building their own toilet. Due to her daughter's illness they can no longer consider this option. '*We had in fact saved up a fair bit [of money] and my husband had also decided to borrow some money so we could now finally build a toilet but this illness suddenly fell upon us. I had begun to really complain to my husband about the harassment that goes on at the open defecation ground. And he also understood – he said it will be expensive but he understood that we needed this. If we have a toilet inside the house, we won't be affected by the outside world. Won't have to take so much trouble. Even in the rains, it is so difficult to go there. But now it looks unlikely.*' Her priorities in designing a toilet are doors that close and have locks, bins for disposal of sanitary napkins, more lighting and a separate toilet block for women.

Prabha is 48 and has lived in Kusumpur Pahari for more than 30 years, is married and has two sons who have left home. Her family built their own jhuggi and her husband provides the monthly income from his job as an auto-rickshaw driver. While her husband has no formal education, Prabha has completed 5th grade. The family uses the nearby CTC in B Block every day and the fees are Rs 2 for men and women, Rs 5 for bathing and Rs 10 for washing clothes. That means they could be spending Rs 42 per week only for two visits a day per adult, Rs 10 for bathing once a week and Rs 10 for washing clothes. This is a total of Rs 66 per week and potentially Rs 248 every four weeks. This calculation does not account for an illness. As there are less than 30 seats for several hundred households, the toilets are often dirty.

Prabha feels these toilets are safe for women and girls even though she doesn't think they are cleaned regularly since she finds they are always dirty. This is because there are not enough seats for the number of people living in the area, and other women dirty them. As these toilets are shut between 1 to 4 pm, and close at 10 pm, Prabha has no choice but to resort to OD during those times. Because there is a police post nearby, she has not experienced any incidents of harassment or assault in recent times but she does always try to go with a group of women at night or with her husband. Prabha also takes measures to prevent the need to relieve herself at night and these have had an effect on her health through bouts of urinary tract infections, constipation and gastroenteritis.

As she feels unsafe in public spaces, and OD affects her sense of dignity, Prabha has discussed the possibility of building a toilet with her husband. Unfortunately, they do not have the money available at the moment, largely because her husband has a heart problem and needs regular health care.

Simran is 26, single and has lived in A Block in Kusumpur Pahari for less than 10 years. Her family bought their jhuggi from the previous owner. Her father is the head of the household which only has five adults. Her brother is the main income provider from **his** regular job as a peon. Simran does not work, even though she is a BA. Their jhuggi does not a private toilet, but an uncle who lives nearby does, and lets the household members use it sometimes. While there is a CTC in B Block, she does not use it because there are always men hanging around outside and this makes her feel very uncomfortable. The men in her household use the nearest OD site, while Simran mostly uses her uncle's toilet and only **occasionally** goes for OD.

Simran has not directly experienced harassment but has seen and heard women running and screaming from the OD area on the Ridge. This happens about once a week and mostly involves incidences of teasing, whistling or women being followed. She does experience fear each day of what might happen to her if she goes to the OD site. When asked for her suggestions for toilet design, her priorities were: women should be consulted when toilets are being built, a separate block for women, higher toilets for the elderly and disabled, and more lighting.

RESPONSIBILITY FOR SUCH HARMS AND SOCIAL CONSEQUENCES

There are two factors that facilitate the harms and social consequences which poor women and girls often suffer daily. They are:

- A lack of political will at all levels of the state to take a systematic approach to the planning, implementation and maintenance of sanitation infrastructure.
- Continuing lack of analysis of gender as a process (based on unequal power relations) in the policies, design and location of public and community toilets.

Lack of political will

- Nature of urban sanitation policies
- Maintenance regimes and technical challenges
- Determinants of toilet usage: linkages between poverty, insecurity of tenure and ability to pay

Nature of urban sanitation policies

Government urban sanitation policies have largely not been based on funding the entire sanitation service chain. In slums and informal settlements, these policies have largely focused on just setting targets for building community toilets not connected to sewer lines or water pipes. This may be a reflection of the view that governments see toilets as a household responsibility and therefore have not developed the large-scale planning needed to address the whole urban sanitation chain: from toilets to emptying of cess pits and septic tanks, the sewers and trucks that transport waste across cities, the waste treatment facilities and the disposal and reuse systems.

While many slum communities are provided with CTCs, they are often connected to septic tanks with the promise of sewer connections later. This rarely transpires because the politician who garnered votes through their construction may no longer be there to support the community by ensuring that water tankers arrive, or that the toilets are cleaned or tanks emptied. The CTCs then quickly become dirty and unfit because septic tanks are more prone to blockages. This can force women and girls back to using dangerous spaces for OD. This indicates that the construction of CTCs continues to be viewed as a separate activity unconnected to their ongoing management, instead of being seen as interlinked parts of the sanitation service chain.

The National Urban Sanitation Policy 2008-2015 was based on a city-wide approach, requiring the development of city sanitation plans that target OD, to be supported by behaviour change and education programmes. While there has been much attention paid to which is the cleanest city in India, progress on city-wide sanitation plans has been slow. The Swachh Bharat (Clean India) Mission, launched in 2014, includes key urban action areas such as the construction of community toilets, the provision of household and public toilets, solid waste management, information, education communication and public awareness campaigns and capacity building, but no mention is made of the specific needs of women and children (Muralidharan et al. 2015). A press release from the Ministry of Urban Development in February 2015 did state that women would be accorded priority under Swachh Bharat Urban, but this was expressed only in terms of seat numbers: 'one community toilet seat per 25 women and one public community toilet seat per 50 women will be built against one seat per 35 and 100' (Press Information Bureau 2015).

Maintenance regimes and technical challenges

Urban local bodies and agencies have failed to take responsibility for the regular cleaning and maintenance of existing CTCS to ensure they do not fall into disrepair and force local residents back to OD. This failure is partly the outcome of their poor budgetary situation and consequent lack of employees, both skilled and unskilled, to carry out such work (Chaplin 2011). To date there is little evidence to show such bodies have developed effective cleaning and maintenance regimes. For example, the three municipalities in Delhi have failed to ensure that the toilet blocks constructed over the last few years have water connections, and many are now in a decrepit condition because of a failure to repair (Anon 2016).

In a report for World Toilet Day, WaterAid (2016, p. 5) found that even

> “ *where toilets exist, infrastructure and institutions may not be able to take care of them properly. Lack of budget and lack of training lead to poor operation and maintenance, so they quickly fall into disrepair. Managing all that waste also requires major investment and planning for transport and treatment. Governments often see toilets as a household responsibility, so the large scale planning needed, does not happen* ”

There are also several technical challenges relating to sanitation in slum communities because they are often located on low-lying land next to rivers or seafronts, or on hillsides with rocky ground, and so drainage and flooding are constant problems. Trucks that empty septic tanks, or cess pits, often cannot get through the narrow lanes that characterise JJCs. As the population grows in these JJCs the already poor water and sanitation services are further stretched. For example, the jhuggis that have been built on the Yamuna floodplain in east Delhi are not recognised by the Delhi government which means that 'pucca' toilets cannot be constructed there. So the engineering department of DUSIB has installed prefabricated toilets with a caretaker (Angad 2017).

Another example of poor maintenance performance is the Bhopal Municipal Corporation under which only 13 of 71 community toilets are properly maintained and in use. Many of these community toilets are not functioning because they lack connections to water or sewer lines (Jain 2016). A notable exception to this record of

poor maintenance of community toilets is the Trichy Corporation in Tamil Nadu which has 175 community toilets that are very effectively managed by community-based organisations. This achievement has made slums in the city OD free and garnered the Trichy Corporation many awards (Kumar 2016; Gramalaya & WaterAid 2008). The lack of effective maintenance and repair regimes is clearly visible in both Mangolpuri and Kusumpur Pahari in the non-functional CTCs.

Determinants of toilet usage: linkages between poverty, insecurity of tenure and ability to pay

As discussed above, one of the harms of infrastructural violence is economic whereby residents cannot afford to pay to use a CTC as they have to give priority to other everyday needs. Often residents have to make the decision of whether to buy food, pay for healthcare costs and other essentials or to 'buy' sanitation services. In such circumstances, the cheaper, and closer to their dwelling alternative, is OD (Simiyu 2015). This dilemma of an inability to pay was discussed by Renu (Mangolpuri) who said that '*if you have a little money to spend, then you might use the mobile toilets. I don't have that much money, so I have to defecate in the open*.'

Therefore, just building more community toilets to achieve targets set by governments will never solve urban India's sanitation poverty because time and again they remain unused because of a poor understanding by policymakers and project planners of the linkages between poverty and toilet usage. This is highlighted in Delhi where a recent survey conducted by DUSIB has found that nearly 40 percent of the 10,821 community toilets seats built since February 2015 are not being used because residents in the respective slums continue to use OD. DUSIB has suggested this may be due to the Rs 1 fee being charged (Goswami 2016). This reflects the ongoing problem of failure to carry out detailed surveys of a community's sanitation needs and their ability to pay.

Insecurity of tenure and poverty place severe limits on the ability of poor households to make the investment in building a household toilet or improving the infrastructure of their homes (Jagori & Women in Cities International 2011), even when women and girls are daily experiencing harassment when using OD sites or CTCs. In the case of Kusumpur Pahari, the land is owned by the Delhi Development Authority, which means residents have no security of tenure even though many have lived there for 20 plus years and built their own jhuggis. Rumours of eviction relating to the construction of the nearby Delhi Metro have at times spread through Kusumpur Pahari. This has caused Neha and her household to largely decide not to build a toilet. She has '*been hearing rumours that Kusumpur Pahari [residents] will be evicted soon, so we can't tell if it will be worth it to spend so much and build a toilet here. Have been hearing such rumours for a long time now – difficult to make such decisions when our position is so precarious. Also, we don't have any space at home*.'

A comment by Hena (Kusumpur Pahari) highlights the linkage between insecurity of tenure and poverty. '*What can my husband do? We have to rebuild the house first. For now, we have the public toilet, and our parents' toilet, so we are managing. We keep hearing rumours that Kusumpur Pahari will be broken down due to metro construction, so there's that fear too. What's the use of building a toilet then? We don't have the money and if we can manage the money, first we have to use it to meet other requirements. … We haven't been able to pay our electricity bill. We don't have a bank account either*.'

Another example is provided by Neha (Kusumpur Pahari). While her husband fully understands the harm caused by the harassment she encounters every day when going to the CTC, and wants to build a household toilet, they do not have the money because of her pregnancy. '*Right now we can't afford to build one since I am pregnant and we need to save money for the delivery in case of any emergency*.'

Lack of space for a toilet

The density of housing, with minimal space between jhuggis and the narrow lanes, makes it virtually impossible for some households to build a toilet (see Photos 1 and 2), even if they do have the money. This is the case for Savitri (Kusumpur Pahari) who said, '*Where is the space? Even if there was space, there is no sewer connectivity. People have built toilets that directly drain out into the ditch but our house is in the interiors so there is no mechanism for a toilet. Even if we have a pit latrine, the lanes are so narrow the truck to clean it also won't be able to enter*.'

Deepa (Mangolpuri) also has a problem with a lack of space for building a toilet. She has discussed the problem with her father '*but what can he do? Even he faces the same problems going to the toilet. You can see, there is not any space left in the colony. If we wish to build a toilet, where would we even put it?*'

The actual location of a house within a JJC is also a determinant of whether the resident can build a toilet or not. This is the case for Roopa (Mangolpuri) who said, '*Most people on the edge of the colony have built private toilets, but because our home is in the interior, we have no space to build one*.'

Lack of gender analysis in sanitation infrastructure planning and design

The responsibility for the lack of gender analysis for urban sanitation projects lies with policymakers, planners, government departments and international development organisations. In many cases what they have largely come up with are only policies that do not add to the vulnerabilities of women and girls. Real efforts to address gendered inequalities are very rare as this means addressing gender roles head-on which is not only a difficult and contested process, but also time consuming for project managers.

As mentioned above, those handling the designing and implementation of slum sanitation projects are often more concerned with technical aspects or building a toilet complex according to a deadline, rather than facilitating women's participation in the projects or encouraging a community process that enables women to challenge the existing gender inequalities in society; they rarely even attempt to understand the priorities of those for whom they are planning and designing sanitation infrastructure.

The National Urban Sanitation Policy 2008-2015 had recommendations about seeking women's engagement in the design and management of community toilet facilities and the need to create awareness amongst stakeholders and communities about the specific sanitation needs of women and children. The replacement policy, the Swachh Bharat Mission (Clean India), has a recommendation to ensure the participation of women in the design of household, community and public toilets. To date there is very little evidence of government agencies such as DUSIB enacting this recommendation. The construction and recent opening of the new CTC in Mangolpuri, near Hanuman Camp, was not mentioned in survey responses by any of the women living nearby, suggesting a lack of consultation.

In their review of the gender dimensions of India's sanitation policies, Muralidharan et al. (2015, p. 2) found that '[g]ender considerations, primarily women's sanitation-related needs are nominally mentioned in policy documents, with insufficient explanation or guidance on how their needs will be met by these initiatives, especially menstrual hygiene and gender-based violence'. Furthermore, they discovered a paucity of data relating to sex and gender in monitoring and evaluation, and this undermines the efforts by policymakers and planners to identify the gender gaps in sanitation services delivery.

Need to understand gender and intra household decision-making

There is also a need to understand how and why households make the decision to build a toilet. McGranahan (2015) has suggested this may particularly be the case where women have a greater say in allocations from the household budget when priority is given to sanitary improvements because of concerns of health, safety and productivity. This was the case in the survey with safety the major concern for 11 women. An analysis of data from the Kenya Demographic Survey 2008-2009 was used by Hirai, Graham & Sandberg (2016, p. 158) to examine the association between intra household decision-making and the type of sanitation facilities used by that household. Their findings suggested that 'women's decision making power on major household purchases is an influential determinant of sanitation improvement' which means that increased gender equity could potentially enable more households to improve their sanitation conditions by building a household toilet.

In our survey we asked participants whether having a number of women in a household influenced the decision to build a toilet and found this was the case in 15 households. As Chart 3 below shows, the main reasons given for this decision were improving safety for women (11 responses), worry about their dignity (eight responses) or having someone with a disability living in the household (eight responses). The actual decision was made by the male head of household (five responses), by the female head of household (four responses) and a husband and wife in five households.

We also asked those women who reported experiencing harassment or violence when using CTCs or going to the OD sites, if they had discussed these issues with the head of their household, and if such discussions had yielded any results that improve their health and safety. As Table 5 below shows, 23 participants had initiated such discussions with their respective heads of household, but only seven said this had yielded the positive result of building a household toilet. As the comments below indicate, the reasons for the lack of a positive response were usually insufficiency of space and money, and disinterest by the husband or male head of household.

Graph 4: Household decision-making about toilet building

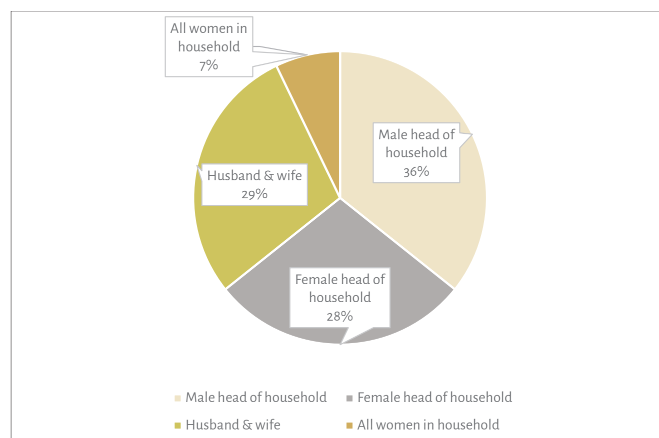


Table 3: Discussion with head of household about violence

Question	No of responses
Have you shared concerns about violence with head of household?	
• Yes	23
• No	1
Has this yielded results?	
• Yes	9
• No	15
What results?	
• Built own toilet	6
Reasons for no result	
• Husband can't solve problem	3
• No space to build a toilet	5
• No money to build toilet	5

In seven cases (two in Mangolpuri and five in Kusumpur Pahari), household savings were used to build a toilet. Four households (three in Mangolpuri) took a loan from other family members, such as their educated and employed children who have helped in the building of a toilet and other improvements in the jhuggi of their parents.

Sita (Kusumpur Pahari) said that a concern about their safety was '*why my husband and I decided to get a toilet at home. I told him what goes on there [in the CTC and OD sites], and eventually he managed the finances.*' For Usha (Kusumpur Pahari) a toilet was built when the funding became available. They '*had always been planning [to build one] because it is obviously more convenient and also we continued to hear stories of harassment from the open defecation ground. It was very unsafe and inconvenient, so when the situation became feasible we built a toilet.*' In the case of Asha (Mangolpuri), she found support from her brother-in-law to build a toilet. '*My late husband's brother helped us out. We don't live in the same house but we are family after all.*' In Rani's (Mangolpuri) household her father decided to include a toilet in their house renovation. '*Father sold a plot of land he had in another area nearby, and used that money to renovate the house, which is when he put in a proper toilet.*'

A male perspective on the decision to build a toilet was provided by Sattar Khan[4] who has been the elected pradhan for the F block JJC in Mangolpuri since 1990. He built a toilet in his home in the early 2000s after having witnessed the rape of a woman by eight men. This caused him to become worried about the safety of his three daughters and wife, and so he decided to build the toilet to protect their honour and dignity.

Gender relations and reasons for not building a toilet

Several women in Mangolpuri and Kusumpur Pahari said their household had not built a toilet because of the disinterest of the male head of household in the safety of women. For example, Roopa (Mangolpuri) said that her '*father is an alcoholic. He is completely disinterested in the wellbeing of his family members. As long as he gets his fix of alcohol, he doesn't care about anything else.*'

Aarti (Kusumpur Pahari) has had a similar experience with alcoholism. '*My husband earns enough for us to build a toilet but he is an alcoholic and he doesn't care what happens. He spends all his money on buying alcohol and has absolutely no interest in building a toilet for the comfort of his family. He can pee anywhere, poop anywhere and he doesn't care about whether or not his wife and children have respectable lives. I don't earn enough … to build one myself. If I did, I would build a toilet.*'

But for Savitri (Kusumpur Pahari), it was socio-cultural concerns that prevented her from discussing the problem of gender-based violence with the head of the household. '*Can't tell father-in-law because of the kind of society we live in. We are in ghunghat (purdah) in front of elder male members of our family. I have told my mother-in-law but what can she do? She gives solutions—offers to go with me, doesn't let me go alone—but other than that, there isn't much she can do.*'

Necessity for designing gender-sensitive toilets

Current toilet designs do not address two critical needs for women and girls: biological needs and socio-cultural concerns (Hartmann et al. 2015). For Tilley et al. (2013, p. 308),

“ *gender-responsive facilities are those which not only serve the physical requirements of women and men, but ones which consider the social norms regulating intimate needs and translate these into sanitation architecture which factors in the spatial situation, accounts for gender specific constraints with respect to mobility and exposure and offers more than one function (i.e. urinating/defecating)* ”

Biological needs

The biological needs of women and girls relate to the cleanliness of CTCs, menstrual hygiene management, reliable water supply to ensure flushing and hand washing to prevent spread of diseases, and accessible toilet seats for the elderly and disabled. Many women in this survey repeatedly said that the current design of CTCs does not satisfy their needs for safety, dignity and cleanliness. Such concerns were also raised by the participants in the public consultations for the Leave *No One Behind* report which found that the 'design of the existing facilities reflect[s] a complete lack of understanding of their needs, not only by service providers, but at times even by their own family members' (Water Supply and Sanitation Collaborative Council & Freshwater Action Network South Asia 2016, p. 12). The lack of standardisation in toilet complexes also makes their usage particularly difficult those who are disabled or elderly, with lights, doors and water points often differing in each toilet.

Also, when CTCs are placed in inappropriate locations, and do not satisfy their biological needs, this deters women and girls from using them and perpetuates OD. That is the case for Meena (Mangolpuri) who is 60 and has a knee problem. This means it is very difficult for her to use the mobile toilet with the stairs and so she often opts for OD. She said, '*Even if we climbed up with difficulty, sitting down was another problem. So many times my stick [used for knee support] would fall into the shithole.*' The needs of pregnant women also do not seem to have been considered. For example, Neha (Kusumpur Pahari) said, '*Right now I am pregnant and it is very difficult to keep walking to and from to the toilet. My older child is also very young so I have to take him with me each time.*'

A further problem for women is that many CTCs close during part of the day (say 1-4 pm) and shut around 10 pm which leaves OD as the only option if they cannot manage 'bodily control' during these hours.

The lack of a bin for sanitary pads in current CTC design also directly contributes to them being dirty. Most participants said they took soiled pads home and put them in the garbage or threw them in drains. Priya (Mangolpuri) observed that there is '*no light in the toilets for washing and changing is a problem but we have to manage as there is no other alternative. None of the toilet facilities have dustbins to dispose used sanitary pads, so we always throw them outside in the garbage dump on the road.*'

Also lacking is a gendered analysis of the appropriate technology to be used in CTCs. When CTCs are built without adequate water supplies, they often increase the workload for women and girls because they may have to walk longer distances to fetch extra water, and then carry it to the CTC for flushing and washing. This can greatly disadvantage elderly and disabled women who have to carry the water in one hand, manage a walking stick in the other and often need to climb stairs if it is a mobile toilet as in F Block in Mangolpuri. Commenting on this, Meena (Mangolpuri) said, '*Yes, we have to draw water from the hand pump. First go and get a free stall. If you can't find one at once, then wait for it. Once you find a stall, go and collect water from the hand pump. Sometimes if it's too urgent, I have stomach cramps from wanting to defecate urgently or end up doing it in my clothes. I am very disturbed by this.*'

Photo 9: Handicapped toilet in new CTC in Mangolpuri without handrails

Socio-cultural concerns

Socio-cultural concerns for women and girls include the issues of privacy, dignity and safety. As Jewitt & Ryle (2015, p. 3) point out, there

> *“ is a need to prioritise user-based preferences for comfort, convenience, privacy, safety, dignity, and accessibility if existing gaps between official and user-based conceptions of ‘improved’ sanitation technologies are to be bridged. In particular, there is a need for greater consideration of intra-community (notably gender) variations in these priorities and the wider cultural and geographical contexts within which these are situated ”*

In a study of women's perceptions of fear covering two slums in Mumbai, some women reported that since the toilet cubicles for men and women were adjacent, with no separating wall, they were often accosted by men who exposed themselves. But Belur et al. (2016, p. 8) also suggested that situating women's cubicles separately, particularly if they were located away from busy public spaces, can reduce the ‘availability of guardianship in the form of passers-by and can potentially increase the risk for lone women visiting the toilet’. Many of these issues and concerns were raised by participants when asked what would be their priorities in a gender-sensitive toilet design.

In Photo 9 below of the existing CTC in Kusumpur Pahari you can see why current designs do not satisfy women's need of privacy with doors that only come up to about head height. Note that the caretaker is on the roof doing repairs but could very easily peep into toilet cubicles. There is a house nearby that overlooks this CTC. In Photo 10 of the new CTC in Mangolpuri, note that it is surrounded by a high wall, which has already encouraged drug dealers and their customers to use this secluded space and raised concerns for safety amongst women.

Photo 11: Newly built toilet complex on Maharishi Valmiki Marg between Hanuman Camp and D Block JJC in Mangolpuri

Photos 10: CTC in B Block in Kusumpur Pahari

Priorities of respondents for gender-sensitive toilet design

As Table 6 below shows, the most important priority for the 15 participants who answered our questions relating to designing of a new toilet complex was the very basic need of having doors that close and can be locked. As the photos show, many existing CTCs have doors that only partially fill a door frame. Locks and doors are often stolen, as it is not possible for a caretaker to police such activities. The second priority reported was the need for separate toilet blocks for men and women to reduce the opportunities for harassment and assault when standing in queues. The third priority was more lighting (and the regular replacement of light bulbs) and the fourth was the provision of bins for soiled sanitary napkins. These were followed by the need to consult women before building new CTCs and western style toilets for the elderly and disabled. Note that in Photo 8 of the 'handicapped' toilet in the recently built CTC in Mangolpuri, no hand rails have been provided for ease of access for women who are disabled, elderly or pregnant.

When asked which facilities they felt were important for a good functional community toilet block, Prabha (Kusumpur Pahari) said that her first priority was a reliable water supply. *'If there is proper water, then automatically it will stay clean. If there is no water, then there will be no cleaning.'* Her second priority was a higher toilet seat for elderly women because *'there are a lot of women here who have rods in their legs, or are old – who have great difficulty in squatting. So for them seat type toilets should be available.'* Finally, *'if there was a toilet for women, or more security, things would be different here'.* For Priya (Mangolpuri) the priority was *'proper drains and pipes in the toilet complex so that it doesn't become dirty and smelly'.*

Table 4: Suggestions for toilet design based on participant priorities

Ranking	Suggestion
1	Must have doors that close and have locks
2	Separate toilet block for women and girls
3	More lighting
4	Bins to dispose of sanitary napkins
5	Women should be consulted before toilets are built
6	Higher toilets for elderly and disabled women
7	Adequate water facilities to stop competition amongst users
8	Entrances to the men's and women's toilets at opposite ends of block
9	Separate toilet blocks for boys and girls at school

Note: This table is based on responses from 15 participants only, as the other 15 had use of a private toilet. One participant did not answer this question.

CONCLUSIONS

This ethnographic study of sanitation inequalities, gender and violence in Mangolpuri and Kusumpur Pahari has detailed how women and girls living in JJCs are daily forced to enter often dangerous spaces to satisfy their biological needs because of a lack of clean, safe and accessible CTCs. This passive infrastructural violence, created by the failure of the state to provide adequate sanitation facilities, or effectively maintain those that do exist, exposes women and girls to gendered, caste- and class-based forms of both physical and emotional violence which often inflict life-long harms and sufferings. These gendered sanitation inequalities perpetuate OD. This occurs because, as the participants in this survey have shown, they have no alternative due to the linkages between poverty and insecurity of tenure which seem to be poorly understood by policymakers and agencies designing and implementing community toilet projects. These linkages can also play a critical role in households deciding to under-invest in private toilets. When faced with the possibility of future eviction, poor households may prioritise other needs, even though they may have the money to build their own toilet. Therefore, there is considerable urgency in developing an understanding of the 'everyday nature of informal urban sanitation because it is, for a growing number of urban residents, a critical set of life struggles and because it is an important basis from which interventions should develop' (Desai, McFarlane, and Graham 2014, p. 990).

This study has also shown that even when households have been able to finance the building of a toilet in their home, that does not always mean that all members of the household no longer resort to OD. In Kusumpur Pahari the acute water shortage undermines the best of intentions. A lack of water for flushing and cleaning a toilet creates unpleasant smells within a household. This forces household members at times to use CTCs or OD sites, to limit the number of times the household toilet is being used. In Mangolpuri poor decision-making, caused most likely by a space constraint, about where a toilet is located in a household, has forced an older woman to sometimes defecate in a drain because she cannot climb the stairs.

In terms of the usage of CTCs, several women said the fee for use, or the time 'lost' in walking to and from and queueing, and the lack of regular cleaning and maintenance meant that they would rather go to an OD site than use the CTCs. As CTCs are not open 24 hours a day, women have to either practise 'bodily control' which inflicts harms and sufferings or use OD sites or nearby drains when these complex are closed. While DUSIB has recently introduced a system to grade the toilets that it has built by making 12 executive engineers accountable for the maintenance of CTCs under their supervision, and thus ensure that these new toilet blocks are used (Janwalkar 2016), these measures are unlikely to make Delhi OD free anytime soon because of the continuing lack of understanding of everyday sanitation practices, and in particular the linkages between poverty and insecurity of tenure.

Furthermore, in Delhi today, a majority of JJCs and informal settlements simply lack the space for households to build their own private toilets with a septic tank. The narrows lanes between rows of jhuggis also prevent the laying of sewer lines or widening of drains. While in situ redevelopment of slum clusters should be the long-term aim, thereby providing all households with a toilet, the immediate future requires some innovative thinking about how to make the shared sanitation of CTCs a safe, clean and dignified option for women and girls if Delhi is to become OD free quite soon.

Suggestions for future urban sanitation policy, planning and implementation

Based on the results, comments and suggestions collected by this research project we make the following suggestions for addressing the harms and suffering experienced by residents of JJCs and informal settlements, women and girls in particular. We believe some of these suggestions would be easy to implement and will directly contribute to ending practices of OD in slums and informal settlements. The other suggestions address socioeconomic and cultural concerns which need to be considered and included in future policies if such gendered sanitation inequalities are to be addressed in Indian cities. The first group includes:

1. Local urban authorities must develop effective maintenance regimes for CTCs before building them and this includes providing a reliable water supply. Clean and well-maintained CTCs will encourage use and reduce OD prevalence.
2. Local women must be allowed to participate in the decision-making process about the design and location of new CTCs in their neighbourhood. Such participation would help to address safety issues and ensure the selection of more convenient locations for CTCs. This will reduce the problem of 'time loss' for women that makes OD the preferable sanitation option.
3. CTCs must be open 24 hours a day to prevent the continuation of OD practices.
4. There must be increased lighting along the roads and pathways leading to CTCs so as to improve safety for women and girls at night.
5. There is a need to consider having more than one caretaker per toilet block. This would help to reduce incidents of violence and harassment and could prevent the theft of taps and locks and other forms of vandalism at CTCs.

The second set of suggestions for consideration in the development of future sanitation policies are:

1. Loans or funding for the building of a toilet should be provided directly to women because they often have a direct influence on such household decision-making. As this study has shown, 15 participants reported that having a number of women in a household influenced their household's decision

to build a toilet. The main reasons cited were concerns about the safety of women and girls and a worry about their loss of dignity. But such female influence can be undermined by the gendered nature of intra-household relations. For example, the disinterest of a male head of household (sometimes due to alcoholism, as was the case for two participants) in the health and well-being of female members can mean that such a discussion is never undertaken. If women were eligible for direct funding, such male disinterest could potentially be circumvented.

2. For those households currently dependent on CTCs, efforts need to be made to encourage more direct community or neighbourhood involvement in their management rather than leaving it all to state agencies or NGOs. Such community or neighbourhood involvement, particularly if women are encouraged to participate in significant numbers, has the potential to lessen incidents of gender-based violence through a greater concern about safety. This could mean measures are taken to actively discourage men and youths from congregating in the immediate vicinity of CTCs. It could also lead to some innovative approaches to improving safety and ensuring that CTCs are better maintained.

3. A more flexible approach needs to be considered in relation to fees for use. As several participants in this study have highlighted, fees are often too expensive for people living in poverty, particularly in times of illness or when a household suffers economic distress. Monthly passes for all members of a household, with no limitations on the number of visits, should be considered rather than imposing a fee for single use.

NOTES

1. In Delhi, jhuggi jhopri clusters are squatter settlements located on public land.
2. CTCs are common toilets where one side caters to women and the other side to men and they usually have a common main entrance.
3. Informal conversation between Reetika Kalita, Susan Chaplin and Sattar Khan, pradhan of F Block JJC in Mangolpuri, on 20 February 2017.

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APPENDIX

Participants in Mangolpuri

Name (Alias)	Location	Age	Years of residence
Anita	Y Block (JJC)	45	6-10
Anju	Y Block (JJC)	45	6-10
Anu	F Block (JJC)	57	30+
Asha	D Block (JJC)	45	10+
Deepa	Y Block (JJC)	19	10+
Devi	Hanuman Camp (JJC)	28	10+
Jyoti	Y Block (Resettlement Colony)	28	10+
Meena	Hanuman Camp (JJC)	35	10+
Preeti	D Block (JJC)	43	10+
Priya	F Block (JJC)	22	10+
Rani	G Block (Resettlement Colony)	20	10+
Reena	D Block (JJC)	17	10+
Renu	F Block (JJC)	60	30+
Roopa	Hanuman Camp (JJC)	26	10+
Rupali	D Block (JJC)	21	21
Seema	Y Block (Resettlement Colony)	55	10+

Participants in Kusumpur Pahari

Name (Alias)	Location	Age	Years of residence
Aarti	B Block	55	21-30
Alka	A Block	22	1-2
Hena	B Block	26	6-10
Kajal	C Block	35	30+
Kamal	C Block	40	30+
Kavita	A Block	17	17
Leela	B Block	55	30+
Neeta	C Block	25	21-30
Neha	A Block	22	1-2
Prabha	B Block	48	30+
Savitri	A Block	30	11-15
Simran	A Block	26	6-10
Sita	A Block	32	11-15
Usha	A Block	20	16-20
Veena	A Block	27	6-10

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