

URBAN WASH BEHAVIOURAL DETERMINANTS



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ACRONYMS

CHW	Community Health Worker
CJM	Consumer Journey Mapping
FGD	Focus Group Discussion
KII	Key Informant Interview
SBC	Social and Behavioural Change
SBCC	Social and Behavioural Change Communications
SME	Subject Matter Expert
SWM	Solid Waste Management
WASH	Water, Sanitation and Hygiene
COM-B	Capability, Opportunity, Motive – Behaviour
SHRUCs	Super High Risk Union Councils
PKR	Pakistan Rupees
USD	United States Dollar
OR	Odds Ratio
X²	Chi Squared test of association
HH	Household

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EXECUTIVE SUMMARY

This research study was undertaken by UNICEF with the support of the Government of Pakistan between January and November 2020 to better understand WASH practices in urban settings, using a rigorous social and behaviour change (SBC) approach to assess the drivers and barriers to healthy WASH behaviours. In particular, the objective of the research was to understand what motivates diverse urban communities in Pakistan to demand, take-up and pay for (affordable) WASH services. The study included qualitative research with consumers and service providers, quantitative research with consumers, and a Consumer Journey Mapping. The research was conducted in the cities of Lahore, Karachi, and Mingora, and focused on four specific WASH behaviours: 1) Households seek clean water solutions for drinking water and personal hygiene; 2) Consumers install a septic tank in their household/community; 3) Consumers keep the environment around their house free of uncollected solid waste; 4) Consumers engage with service providers and actively hold them accountable for providing quality, reliable, and affordable WASH services.

Consumers are unaware of the quality of their water, particularly those in the lowest income brackets. When asked many indicated that their water was safe to drink but then selected sources of water that are known not to be safe. Particularly piped water. Treatment is strongly associated with being a doer and, in addition, gives the consumer confidence in the quality of their water. The ability to treat is critical to guaranteeing consumers safe access to water at all times. Treatment is most commonly carried out in family homes where resources and the ability to pre-empt needs are more prevalent. It is also more common in those who understand the variance in their water quality better.

The number of sources available to a consumer also has a positive effect on the likelihood of being a doer, consumers are better able to complain, confident in alternative sources and when environmental conditions affect one source they can resort to a backup.

Consumers who highlight potential negative health effects of unsafe water are more likely to be doers. It is assessed that it is well understood that sickness means no work and therefore no income. Consumers who understand this are more likely to invest resources in obtaining safe water as a way to protect their earning ability.

Sceptic tanks are poorly understood in the urban context, much confusion was found among consumers who understood them to be old fashioned collection pits used by less developed rural people. The use of piped sewers which takes the liquid waste from their dwelling was by far the most common method found in all urban centres. Where these pipes take the waste was not seen as a personal responsibility but a municipal one. As such there are no primary determinants identified at the consumer level for this behaviour. Liquid waste remains a significant concern for most respondents, but the issue is seen as out there, the government's problem.

Solid waste management was significantly associated to liquid waste management, it seems the route concerns and determinants could be shared. Consumers were overwhelmingly classified as doers, but analysis showed that the nuance of the issue lied in where they disposed of their rubbish. Informal collection points sited, in empty lots or where rubbish had been left by non-doers, created a situation where people could consider themselves a doer without having completed the behaviour as the service provider would classify it. This disconnect between service provider and consumer is important to ensure good relations between the two.

Willingness to pay for the service is the main driver for this behaviour, those who are prepared to pay for it at a reasonable cost are associated with being doers and those who refuse to pay or separately think that the government should be paying for the service are more likely to be non-doers. This is assessed to be partly due to opportunity and capability, those who have effective private services available and are able to afford

them are likely to use these services, but it is also likely down to the acceptance of their responsibility to the cleanliness of their area. Those invested in the cleanliness of their street environment are more likely to make the extra effort of disposing of their rubbish correctly.

The relationship between consumer and service provider is commonly started at a community meeting. In community meetings the consumer feels the power of their collective voice, this is more likely to result in a successful outcome which is significantly associated with being a doer. Successful outcomes are also more likely to create the feeling of agency in a consumer, they are more likely to feel like they have the ability to change the situation through their feedback which associates with being a doer.

Formal complaint mechanisms are a deterrent to this behaviour, listing them as the most effective solution is more likely to result in the respondent being a non-doer. Conversely, the ability to go to the office of the service provider and engage with them in person is associated with being a doer. This lack of a formal barrier and the creation of a human interaction is a positive thing and should be encouraged by service providers that value customer feedback.

These primary, and other secondary, determinants are critical in understanding why consumers practice the selected behaviours. They are discussed in detail in the findings section of this report broken down by each behaviour. The determinants have then been used to make recommendations relevant to SBCC programming. SBCC looks to us communications to leverage behavioural determinates and encourage safe practices. These recommendations are detailed in the following section.

PRINCIPLE RECOMMENDATIONS

General recommendations:

- UNICEF should share the behavioural determinants identified in this research to help WASH stakeholders develop evidence based SBCC strategies.
- UNICEF should present the findings of this report to their service provider partners with practical examples of how the determinants can be used to improve their services.

Behaviour 1: Households seek clean water solutions for drinking water and personal Hygiene

- UNICEF supported SBCC programmes with urban service providers should use behavioural determinants identified in this report to help consumers be more informed about the quality of their water source. It should highlight both the mistaken perceptions of water safety and also the varying standard of single sources. Treatment should be encouraged as standard practice to deal with this uncertainty.
- UNICEF and SPs should focus future WASH education in urban areas on the consequences of ill health and sickness, particularly at the cost implications of not being able to work and therefore the prudence of investing in safe water.
- A social norms campaign should be used to encourage households to take personal responsibility for accessing safe water which will result in the associated increase in this behaviour.
- UNICEF should present service providers the behavioural barriers for single working men, and support them to design solutions that take these into account such as; installing collected water sources on common commuting routes and providing treatment options that do not require prior preparation. These touchpoints should be identified and tested.

Behaviour 2: Consumers install a septic tank in their household/community

- In urban areas the waste is commonly piped out of the household where it is no longer seen to be the consumer's problem. SPs, with support from UNICEF, should investigate how positive behaviours can be encouraged beyond the personal responsibility of a household in order to improve sanitation in a community.
- Further research should be conducted specifically about the individual drivers surrounding septic tank behaviours; such as emptying, maintaining and designing sustainable solutions. A communications campaign should be considered to highlight the benefits of such a system and create a distinction between a septic tank and a collection pit. This behaviour would benefit from the full 360 approach; further research, campaign design and implementation and M&E.

Behaviour 3: Consumers keep the environment around their house free of uncollected solid waste

- SPs should visually mark official collection sites supporting the message with a communications campaign that explains the difference. This will help stop the disconnect between service provider's and consumers' expectations as to the collection service.
- Service providers should clearly communicate their collection requirements and schedules where possible.
- SPs should offer alternative actions to help prevent the burning of uncollected waste; such as an alerting mechanism before burning becomes required. Further education on the harmful side effects of burning rubbish in cities would also help to at least delay this solution.
- Communications to consumers should consider multi-occupancy and rented residents when communicating with their consumers. They are likely to be a significant proportion of residents in the target audience and have different behavioural determinants to others.
- When designing an information campaign, both behaviour 2 and 3 can be addressed together as they were shown to be significantly associated.

Behaviour 4: Consumers engage with service providers and actively hold them accountable for providing quality, affordable and reliable wash services

- SPs, with support from UNICEF, should use community gatherings, to encourage participation from their consumers. Not only are they likely to be more effective because of the weight of the community but they are also more likely to create doers from their attendees.
- SPs communication plan should integrate feedback process on consumer complaints. This will help create a positive experience among consumers establishing a positive feedback loop that will encourage future engagements.
- As part of this communication plan SPs should use a positive narrative campaign to remove the stigma that complaints are likely to cause retribution.
- SPs should use in-person complaint systems where the consumer can express themselves directly to a representative of the SP, as these are more likely to encourage a positive feedback experience.
- SPs, should use the topic of access to safe water to encourage consumer engagement in the feedback system.

INTRODUCTION

CONTEXT ANALYSIS

Over the past decades, poverty rates in Pakistan have declined substantially¹. Simultaneously, Pakistan has increased its overall network of Water, Sanitation and Hygiene (WASH) infrastructure, allowing the country to nearly achieve its overall water coverage target outlined in the Millennium Development Goals. According to the UNICEF and WHO Joint Monitoring Programme for Water Supply and Sanitation², basic and safely managed access to water and sanitation are currently estimated at 94% and 83%, respectively. What's more, the national rate of open defecation has remarkably dropped from 27.6% in 2007 to 10.43 in 2017³, and the practice has nearly disappeared from urban contexts.

However, significant issues still persist only 35% of water supply in urban areas is “safely managed”, and this metric drops to 0% for sanitation. Large inequalities also remain not only between urban and rural areas, but also within cities, between the poorest and wealthiest areas. In cities, many are connected to piped water supply, but the interrupted flow of water in the system, the proximity of water and sewer lines and decaying infrastructure in both systems, create a serious hazard for water quality. The poor infrastructure in piped water system leads to provision of unsafe water and insufficient water supply in most cities of Pakistan. Consumption of unclean water for both drinking and hygiene purposes is the main cause of exposure to waterborne diseases. Accordingly, the country is ranked in the top ten countries with the highest number of people living without access to safe water⁴.

Furthermore, sanitation does not meet the “safely managed” standard: adequate faecal sludge management remains a major problem. In many major cities, up to a third of residents also rely on low quality latrines and open drains. Both blackwater and greywater management is non-existent in smaller and poor urban towns and cities, and there has been almost no governmental effort to maintain the quality of water. Wastewater systems, including connecting households to private or communal septic tanks have the potential to limit the risk that effluents would seep into ground water, decreasing the risk of water-borne diseases.

Open dumping of solid waste leads to land and water pollution, infectious diseases or blockage of open drains⁵. The widespread nature of this practice is mainly due to the fact that no city in Pakistan has a proper solid waste management system, from collection up to proper disposal of municipal solid waste. According to the Ministry of Climate Change, on average only 50% of waste quantities generated in Pakistan's cities is collected, which poses serious environmental and health risks. Due to the lack of adequate disposal and treatment sites, collected waste ends up most of the time in open dumping sites and nature⁶.

One driver of these WASH challenges is the rapid growth in population—Pakistan is the 6th most populous country in the world with 2% annual growth—and the country's rapid urbanisation. Investments in water and sanitation services are barely keeping pace with population growth and cities extension. The proportion of Pakistanis living in urban areas has increased substantially, from 17.7% of the population in 1951 to 36.4% in

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1. “People Living on less than International Poverty Line”, The World Bank Group, 2015 <http://povertydata.worldbank.org/poverty/country/PAK> accessed 19 February 2020.
 2. WHO/UNICEF - JMP (2017). <https://washdata.org/> Accessed 21 Jan 2020.
 3. Ibidem.
 4. “Development Advocate Pakistan: Water security in Pakistan”, United Nations Development Programme, December 2016.
 5. Naeem Ejaz and Nasir Sadiq Janjua, “Solid Waste Management Issues in Small Towns of Developing World: A Case Study of Taxila City”, *International Journal of Environmental Science and Development*, Vol. 3, No. 2, April 2012
 6. “Brief on Solid Waste Management in Pakistan”, Ministry of Climate Change <http://environment.gov.pk/images/environmentalissues/BriefSWMPak.pdf>

20177. Unplanned and unmanaged urbanisation has created sizeable urban challenges in Pakistan, including the expansion of “urban poor”.

While the Pakistani government offers municipal WASH services in most urban locations—and in some areas private companies are active as well—service provision by itself is insufficient to improve health outcomes among citizens. Concerns relating to the supply of services—such as drinking water that is already contaminated when it reaches consumers’ homes—are well-documented and in many locations, plans are in place to improve service provision. However, consumers’ use of WASH services and health outcomes also depends on their own behaviours. WASH behaviours comprise highly complex decision-making processes, and are influenced by physical and psychological capabilities, personal and social motivations, as well as the opportunities available to undertake behaviours.

As such, UNICEF Pakistan has recognized a real need to assess the determinants of WASH behaviours in Pakistan for which additional insight could help enhance the effectiveness of WASH interventions and identify programming opportunities for UNICEF. While high quality statistics and comprehensive studies on the overall landscape of access to and quality of urban WASH services is available, such literature fails to capture how local communities and consumers are coping with WASH related challenges, and how these actors engage in specific WASH behaviours.

METHODOLOGY

OBJECTIVE OF THE RESEARCH

UNICEF and the Government of Pakistan have undertaken this research project in order to better understand WASH practices in urban settings, assessing the drivers, barriers and decision-making processes that encourage healthy WASH behaviours. In particular, the objective of the research is **to understand what motivates diverse urban communities in Pakistan to demand, take-up and pay for (affordable) WASH services**. The research findings will be used to design an integrated pro-poor urban WASH Social and Behaviour Change Communication (SBCC) Strategy and Implementation Plan in support of UNICEF's urban WASH program 2018-2022, and to support the articulation of an urban PATS (Pakistan Approach to Total Sanitation). The findings may also be used to support the development of an SBCC Strategy to be implemented by service providers.

This final report presents the methodology used for the research, the findings, and the conclusions and recommendations for how to design a WASH SBCC Strategy for Pakistan.

ANALYTICAL FRAMEWORK

This research was guided by a social and behavioural change (SBC) approach, which is informed by behavioural models, findings from sociology, psychology, and behavioural science. Social expectations and norms play a large role in determining an individual's behaviour, as many negative behaviours are derived from and reinforced through social expectations. By using an SBC approach to policymaking and focusing on changing behaviours, attitudes and beliefs, governments can create long lasting positive change for their citizens.

The COM-B model was used to guide the research, and to understand and analyse behavioural determinants of WASH behaviours (Figure 1). This model recognises that behaviours are part of a dynamic system involving three different components. **Capability** (both psychological and physical), **motivation** (conscious and unconscious), and **opportunity** (physical and social) affect whether or not an individual adopts a behaviour. Motivation is viewed as an expression of individual's desire to change or adopt a new behaviour, whereas capability relies on the individual's capacity to change or adopt a behaviour, such as having the necessary physical ability, knowledge and skills. Opportunity captures external factors that enable or motivate behaviour, including changes to the environment and social opportunities. Therefore, COM-B not only takes into account the individual determinants behind a behaviour, but also the sociological and environmental ones.

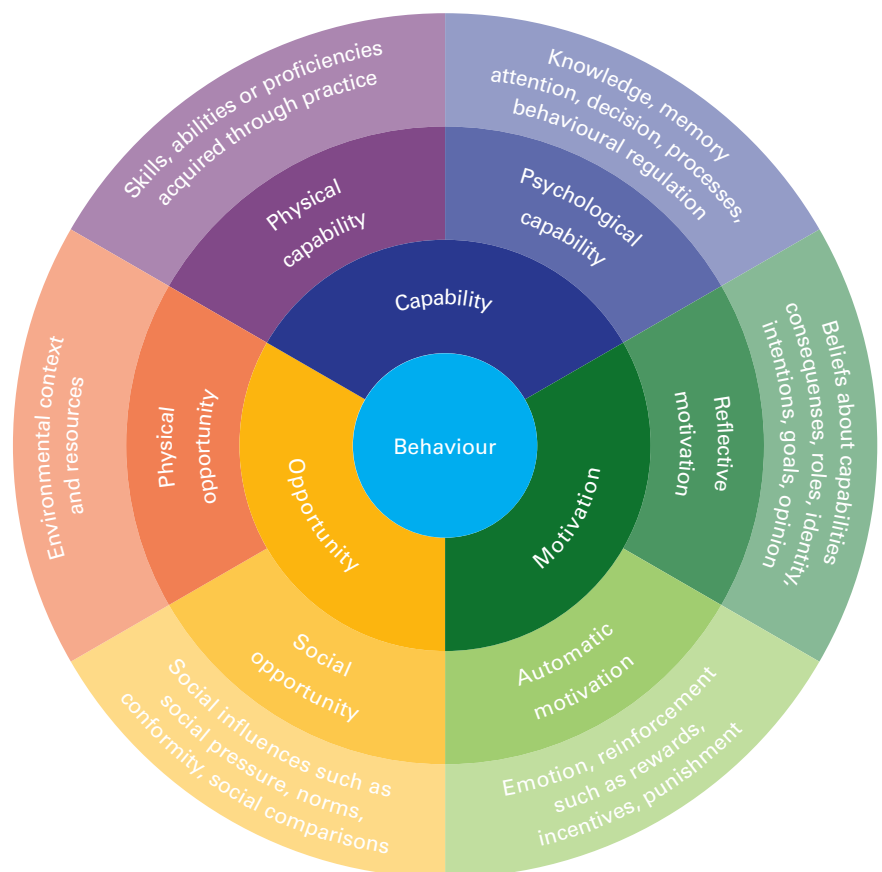


Figure 1. COM-B Model

RESEARCH QUESTIONS

The research had three research questions:

1. What are the main factors that drive or impede urban Pakistanis to adopt the priority behaviours, (see below) including across different demographic segments?
2. What is the experience of urban Pakistanis when seeking to access WASH services, from both formal and informal service providers?
3. What are the main media and interpersonal channels through which urban Pakistanis consume messages related to WASH and public health?

APPROACH



Figure 2. Project Approach

The overall approach to the project is shown in Figure 2.

Phase 1 encompassed a literature review and stakeholder consultations to develop the research questions, and to select the priority behaviours included in the study. **Phase 2** including qualitative and quantitative formative research to understand the drivers and barriers of the identified behaviours, as well to identify communication channels through which Pakistanis consume messages related to WASH and public health. **Phase 3** aimed to understand the experience of consumers when seeking to access clean water by using a Consumer Journey Mapping (CJM) approach.

The research was conducted in Karachi, Lahore, and Mingora, which were selected due to existing relationships with service providers and in order to provide a diversity of

large and medium urban areas. The cities were selected to give a range of demographics while remaining in areas that UNICEF has active relationships with service providers.

Phase 1: Identifying Priority Behaviours

At the start of the project MAGENTA conducted a holistic literature review of relevant materials pertaining to WASH-related behaviours in urban Pakistan, as well as in other contexts from which lessons can be drawn. The key reviewed documents can be found in Annex 1.

In parallel to the literature review, and building off a base of potential contacts culled during the literature review and on recommendations from UNICEF, MAGENTA conducted a preliminary round of interviews with seven key stakeholders with knowledge of governmental ministries, urban utility officials, private WASH service providers, and NGO and INGO leaders across the sector:

- Assistant Director for Social Mobilisation, Water and Sanitation Agency (WASA) Punjab
- Chief Executive Officer, Water and Sanitation Services Company Swat
- Project Director, Municipal services program, Sindh
- Project Focal Point, Sarhad Rural Support Programme
- Programme Focal Point, Urban Policy Unit
- Project Director, Karachi Water and Sewerage Board
- Sindh Provincial Manager, German Red Cross
- UNICEF WASH section
- UNICEF Pakistan provincial offices

These consultations helped the research team understand the WASH context in each of the three areas, including what the service provision landscape looks like and what the main WASH related challenges exist in the three targeted areas of Karachi, Lahore, and Mingora. Conclusions drawn from these consultations helped to identify the targeted behaviours, and to draft the survey tools.

The purpose of the literature review and stakeholder consultations was to understand the baseline context as efficiently as possible to guide the selection of the most relevant behaviours to investigate in the context of this research. Based on these two exercises, the research team selected the behaviours to be examined in the research. (Figure 3)

Phase 2: Assessing Behavioural Determinants and Barriers, and Identifying Communication Channels

During Phase 2, MAGENTA conducted qualitative and quantitative research to assess the determinants (barriers and drivers) of the selected behaviours. A mixed-methods approach captured both prevalence of drivers and barriers, as well as the nuanced experience of individuals when they encounter these factors. Table 1 shows the summary of the sampling methodology used in this research.

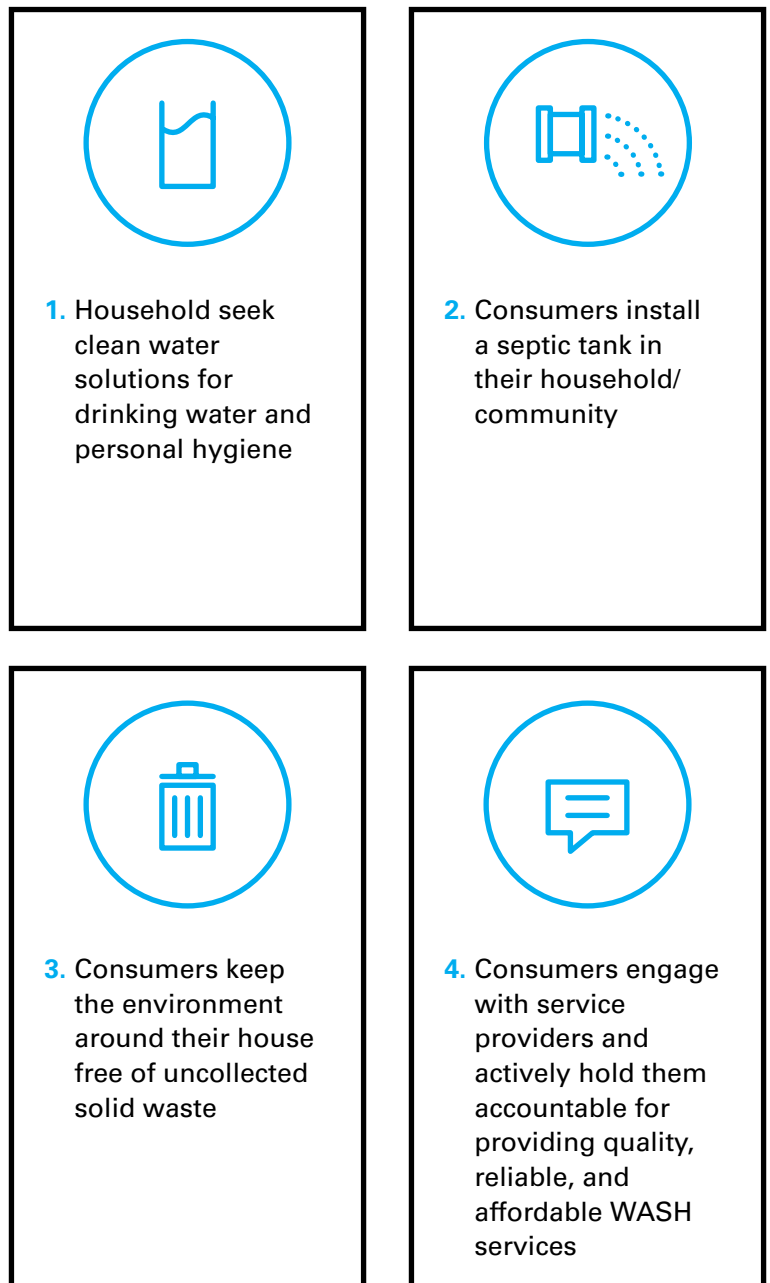


Figure 3. Priority Behaviours

	Karachi		Lahore		Mingora		Total		
	Men	Women	Men	Women	Men	Women	Men	Women	Total
Qualitative KIIs	10	10	10	10	9	9	29	29	58
Qualitative FGDs	3	3	2	3	2	0	7	6	13
Quantitative Survey	139	101	155	100	152	103	446	304	750
Consumer Journey Mapping	15	14	16	13	11	8	42	35	77

Table 1. Sampling summary table

Qualitative Research: FGDs and KIIs

MAGENTA conducted online Focus Group Discussions (FGDs) and phone-based Key Information Interviews (KIIs) to better understand the experiences of respondents vis-à-vis the priority behaviours. FGDs were conducted with consumers, and KIIs were conducted with both consumers and service providers. This data collection was conducted remotely to ensure that the project was in compliance with WHO regulations concerning COVID-19. At the time Pakistan was facing a high rate of infections and in person visits would have been in contravention of the national governments advice.

A total of eight FGDs with consumers, 58 KIIs with consumers, and 11 KIIs with service providers were conducted (See Annex 2 for sampling tables). Service provider respondents were selected based on UNICEF recommendations, and FGD and KII respondents were selected using snowball sampling. The names and profile the service provider representatives who were interviewed for the research are summarised in Annex 2. The topics included in the FGD and KII guides were based on the COM-B model to ensure that questions cover capability, opportunity and motivation for each behaviour.

Following the end of the qualitative data collection, a comparison between the location of consumer respondents and service provider respondents revealed that the selected consumers were living outside the jurisdictions of the service providers. As such, an additional five FGDs were conducted in a second wave of qualitative data collection with respondents inside the jurisdiction of the service providers, in order to provide a comparison between the respondents' experiences and the service providers' stated services and practices. The sampling for this wave of qual research is shown in Annex 2.

Quantitative Research

The quantitative survey aimed to evaluate the factors determining the priority behaviours, as per the COM-B framework. The survey sought to highlight, in a rigorous manner, the drivers that contribute to some people's

(doers) decision to engage in a certain behaviour, and the barriers that hinder others (non-doers) from engaging in that same behaviour. During the survey, respondents were tagged as a doer or non-doer based on their response to a specific set of selection questions.

The quantitative survey was conducted between the 4th – 16th November 2020 and included 750 respondents. Karachi surveys were focused in the polio-designated Super High Risk Union Councils (SHRUCs).

Respondents were chosen using two-stage cluster sampling. Clusters within each urban space were first randomly chosen from locations of different income levels, and a starting point in each cluster was selected. Male enumerators proceeded along the left side of the road and female enumerators proceeded along the right side of the road, both using a random walk on five households skip rule (i.e., after every house, enumerators then skipped five houses) to select which household to approach.

Phase 3: Understanding the Service Delivery Context

In Phase 3 a Consumer Journey Mapping (CJM) was used to understand consumers' experiences with water service providers at different touchpoints throughout the "journey" of accessing clean drinking water. This journey mapping covered the process by which citizens access WASH services—including who they access services from; whether they are satisfied with the services, and why; if they pay for services, and if so, how much; and what the experience of accessing the services is like from the perspective of the citizen.

The CJM was conducted between the 5th and the 10th of November 2020 and included 77 respondents (Annex 2). Respondent selection followed a random purposeful methodology, with enumerators pre-selecting neighbourhoods and conducting random walks to select respondent households.

ANALYSIS

Analysis was led by the quantitative data findings. Pivoting behaviours against determinants looking for statistically significant associations. Associations were tested using Chi-square values to determine the strength of the association. Significance was mostly measured using a P value below 0.05, where this value is significant is shown in the 2x2 tables. The tables allow for easy calculation of odds ratios which demonstrate how much more likely a doer is to be one thing than another. For simplicity of understanding the OR values are presented as the odds of a doer being the top row compared to the second row. Once the primary associations had been found other aspects of the data could be tested against them to look for likely causations. The qualitative data then provided the context to understand the associations we had identified. These findings are reported as secondary determinants, there is a weight of evidence to support them and they are important in supporting a recommendation, but they are not directly associated to being a doer with statistical significance.

Doers were classified by the first section of each behaviour's questions. Based on how they answered these questions the respondent was assigned the tag of a doer or non-doer in that behaviour. A doer answered one or more questions indicating that they regularly practiced the behaviour. This disaggregation was then pivoted against a series of criteria looking for statistically significant associations.

LIMITATIONS

Limitations encountered during the research study are:

- Because of COVID-19, the first wave of qualitative research had to be conducted remotely through phone-based KIIs and online FGDs. This made it more difficult for enumerators to connect with respondents. It also made it difficult to cover people from the poorer socio-economic backgrounds as they did not have access to the internet or equipment used for remote data collection. However, this stratum of the society was covered in the quantitative research as all other data collection, including the second wave of qualitative research, was conducted in person.
- "Non-doers" for behaviour 2 (sewage) in the quantitative study comprised a small proportion of overall

respondents: only 18 of the respondents (2.4%) reported they neither have a piped system nor a septic installed. Therefore, due a to a very small sample size for the 'non-doers', we are not able to estimate the statistically significant differences between the doers and non-doers from the sample achieved. As such, we cannot precisely estimate the effect size between the two groups.

ETHICAL CONSIDERATIONS:

Tool design. The question guides developed for data collection were reviewed and tested by all stakeholders, including UNICEF's reference group, MAGENTA's programme team and the data collection team. The tool was assessed for acceptability and appropriateness for the target audience as well as how well it achieves the research objectives. The tool and data collection process were tested with a pilot collection phase after which collection was paused while any issues were identified and addressed. The data was then checked throughout the collection for inaccuracies or inconsistencies to assure its accuracy.

COVID-19. Data collection during the COVID-19 pandemic was the primary concern of all parties. Data collection was delayed in order to be conducted at the safest possible time and a strict set of procedures was developed to protect the enumerators and the participants. The COVID-19 compliant data collection process was developed in partnership with MAGENTA and all enumerators were trained in its use.

Objectivity. To ensure objectivity in the analysis of the data, primary determinants were selected from statistically significant factors identified through the quantitative data. This ensured that the data dictated the findings rather than subjective analysis.

FINDINGS

This section outlines the findings from the research. Each behaviour is examined in turn, and within each behaviour the findings from the first two research questions are discussed; these findings include results from all phases of data collection and are presented according to the COM-B framework. The findings from the quantitative survey are typically presented in terms of what “doers” of the behaviour reported, compared to what “non-doers” of the behaviour reported.

Doers were classified by the first section of each behaviour’s questions. Based on how they answered these questions the respondent was assigned the tag of a doer or non-doer in that behaviour. A doer answered one or more questions indicating that they regularly practiced the behaviour. This disaggregation was then pivoted against a series of criteria looking for statistically significant associations.

A separate section at the end discusses the final research question—which was examined only through the quantitative survey—about preferred communication channels for information on WASH services.

The findings are broken down into two categories: primary determinants and secondary determinants. Primary determinants are activities or behaviours that are significantly correlated with being a doer, or non-doer. They are presented with clear statistical evidence that they are directly linked to the practice of the target behaviour. Secondary determinants are either indirectly linked to being a doer or non-doer, through a significant association to a primary determinant or they are behaviours that are only linked through qualitative data and are therefore not supported by statistical evidence.

DEMOGRAPHICS

This section discusses the demographic profile of the sample for each phase of the research.

Qualitative Research

The demographics of the KIIs are summarized in Annex 3.

Quantitative Research

The quantitative survey included 750 respondents, including 255 in Lahore (34%), 240 in Karachi (32%) and 255 in Mingora (34%). Of the 750 respondents, 446 (59.5) were men and 304 (40.5%) were women. About equal percentages of men and women were in each location. Most respondents (59%) were between the ages of 18 – 34, while 21% were 35 – 44 years, 13% were 45 – 54 years, and 6% were 55 – 60 years. The mean age for women was 34 years, and the mean age for men was 32 years.

The majority (74%) were married, including 86% of women and 66% of men. About 22% were single, including 7% of women and 33% of men; under 3% of respondents were each widowed, engaged or divorced.

About one third of respondents reported that they were the head of household, including about half of male respondents. Only 2% of women reported that they were the head of household. For around 27% of respondents, their father was the head of household. On average, there were 7.6 people in each respondent household, including about five adults, though households in Lahore were smaller (6.4 people) compared to those in Karachi (8.3 people) and Mingora (8.2 people).

About 32% of respondents made less than 25,000 PKR (156 USD) every month, and 32% made between 25,000

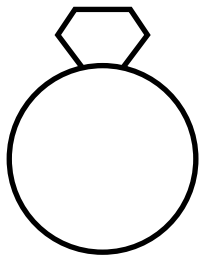
– 50,000 PKR (156 – 311 USD) every month. About 17% of respondents said they don't know how much they make, and about 9% did not want to answer the question.

BEHAVIOUR 1: HOUSEHOLDS SEEK CLEAN WATER SOLUTIONS FOR DRINKING WATER AND PERSONAL HYGIENE

79% of respondents are doers of Behaviour 1, indicating that they always or sometimes have access to safe water.

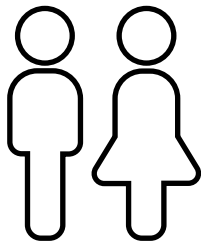
Below are the primary determinants and their associated odds ratio. The odds ratio represents how much more likely the first category is to practice the behaviour than the second.

Married Vs Single



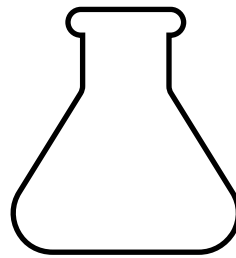
2.191

Female vs Male



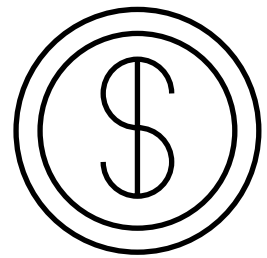
3.310

Treatment vs no treatment



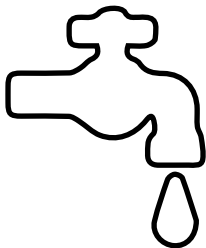
4.105

Low vs high income



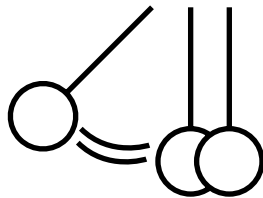
2.869

Public tap vs other source



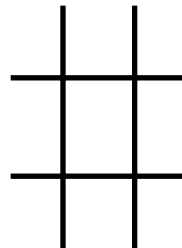
14.994

Sickness Vs other consequences



2.311

Number of sources



2.580

Primary Determinants

Capability	Opportunity	Motivation
Drivers		
<p>Physical Capability Treatment. Treating water makes people doers.</p>	<p>Physical Opportunity Number of sources. Having multiple sources of water associates with access to safe water.</p>	<p>Reflective Motivation Consequences. Consumers who think getting sick is the main consequence of unsafe water are more likely to be doers Responsibility. Consumers who take personal responsibility for their water are more likely to be doers</p>
Barriers		
<p>Psychological Capability Income. Being in the lowest income group makes you more likely to think you are a doer.</p>	<p>Social Opportunity Gender. Being single and male makes a respondent significantly less likely to be a doer Physical Opportunity Source. Accessing water from a public tap associates with being a doer</p>	<p>Reflective Motivation Responsibility. Thinking external organisations are responsible for your water supply makes consumers less likely to be doers.</p>

Table 2. Primary Determinants.

Marital Status

P-value of < 0.001 X2 of 16.006; OR = 2.191	Doer	Non-Doer
Married	80% (458)	65% (99)
Single	20% (114)	35% (54)

Table 3. Doer/Non-doer significance by marital status.

Being married is associated with being a doer and conversely single people, and in particular single men, are more likely to be non-doers. Many respondents talked about how it was common to rely on a community or familial network for their source of water. Some mentioned that a shared borehole could be drilled if a family pooled its resources and many of these private wells then supply other households in the area. In areas where water collection is common, family members are relied on to fetch the water from the public source. In Lahore it was commonly mentioned that the women and children collected water as part of their daily duties. Being single means you are more likely to live in shared accommodation, less likely to have access to the community and familial networks that support access to safe water.

Additionally treating water by boiling, the most common method, takes time and resources, it requires you to prepare your water pre-emptively, before you need it. This is much easier to do in a family home where someone is responsible for the cooking and there is more likely to be a stove ready to boil the water. In Table 4, row 1, we can see boiling is done significantly more by married respondents. Row 2 shows filtering the water is more common among single people, upon further analysis this was shown to be single men; likely because of the immediacy of its availability.

Many of the respondents talked about their concern for the health of their children in regard to unsafe water, so it is assessed that consumers are more likely to invest in the quality of their water to protect the health of their loved ones.

This means that being married is more likely to result in access to safe water and more likely to result in treating it.

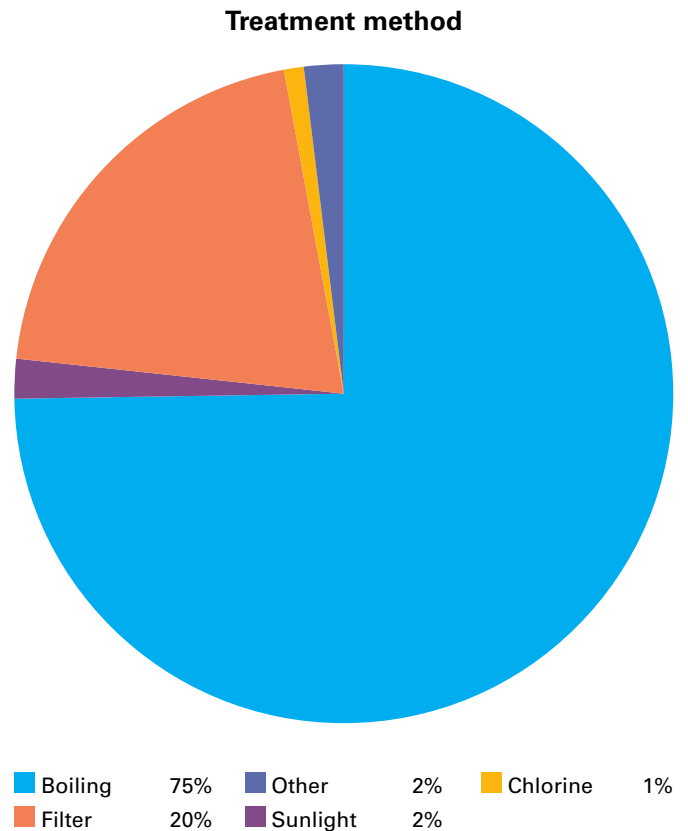


Figure 4. Treatment method.

	Married	Single
Boil (P-value of 0.042 X ² of 4.138; OR =2.323) Not Boil	87% (115) 13% (18)	73% (33) 27% (12)
Filter (P-value of 0.010 X ² of 6.719; OR = 0.38) Not Filter	19% (25) 81% (108)	38% (17) 62% (28)

Table 4. treatment significance by marital status.

Gender

P-value of < 0.001 X ² of 33.452; OR = 3.310	Doer	Non-Doer
Female	46% (272)	20% (32)
Male	54% (321)	80% (125)

Table 5. Doer/Non-doer significance by gender.

Women are more likely to be doers, as mentioned in the previous section the single respondents who were non-doers were more likely to be men making it an **and** association rather than an **or**. So some of this association will come from the male respondents being single and share the determinants mentioned in the previous chapter. Additionally single women are more likely to have remained in their familial home and therefore are likely to benefit from the perks of a married household.

Men are also significantly less likely to think that getting sick is a consequence of unsafe water. This is a determinant of being a non-doer that will be elaborated on later. When asked why a non-doer does not have access to safe water men are significantly more likely to indicate that it is too expensive or that they do not know where to get it from, as shown in Figure.

What prevents you from accessing safe water? By gender.

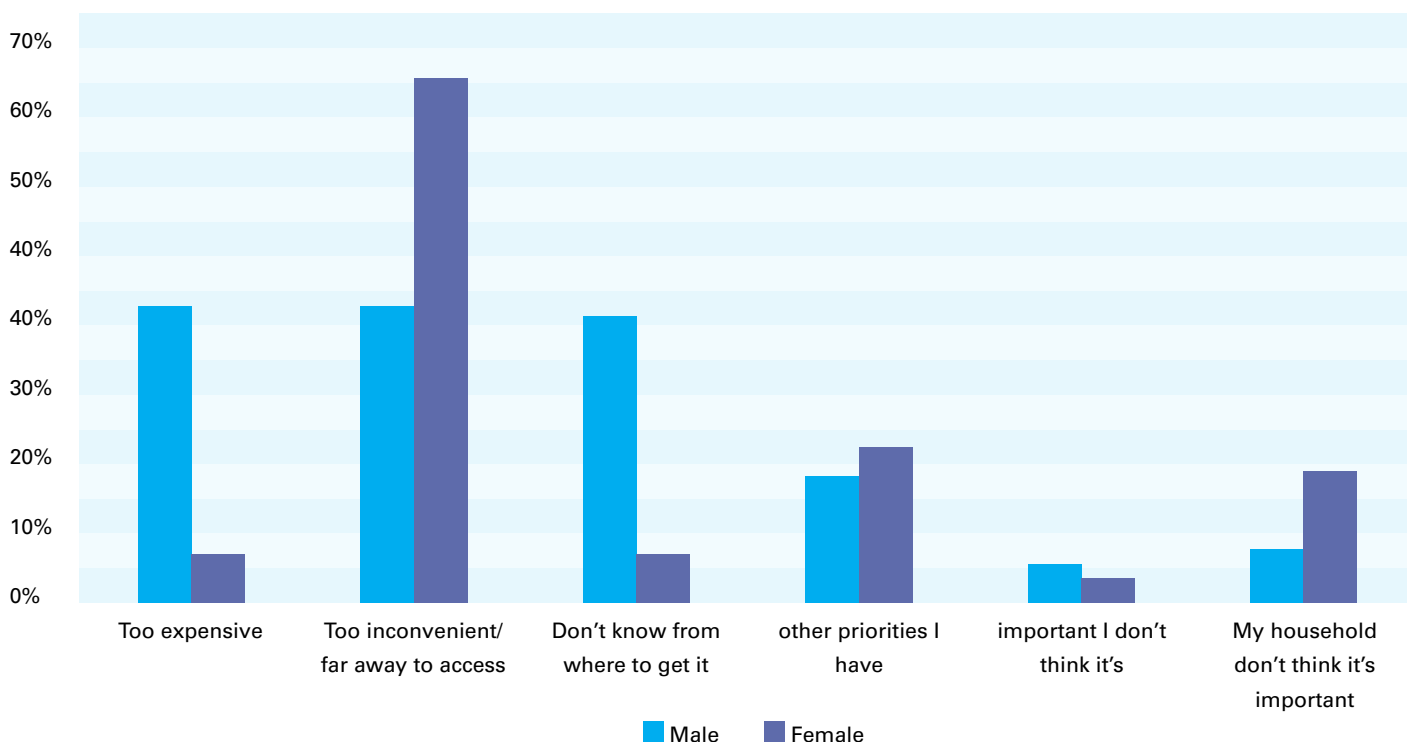


Figure 5. What prevents you from accessing safe water? By gender.

It is assessed that single men are more likely to be economic migrants, more likely to live in shared accommodation away from a familial network. This is supported by many of the male respondents' comments who talked about the problems of living in shared accommodation. Being an economic migrant in these conditions could account for both of the reasons shown in Figure 5, economic migrants are less likely to be willing to spend money in areas they do not think are important and are less likely to be familiar with their surroundings and know the best locations to access safe water.

Women in Lahore talked about their role in collecting water from the public filtration plants, this role is likely to explain why they are significantly more likely to have an issue with ease of access. In a busy day, the journey to a filtration plant, which was commonly stated as an extensive distance away, is something that can be skipped. When there are other less safe options nearby, they may be encouraged to take shortcuts and access less safe water.

Treatment

P-value of < 0.001 X ² of 26.154; OR = 4.105	Doer	Non-Doer
Treat	29% (170)	9% (14)
Do not Treat	71% (423)	91% (143)

Table 6. Doer/Non-doer significance by treatment.

Perhaps unsurprisingly those who treat their water are much more likely to be doers. This is partly because treating the water was included in the definition of being a doer but there is more to this finding. Treating water is the only way that a respondent can guarantee that an unknown source is safe. Yet some respondents who do treat their water are still not classified as doers. This may indicate that they only treat their water when they are able to afford it or the treatments are available.

What prevents you from treating your water?

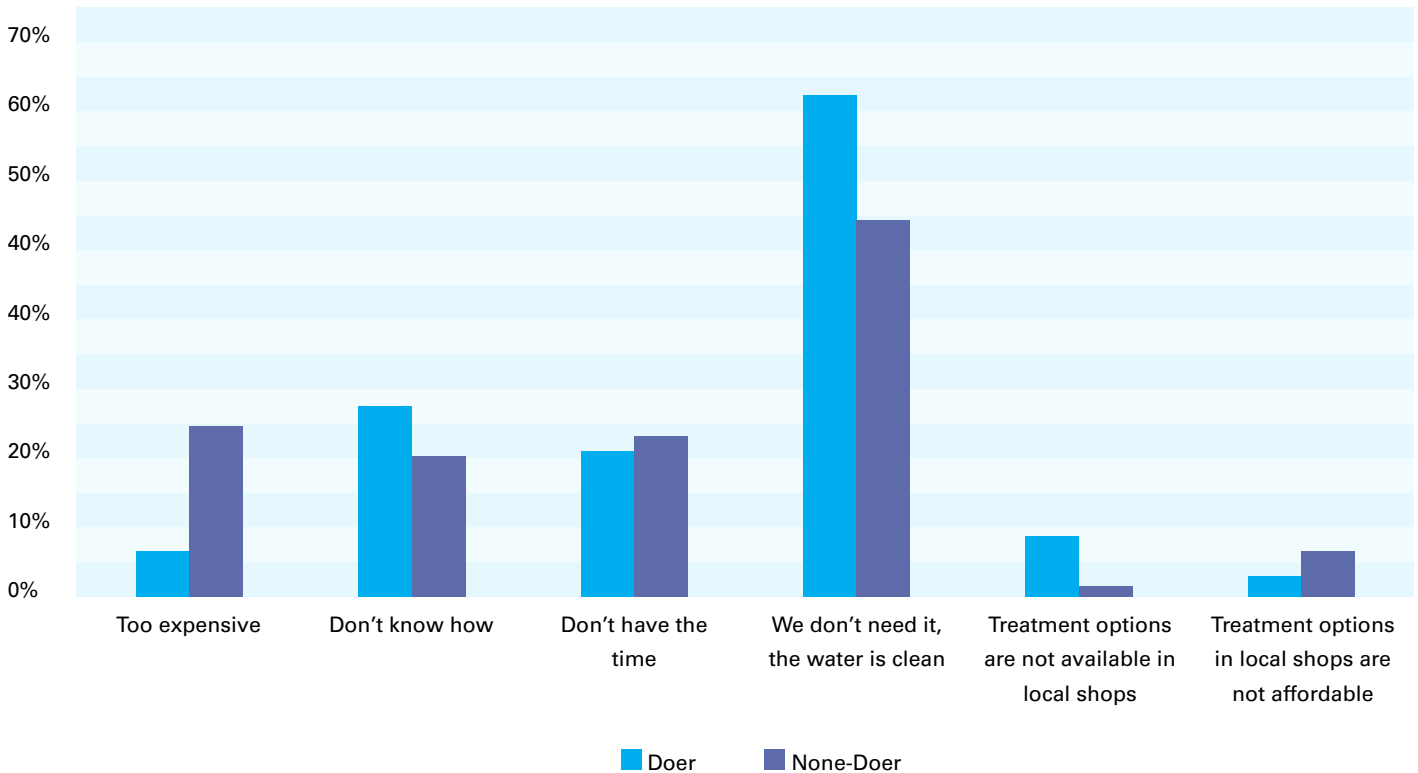


Figure 6. What prevents you from treating your water? By doer/non-doer.

When asked why they do not treat their water, those that indicated that it was too expensive were significantly associated with being non-doers. This is a positive finding. These respondents are aware that the cost of treatment is a barrier to them treating their water but are also aware of its necessity. This suggests that by lowering the cost of treatment or by providing alternative cost effective solutions, we can remove this barrier and increase access to safe water for these respondents.

Income

P-value of < 0.001 X ² of 27.746; OR = 2.869	Doer	Non-Doer
< 25,000	50% (211)	26% (34)
> 25,000	50% (212)	74% (98)

Table 7. Doer/Non-doer significance by Income bracket.

Respondents in the lowest income bracket, (<25,000 PKR) are significantly more likely to perceive themselves as a doer. This is a difficult finding as we know from the secondary barriers, discussed later, that cost is a major barrier to a lot of people. It is assessed that this highlights a more important finding. That those who are in the lowest income levels are more likely to be satisfied with their water, irrespective of its quality. They perceive their water to be safe, most commonly because of its colour. The full range of reasons are shown in Figure 7. It is clear that most people cannot be certain of the quality of their water and that many are probably reporting their water as safe mistakenly. This represents a real concern as these people are acting like they are doers without the certainty that they are. This is likely to reduce the number of people who treat their water as they do not believe it is necessary. Of those who do not treat their water 59% believe there is no need to do it. This false belief in the safety of their water is likely to be a barrier to positive behaviours and will be discussed further in the secondary barriers under the heading perception of safety.

Why do you believe the water is safe?

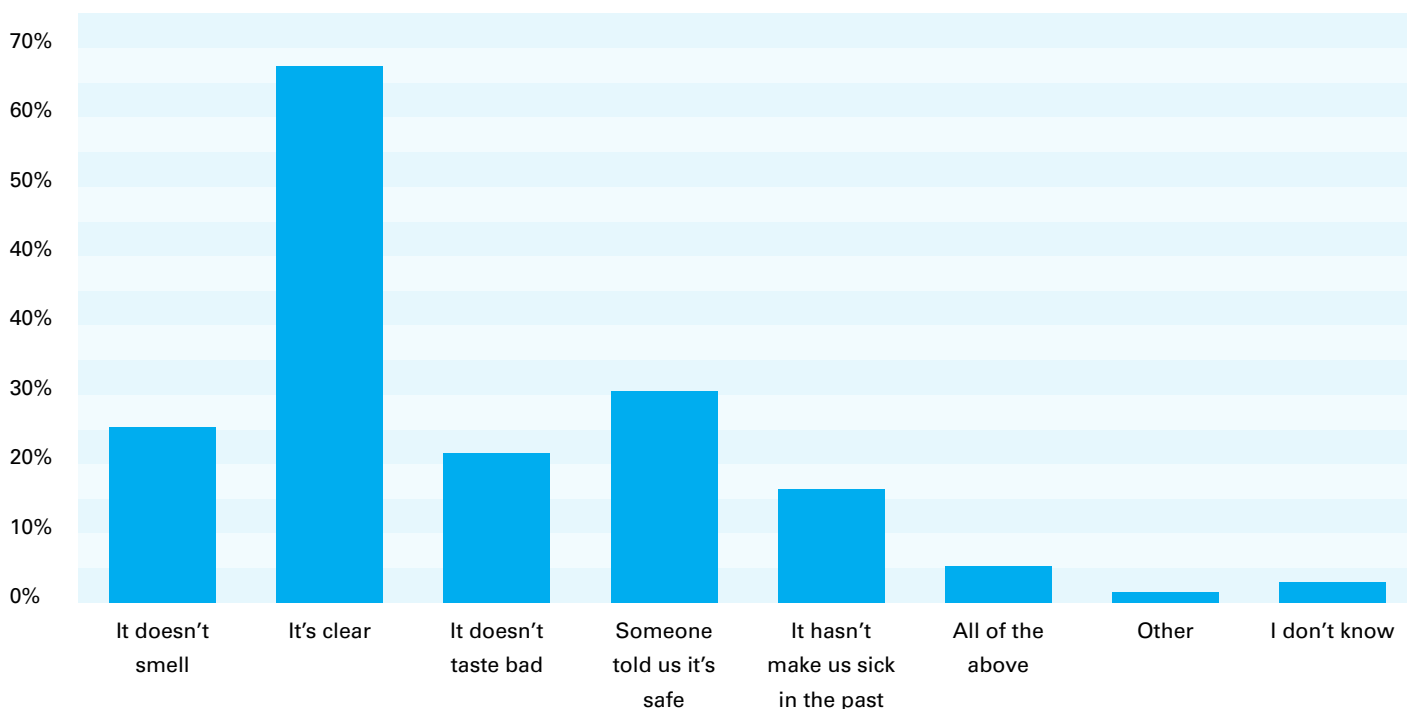


Figure 7. Why do you believe the water is safe?

Source

	Doer	Non-Doer
Public tap / Standpipe P-value of < 0.001 X ² of 12.500; OR = 14.994)	9% (52) 91% (541)	1% (1) 99% (156)
Protected Well P-value of < 0.001 X ² of 43.769; OR = 0.035)	0.3% (2) 99.7% (591)	9% (14) 91% (143)

Table 8. Doer/Non-doer significance by source.

Those who access their water through public tap or standpipe are more likely to be classified as doers. As this classification is based on how they chose to answer the classifier question, their perception of the water safety plays a significant part in this classification. Public taps are likely to have some measure of quality control and their safety is confirmed by the community who uses it. This community assurance of the safety of their water is assessed to be the reason that so many respondents have a positive perception of the safety of the water. On the other end of the scale those who access their water through a well are likely to be non-doers. We know from Figure, discussed earlier, that most people rely on visual indications as to the water's quality. Wells are more prone to sediment and are therefore more likely to create a negative perception of the water safety.

What prevents you from treating your water?

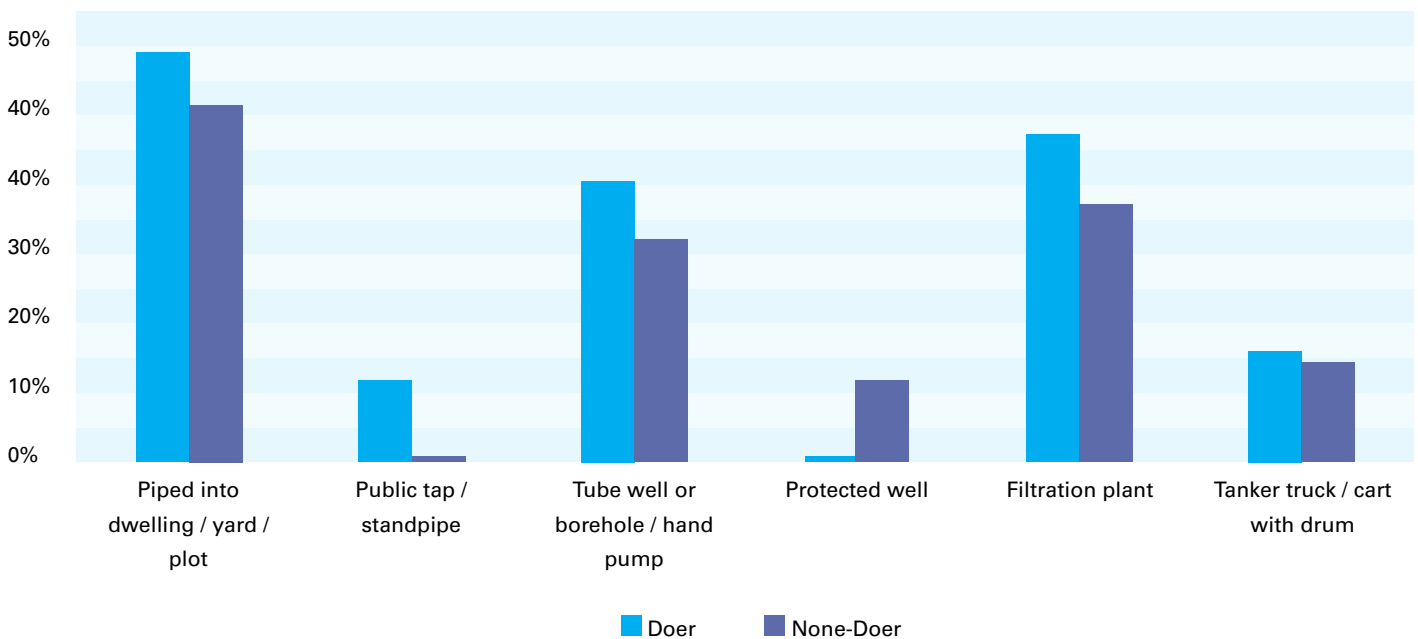


Figure 8. How do you normally get your drinking water? By doer/non-doer.

Sources that we know are unlikely to be safe and yet receive very strong perceptions of safety are concerning, we know that a perception of safety prevents consumers from treating their water and can lead to unsafe behaviours. Most concerning is the piped water. Piped water is very unlikely to be safe by medical standards in all locations, yet many respondents talked about how the water was sweet enough to drink without treatment. There is a significant association between the following sources of water and using a treatment method:

- Piped water (p-value of <0.001; X2 of 16.188)
- Public tap/Standpipe (p-value of <0.001; X2 of 24.664)
- Tanker truck/cart with drum (p-value of <0.001; X2 of 21.102)

It can be seen that sources that are commonly known to be of uncertain quality are more likely to result in consumers treating them. Piped water has the closest association with this behaviour. It is assessed that the known state of piped water results in consumers being more aware of the need for treatment and therefore a greater rate of practicing this behaviour.

Despite this source being known to be unsafe, 45.5% of consumers with a piped supply believe that they are doers, despite the association mentioned above we know that treatment is not done commonly enough to account for all the doers and therefore it is likely caused by people erroneously believing their water is safe.

Consequences

	Doer	Non-Doer
Sickness P-value of < 0.001 X ² of 14.431; OR = 2.311	88% (521) 12% (72)	76% (119) 24% (38)
None P-value of = 0.006 X ² of 7.620; OR = 0.214	0.8% (5) 99.2% (588)	4% (6) 96% (151)

Table 9. Doer/Non-doer significance by consequences.

Respondents were asked what the consequences of not access to safe water having were; those who specified sickness were significantly more likely to be doers, and those who indicated that there were no consequences were more likely to be non-doers. This suggests that despite the very high awareness of the health consequences of unsafe water among the majority of the respondents it remains a barrier for the minority who do not believe it. Only 0.015% (11) respondents indicated that there were no consequences, so this problem is a minor one, the more relevant finding is that health is the primary driver for people to seek safe water. Messaging about the benefits needs to focus on the preventing illness and being beneficial for your health. Many of the survey respondents talked about getting sick from water and the economic impact of not being able to work due to this sickness. This suggests that an economic argument can be made for securing access to safe water, and it can be framed as vital to the consumers economic success not as a luxury to be bought when money is available.

There was no association between indicating sickness as the main consequence and any of the sources suggesting that this knowledge is not based on experience but on education. This is a positive sign

Responsibility

Seeing the provision of safe water as a personal responsibility, or one that is within the community is associated to being a doer, as shown in Figure 9. Those who indicated private utility or government responsibility are likely to be non-doers. There are two likely reasons for this; it is tempting to infer that those who take responsibility for their own supply are motivated to go out and get safe water in any way they can, but physical opportunity will affect this perception and may infer the reverse causation. That those who have no opportunity to collect water themselves need the government to step in and provide the basic infrastructure they need. Those who have multiple municipal and private options are more likely to feel the agency that freedom of choice brings.

Whose responsibility is it to provide safe water?

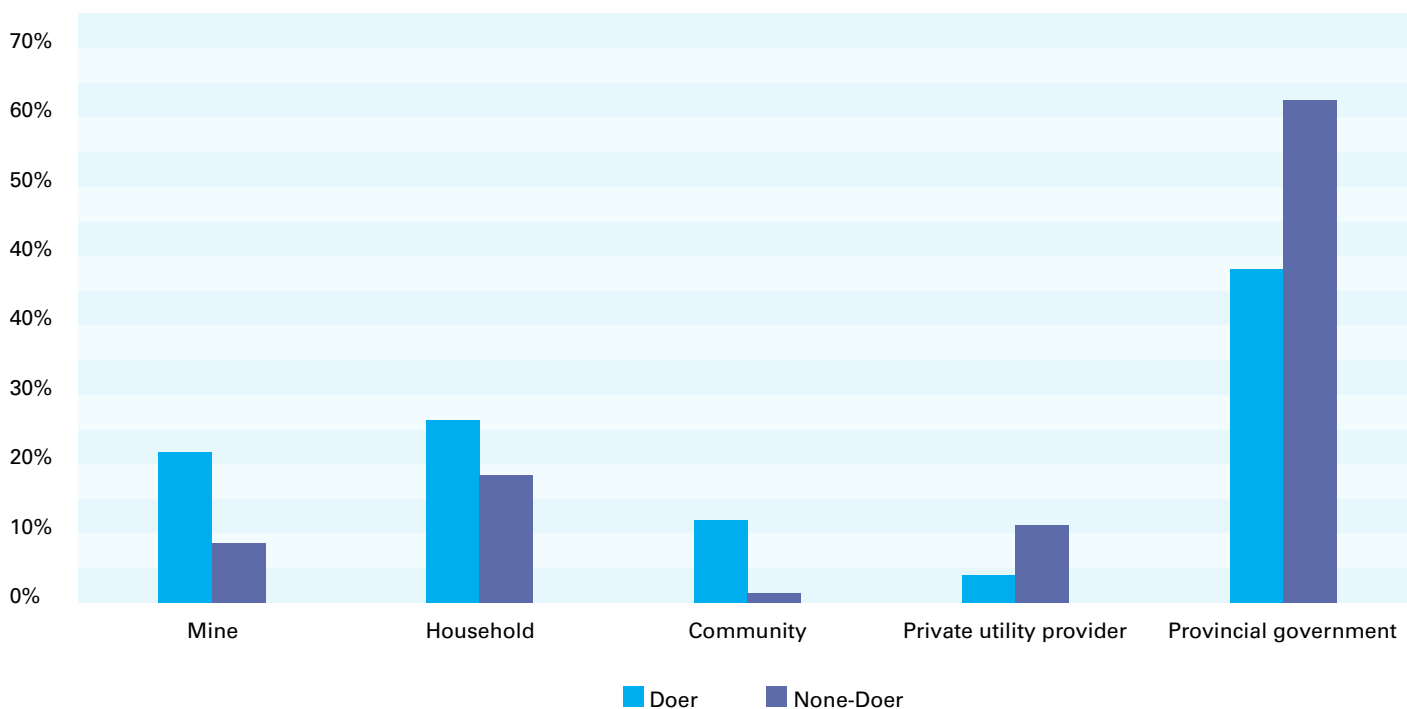


Figure 9. Whose responsibility is it to provide safe water? By Doer/Non-Doer

Respondents who thought it was the government’s responsibility are much more likely to be located in Mingora and of middle income (75,000 – 100,000 PKR). This combination makes it likely that consumers are dissatisfied with the opportunities they have available and are looking for government provision of further resources. Middle income families have the money to dig shallow wells or drive to filtration plants but do not have the resources to dig deep bore holes in Mingora.

Number of Sources of Water

P-value of <0.001 X ² of 16.083; OR = 2.580	Doer	Non-Doer
Multiple Sources	31% (182)	15% (23)
One Source	69% (411)	85% (134)

Table 10. Multiple sources association with being a doer.

Respondents who indicated that they had access to multiple sources of water were significantly more likely to be doers. The cause of having multiple sources is likely to be due to the unreliability of a primary sources. This assessment is supported by the data, which shows that respondents from Karachi, where respondents commonly talked about the unreliable nature of their primary supply, were more likely to rely on multiple sources, with 45% indicating that they use more than one as opposed to just 26% in Lahore and 12% in Mingora. It is possible that the association has the opposite causation and those who are motivated to seek

safe water are more likely to look for alternative sources, but many respondents mentioned that relying on a single source meant that they were afraid to complain about it, in case they lost their only source.

Secondary Determinants

Capability	Opportunity
Drivers	
	Social Opportunity Stigma. In Mingora there is social status equated to having fresh running water.
Barriers	
Physical Capability Cost. Cost may not prevent access to water but is a prohibitive barrier to better water. Psychological Capability Perception of safety. The ability to know whether water is safe or not leaves people speculating based on physical attributes. Knowledge of Decision Makers. Some key decision makers in HH are preventing others from accessing safe water.	Physical Opportunity Location. Respondents from the more rural Mingora are less likely to be doers. Ease of access. The primary barrier is ease of access; people do things that are easy even in knowledge of the consequences. Environment. Sometimes the environment can prevent access even where there is normally reliable access.

Table 11. Secondary Behavioural Determinants Summary

Stigma in Mingora

	Lahore	Karachi	Mingora
Looked down on	18%	5%	33.3%
Not looked down on	82%	95%	66.6%

Table 12. Stigma significance by location.

As previously discussed, some of the consequences are associated to being a doer. A minority of the overall respondents believed that someone without safe water would be looked down upon by their community, with 19.2% of respondents indicating this consequence. In Mingora this stigma is significantly higher at 33.3% compared to 18% in Lahore and 5% in Karachi. This is possibly due to over half of respondents in Mingora accessing water through bore holes which, due to the rocky ground and deep-water table (300-400m), can be

significantly more expensive than in other regions. Prices given by respondents varied greatly from 70,000 to 350,000Rs (430 – 2000 USD), which is likely due to the number of variables such as depth, lining materials, ground conditions, pump options etc. Respondents indicated that some people used their bore holes to sell water to neighbours, which would likely signpost them as a wealthier, high status member of the community and therefore could cause the stigma associated with lack of access. This is also echoed in one respondent’s comment that having to store water for drinking was seen as something that poor people did.

What is the consequence of not having safe water? By location

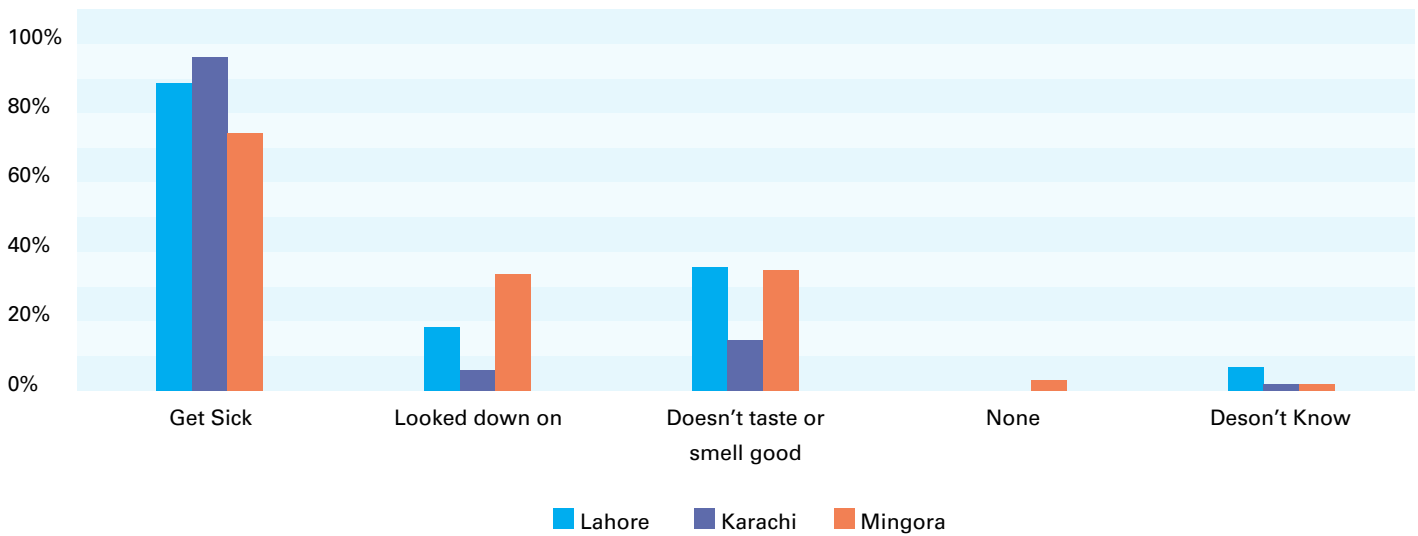


Figure 10. What is the consequence of not having safe water? By location.

Cost

The data did not show cost to be a primary barrier however respondents verbally indicated that cost was affecting their ability to access safe water throughout all the surveys. How cost does acts as a barrier is explained by respondents as a barrier to better quality, more reliable water. Most respondents state that they can access water even at the worst times by relying on community networks, mosques and public water sources. These sources are often unreliable, difficult to access or low quality. The data shows no greater rate of dissatisfaction with water among low-income respondents, likely due to the perception issues we have discussed. When asked to elaborate further however respondents indicate that in most urban areas water can be found but issues arise due to having to rely on the cheapest sources. Many respondents commented that the best quality water was accessed through purchasing branded bottle water or was available at a distance that required driving. Many respondents talk about the upfront costs of installing a bore hole being prohibitive, resulting in them having to buy water from a neighbour or travel to a free source. Some dig wells themselves but the shallow depth usually results in low quality water that is at risk of contamination from open sewers seeping through the ground. It can be seen from this elaboration that the cost acts as a barrier to better quality, more conveniently located water. This is just as important as having access to it as is discussed in the next section.

What prevents you accessing safe water? By location

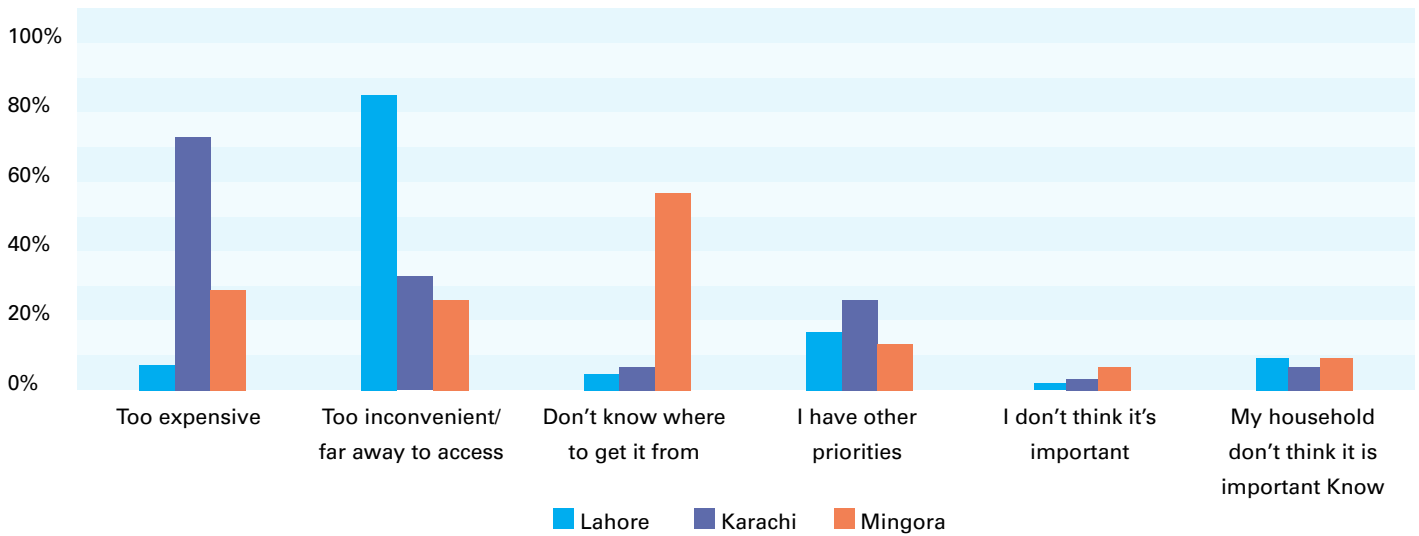


Figure 11. What prevents you accessing safe water? By location.

Ease of Access

Figure 11 shows that the most common reason given for not having access to safe water among non-doers, is that the water is too far away or too inconvenient to access. Each city has its own dominant reason among non-doers. These correlate quite well to the source of water common in each of those locations. In Karachi where private water suppliers are common, consumers commonly cite expense as being the primary reason for not being a doer. In Lahore where most people access safe water through public filtration plants the primary complaint is ease of access. In Mingora, where community networks are commonly relied on to gain access to private water sources the primary complaint is not knowing where to access it.

How do you normally access your drinking water? By location

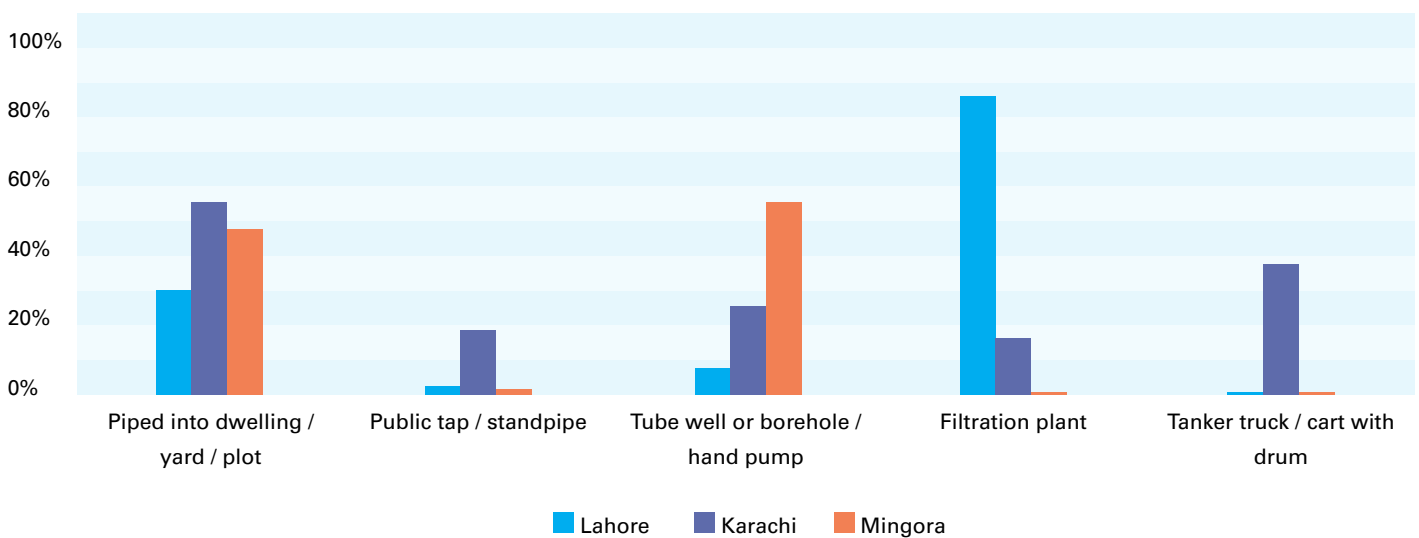


Figure 12. How do you normally access your drinking water? By location

Household decision makers

Although it is the minority, 4% of non-doers indicate that they do not think it is important to access safe water, this may have a larger effect than the low figure suggests, as 8% indicate they are limited by someone else's belief. Combined with the fact that men are less likely to be doers suggests that the 4% minority maybe household decision makers that have a much larger effect on the rest of their family.

Perception of Safety

The difference between access to safe water and thinking you have access to it, is the ability to know that water is safe. As the classification of the water in the data is defined by the respondent it is impossible to know whether people are classifying it wrongly. 67.6% of respondents rely on the clarity of the water, its colour and content of particular matter to ascertain its safety. This is unlikely to be an effective way of preventing against waterborne disease, or harmful chemical content. It is likely that a source is assessed by the consumer to be safe or unsafe based on the community's use of similar sources. Deep bores are commonly considered to be reliable sources of safe water and used by wealthy families to guarantee a reliable supply. This is likely to affect the community's perception of the safety of all bore holes, including those that are not as deep or are improperly lined. Consumers are then forced to rely on the look and taste of their water to adjust their judgement from this anchored value. Respondents talk a lot about the colour change that occurs when water stands, indicating that unsafe water will turn yellow over time. Many people also talk about sediment or particles visible in suspension in the water. The problem with this analysis is that it is unreliable and is more likely to affect their enjoyment of the water than their health.

Only a minority (24.5%) of consumers are treating their water with 55% of those being from Karachi. Respondents from Karachi talked about treating their tap water as their primary or secondary source of water. The quality of their water is variable and cannot be relied upon to be safe; therefore, it is assessed that treatment becomes a matter of necessity. They are aware of their limitations in assuring the quality of their water and assume the worst. This demonstrates the importance of how the source frames people's decision about the quality of the water. The issues with quality raised by consumers are similar in all regions and many of the water sources, but only in Karachi where the quality of the water is known to be variable do people treat the water more regularly.

Many of the survey respondents indicate that even water sources that are known to be good can be affected by water table issues or sewage runoff at times. The ability for a consumer to recognise their water has ceased to be safe is very limited.

Perceiving your water as safe is likely to mean that a consumer will stick with their current source and not treat it. It means that the drivers identified for this behaviour do not apply as the consumer thinks their water is safe. It is important that consumers have a better understanding of how safe their water actually is so that they can make an informed decision

Environmental Effects

Environmental factors were highlighted, by many respondents, as effecting access to safe water. Rain was commonly mentioned to have a big effect on access to water, In Mingora it caused the open sewers to overflow and seep into the ground water. Due to poorly maintained infrastructure, bore holes, often do not have water tight linings allowing dirty water to contaminate the otherwise reliable sources of water.

In all locations, rainwater was also identified to contain a lot of dirt and sediment which polluted water supplies stored in open tanks or reservoirs. In Lahore, some respondents suggested it helped raise the water table making wells produce better quality drinking water. Others directly opposed this saying the raise in water table caused dirty surface water and safe ground water to mix and pollute drinking sources.

BEHAVIOUR 2: CONSUMERS INSTALL A SEPTIC TANK IN THEIR HOUSEHOLD/ COMMUNITY

This behaviour examines whether consumers install a septic tank, sedimentation pit, or other similar infrastructure in their household or community; however, the main focus of this behaviour is less on whether consumers have and are using a functioning septic tank that is up to quality standards, and more about whether or not the required behavioural drivers among individuals and communities for this behaviour are in place—including knowledge and awareness of the importance of proper sewage disposal and consequences of the lack of it; social norms that encourage (or not) proper sewage disposal. In addition, due to the many variations of sewage infrastructure and the difficulty of precisely classifying the infrastructure in each household,⁸ the term “septic tank” is used below to refer collectively to septic tanks, collection pits, sedimentation pits, and similar infrastructure. Indeed, sedimentation/septic tanks do not seem to have a standard design, or a standard performance.

As one male respondent from Karachi described: “We have dug up holes (15 to 20 feet deep) outside our house, which is basically walled with cement and have two pipes connected in between the dug hole and our bathroom. One of the pipes drain the solid waste from our bathroom into that dug hole while the other one is for ventilation. As there are no sewerage pipelines. People who can afford to have one installed would do so.”

For this behaviour in particular, the efficacy of the septic tank system depends on the quality of the materials and infrastructure available in the community; however, it would be too simplistic to simply state that the behavioural barriers solely around lack of physical opportunity; therefore, this analysis will focus more on behavioural drives and barriers over which consumers have more direct control. The majority of respondents (82%) reported that they have a piped sewage system in their household; another 15% of respondents reported that they have a septic tank either alone or connected to a piped system; in most cases each household has its own septic tank. However, disaggregating by location shows clear differences between the three areas: nearly all respondents in Lahore and Karachi had a piped system, though only 51% of those in Mingora did; 23% of respondents in Mingora had both a septic tank and a piped system, and 21% had a septic tank. Notably, 4% of respondents in Mingora had neither a piped system nor a septic tank, suggesting that their sewage system is unimproved (Figure 13).

8. Such technical identification was not part of the scope of this project, and the data collection team were not WASH technical experts, though they received basic training on WASH concepts.

Do you have a collection pit or piped system in your household?

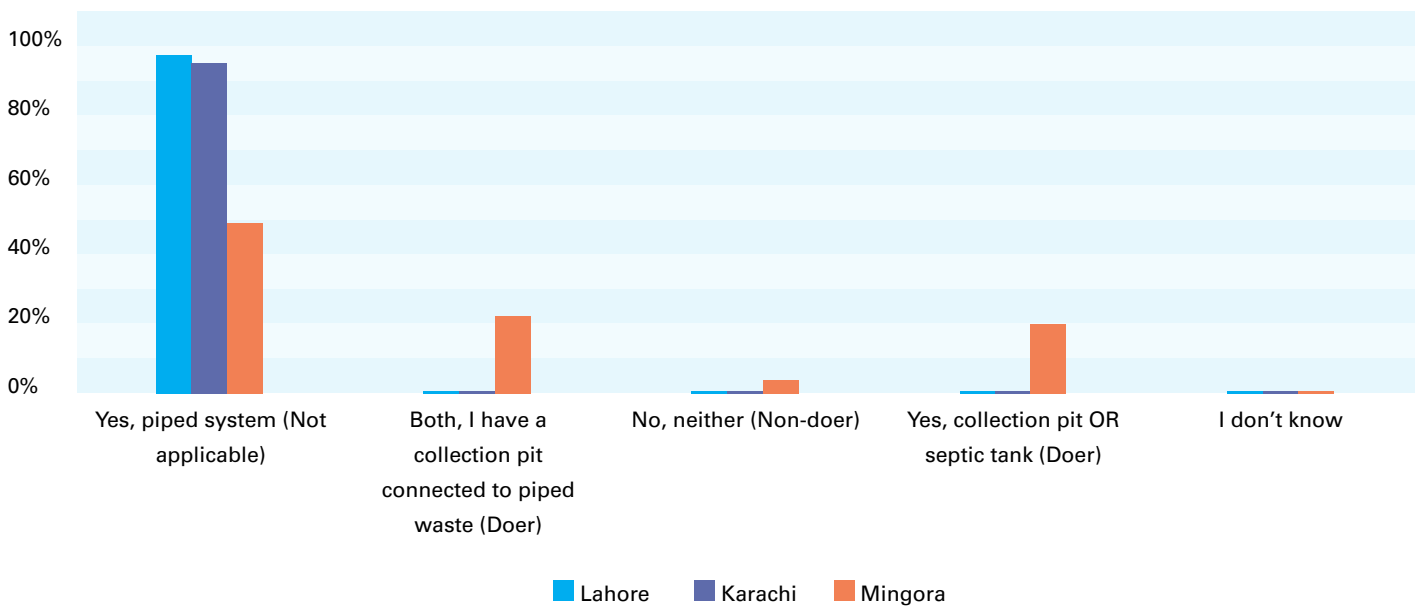


Figure 13. Do you have a collection pit or piped system in your household? By Location

In less urban areas, respondents from Karachi and Lahore also had septic tanks, and in all three locations many mentioned having only open drains. However, as noted above, these are likely not proper, official septic tanks—many respondents in the qualitative research reported not being familiar with the term “septic tank.”

As one male respondent from Lahore described: “The water from the washroom goes into the drains and from there it goes into the fields. There is no system here to divert the wastewater anywhere, so we just direct it to the fields. It also goes into the open gutters or get absorbed during the way.”

Respondents in more urban locations indicated that Karachi and Lahore mainly relied on sewage pipes.

One woman in Karachi noted that the septic tank “doesn’t look good in this modern time.”

This sentiment that septic tanks were old fashioned and no longer used was repeated by other respondents in Karachi and Lahore. In Mingora, respondents mainly using open drains instead.

As one man explained, “We don’t have such facilities like in Swat, Peshawar have. If we make pipes lines with our homes and it break, then no one will come to mend it and all the wastage will overflow.”

For the purposes of the analysis, respondents with a septic tank were considered to be “doers,” respondents with a piped system only were considered as “not applicable,” and respondents with neither were considered

as “non-doers”. 15.5% were doers in the survey, 97% of whom are in Mingora. Only 2.0% are considered “non-doers” for the purpose of the analysis, which is a limitation, given that only these 15 respondents were given the questions tagged for non-doers. These 15 non-doers included 14 men and one woman: and 11 respondents from Mingora, three from Karachi, and one from Lahore. As such, it is important to note that nearly all of the analysis from the survey data in this section is based on respondents in Mingora (as nearly all respondents in Karachi and Lahore fall into neither the doer nor non-doer category, as their piped systems meant they never needed to make the decision that separated doers and non-doers). For this reason there are no primary associations with being a doer or non-doer we have to rely on other associations and wider analysis of the data.

Secondary Determinants

Capability	Opportunity	Motivation
Drivers		
<p>Physical Capability: Skills. Consumers in Mingora generally have the skills in order to be able to install a septic tank themselves.</p>		<p>Reflective Motivation: Health. Consumers are aware of the health and environmental benefits of installing a septic tank, and of managing sewage properly. In Mingora, consumers are likely to see this as the responsibility of the household.</p>
Barriers		
<p>Physical Capability: Cost. In Mingora, many consumers cannot afford the cost of installing and emptying a septic tank.</p> <p>Psychological Capability: In less urban areas of Mingora, consumers are less aware of proper septic tank standards</p>	<p>Physical Opportunity: In Mingora, lack of land means that it can be difficult to find space to construct a septic tank. In less urban areas, there are fewer service providers to install and empty septic tanks.</p> <p>Social Opportunity: In areas where consumers do not currently have septic tanks, there is no social pressure to install one, i.e., there is no social stigma against not having a septic tank.</p>	<p>Automatic Motivation: Motivation. There is limited automatic motivation for installing a septic tank, as this is not an attractive process with immediate rewards, especially for consumers who rent their house instead of owning it.</p>

Table 13. Behaviour 2 Secondary Determinants

Cost - Mingora

Reason for not having a septic tank	%of respondents
The government already took care of it	33.3%
Don't know where to get one/who to ask	20%
No available land	13.3%
Not enough money	26.7%
I don't think it's important	6.7%
Total count	15

Table 14. Why don't you have a septic tank?

When non-doers were asked why they don't have a septic tank, the most common answer was that the government already took care of it (Table 9); four of these five respondents were in Mingora. The second most common answer (from four respondents) was that they didn't know where to get one or who to ask; however, given the extremely small sample size, this finding should be treated sceptically. However, among doers (those who do have a septic tank, n=116), 47.4% reported that they installed the septic tank themselves, suggesting that having the physical *capability to do this behaviour is a driver*. As shown in Figure 14, 32% of doers said it was simple to do and 29% noted it was affordable, indicating that they had the *physical capability to take this action*. Indeed, many respondents in the qualitative research—specifically those in Mingora—could easily state the materials required, and several mentioned that service providers are available in the areas.

While only two respondents mentioned that cost is a barrier, in further elaboration, other respondents cited this factor much more often.

As one man from Karachi noted, "It is because it's too costly. We have to dig it up, make it solid by building a concrete wall. There are a lot of other expenses as well. It can cost up to 50-60 thousand. I earn 15 - 20 thousand per month and there are thirteen people in the house. We barely survive." Other respondents quoted similar figures for the cost.

The vast majority of respondents in the second wave of qualitative research had not installed a septic tank because—as noted above—it was not seen as a modern technology and better alternatives (piped systems) were available. Some respondents even suggested that septic tanks were dangerous (compared to the alternative). A man in Mingora explained that "Septic tanks are more harmful because in this case there is a chance of sewerage water get mixed in, but in drain system we can wear masks to avoid the smell and we can also pour water in it."

Physical and Social Opportunity

Another 25.8% said they used a company to install the septic tank, indicating that physical opportunity (in terms of availability of services) is also important. Ten respondents (8.6%) mentioned that several people in the community did it together, indicating that social opportunity is also relevant, nine of these ten were in Mingora with the remaining one in Karachi. As noted above, for each of these data points nearly all respondents are from Mingora. The average cost for installing a septic tank reported by respondents was 10,902 PKR (about 68 USD).

When doers were asked what made them install the septic tank, two-thirds said that it was the only option available where they live. While this answer does not clearly align with the COM-B model, it is worth pointing out that there was of course another option: not install any sewage system at all. The fact that respondents installed anything does suggest that they recognize the consequences of not doing so. Another 39% of doers noted that they installed the septic tank because everyone else was doing it, indicating that social opportunity is an important driver. On the other hand, however, in the qualitative research respondents did not report any social stigma against others who do not have a septic tank – it is recognized that it can be difficult to obtain due to lack of services and cost.

What made you install the septic tank?

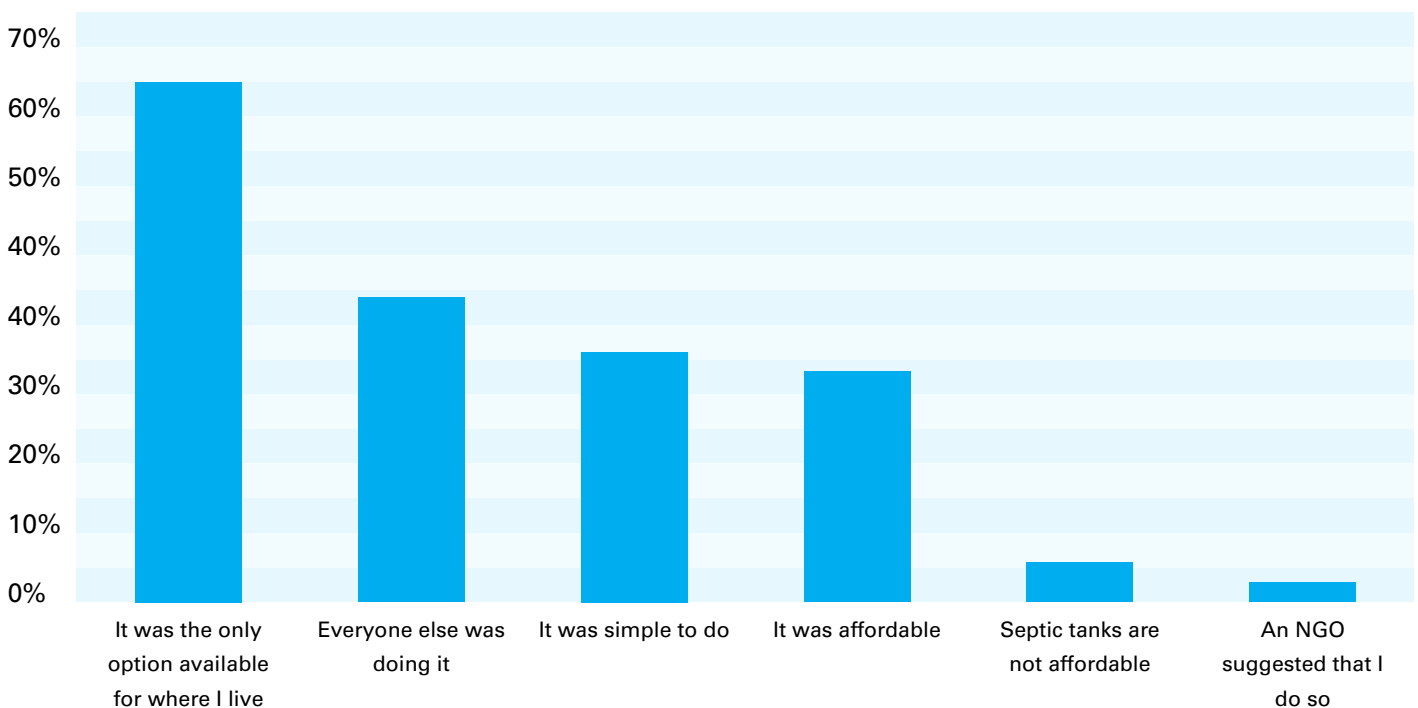


Figure 14. What made you install the septic tank?

Motivation

Respondents who rent their house are less motivated than those who own their house to make improvements to the sewage system or install a septic tank, and presumably instead think this is the responsibility of the owner. However, it is difficult to know if owners would be motivated themselves to make improvements, if they are not currently living in the house. In addition, installing a septic tank is not an attractive process with

immediate rewards, limiting the *automatic motivation* associated with the process.

Health Benefits

All respondents (for this question, respondents who had a piped system were considered doers) were asked about the consequences of not having a collection pit or piped system, i.e. the consequences of dealing with raw sewage. Both groups mostly commonly cited sickness, and in the qualitative research, respondents were emphatic about the extensive negative consequences of improper sewage management. This suggests that respondents are aware of the negative consequences, and thus have the *reflective motivation to engage in the behaviour*.

Non-doers were more likely than doers to cite several consequences, including risk of polio, social stigma (for drinking water and insects, non-doers were also more likely to give this answer than doers, but the difference is not statistically significant). As a male respondent in Karachi noted, "Little kids running around would sometime get their hands and feet dirty and are exposed to the filth. We already have a lot of digestive problems and the very air we breathe is completely contaminated and the germs could get plenty of them sick." One respondent also mentioned the financial implications of not having a sewage system: "This turns out to be a huge problem and even cuts our monthly budget short. It takes 6 Thousand rupees to have our chambers cleaned by the KMC service and is needed to be done after every 6 months. This costs a lot more than sewerage system" (Female, Karachi). In addition, it was commonly noted that rainfall made the problem worse. Rainfall and the monsoon season were also mentioned by respondents in Karachi and Lahore the second round of qualitative research as a factor that made sewage drainage through pipes and gutters dangerous because of overflowing.

Notably, in the qualitative research, some responses also mentioned, as a negative consequence, that women had to defecate in the field, which is "very shameful" (Female, Lahore) and "discouraged in our society" (Female, Lahore) (while lack of a septic tank does not necessarily equate with lack of an improved latrine, there is likely a correlation).

It is somewhat unexpected that non-doers were more likely to cite these consequences: the hypothesis tested through this question is that doers are motivated to do the behaviour (and that lack of awareness of consequence is a barrier for non-doers) because they are more cognizant of the consequences; however, it seems in this, case non-doers are more aware of the consequences—perhaps because they likely deal with raw sewage on a regular basis, while doers do not. This emphasises the fact that knowledge is not a barrier, these respondents are fully aware of the consequences of their actions, but other aspects prevent them from being a doer. On the other hand, 33% of non-doers compared to 9% of doers reported that there are no consequences, indicating that perhaps doers are more informed in the end. This suggests that lack of awareness of

consequences is not necessarily a barrier for non-doers.

**What are the consequences of not having a septic tank or piped system?
That is, what are the consequences of dealing with raw sewage?**

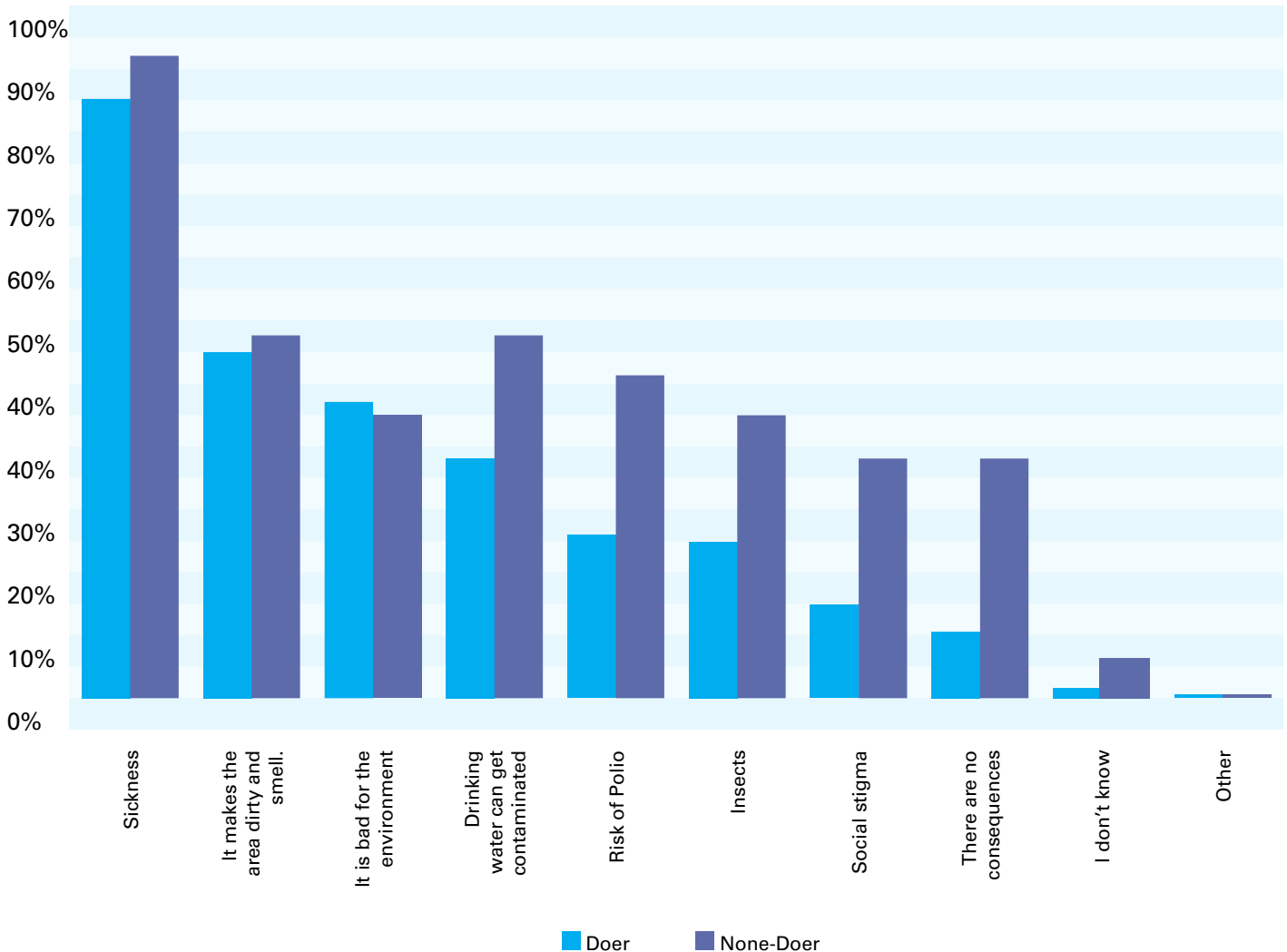


Figure 15. What are the consequences of not having a septic tank or piped system? That is, what are the consequences of dealing with raw sewage?

The survey data did show a difference in responses by location: respondents in Mingora were more likely than those in Karachi and Lahore to mention most of these consequences (this is somewhat expected, as most non-doers are from Mingora), including social stigma, it makes the area dirty and smelly, insects, it is bad for the environment, and drinking water can get contaminated; however, respondents in Mingora were also more likely to mention that there are no consequences (23%). Yet, in the qualitative research, respondents from all areas did not hold back in their recitation of the negative effects of improper sewage management.

Reflective Motivation

Respondents seem to have a strong understanding of the consequences of not emptying the tank (disease, smell, and insects), which does motivate respondents to improve the sanitation situation in their household/ community. However, in the absence of disease, smell, or insects, improved sanitation is not a priority.

Doers (n=116) were most likely (46.6%) to report that it was either the household’s or their personal

responsibility (and in particular the responsibility of men) to dispose of sewage properly (including by emptying the septic tank), while 35.3% said it was the responsibility of either the national or provincial government. One female respondent from Lahore explained that “Politicians needs to take care of that, and they must think of such people. Those households have no resources so they can’t do anything.”

Only 4.3% of respondents said that it was the community’s responsibility. This limited mention of the community is supported by some respondents from the qualitative research who were quite critical of the community’s ability to support one another: “Everyone is on his own. We don’t care about each other. I think it is the duty of politicians who get our votes” (Female, Karachi). On the other hand, some respondents suggested that, if needed, in very poor areas, community members would support each other: “Some are even more poor who don’t even have holes dug up, so they’d work it out with someone else on shared basis and would have the waste removed after 2 to 3 years from their tankers” (Male, Karachi).

This split between the household and the government is also reflected in respondents’ judgement of why some people don’t dispose of sewage properly (this question was asked to all respondents, n=750). While there were not statistically significant differences between doers and non-doers for this question, slightly over half of both groups reported that the government should be taking care of sewage disposal, indicating that responsibility for proper sewage disposal is perceived to lie with the government. Along the same lines, 28% of respondents said that household who don’t properly dispose of sewage don’t have the money to do so—again placing the responsibility outside individuals, i.e. on environmental factors.

Social Opportunity

In response to the same question mentioned above—why some people don’t dispose of sewage properly—61.6% of respondents chose an answer (they don’t know better – 34%; they don’t respect the community – 11.2%; they are bad people – 16.4%) that suggests there *is social stigma, and that the responsibility lies in individuals and personal behaviour*.

Does the city government do everything it should in terms of helping families get rid of household sewage?

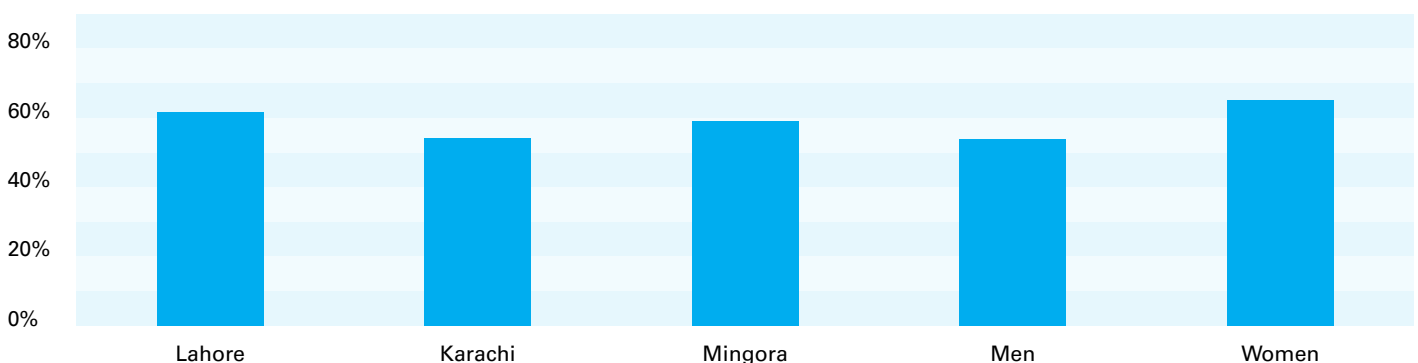


Figure 16. Does the city government do everything it should in terms of helping families get rid of household sewage? Disaggregation

Respondents in the qualitative research had mixed opinions about those who are not able to dispose of sewage properly, with some clearly noting they are stigmatized (“they are just careless people” – male, Karachi), and others giving families the benefit of the doubt (respondents seemed to also be referring to lack of latrines, rather than specifically the lack of a septic tank and improper sewage disposal). In the latter case, poverty is the main explanatory factor, and some respondents expressed sympathy for those who can’t afford a sewage system: “We sympathize with them as they can’t afford proper sewage system. We feel bad that they face trouble and have to go out to the fields. In this way they get exposed which is even against our religion. So we

don't feel good about it" (Female, Lahore).

CONSUMER EXPERIENCE ACCESSING SERVICES

The two main touchpoints when consumers interact with service providers for sewage services (within the scope of this project) are 1) installation of a septic tank, and 2) emptying of a septic tank. As mentioned above, a plurality (47.4%) of doers report that they built the septic tank themselves, but 25.8% said they had used a company to do so (thus interacting with private service providers). Respondents in the first round of qualitative research did not often mention relying on companies to install septic tanks, and there were generally not municipal services available in the areas where the first round of FGDs was conducted.

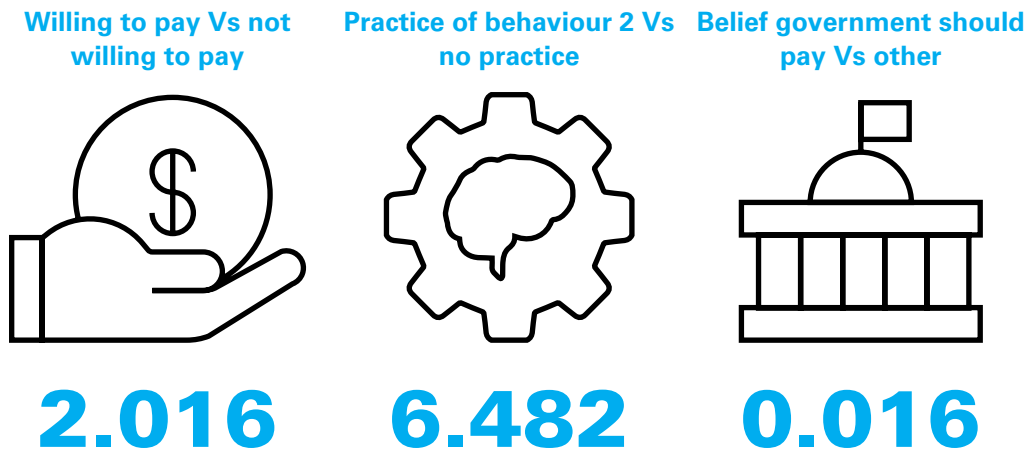
Emptying of the septic tank is infrequent; when it does happen, in two-thirds of cases the emptying is done by a worker, and in one-third of cases by a mechanized company. One-third of respondents think it's the government's responsibility to empty their septic tanks. Many respondents from the qualitative research mentioned that "sweepers" helped to removed sewage from septic tanks and open drains; sweepers are paid for this work (one respondent in Lahore referred specifically to "Christian sweepers"). Most people seem satisfied with the work of the sweepers, though one man from Karachi noted that "And the sweepers are very moody if you pay them extra, they improve their quality of service."

Respondents from more rural locations, in all three areas, mentioned that the government was responsible for providing sewage services and maintenance, but many complained about the service provision. A man in Karachi explained that "Sewerage system is not good in my area, the gutter fills up every other day, then everyone suffered, and it becomes difficult to come and go, diseases spread rapidly, and I have a gutter in front of my home so when it boils, we have to face a lot of problems." It was mentioned by the men that an area counsellor in Karachi is responsible for the service provision and addressing complaints but was not very responsive: "He just came when he wants to collect vote from our area. Make videos while doing work in our areas and go, the work stays the same." Even when complaints are finally addressed, the quality of the work is not satisfactory, and requires additional community action "After submitting too many applications, one worker came, he just do his duty casually and go. In the end, we all locals collect money with our neighbours and fix the things by our own" (Male, Karachi). Women in Karachi were slightly more positive, noting that the Karachi Metropolitan Corporation (KMC) was responsible for service provision and that "The lines are fixed properly by government." One woman gave an example of complaints being submitted in aggregate, through unions: "We have unions in apartments, and we submit our complaints to the Union and union Councillor forwards it to the relevant authorities."

In Lahore, WASA was mentioned as the responsible party, but respondents were not pleased with the service: "Even WASA is not taking responsibility of anything. We don't have a proper sewage system...We are required to pay a lot of utility bills but there is no result" (Female, Lahore). There was also a perception in Lahore that individual complaints are not taken seriously, and issues are only addressed if they are reported by multiple people. The women in Lahore mentioned that "It is our responsibility to ensure it is carried away properly and the pipes do not leak anywhere." One woman even recounted an embarrassing incident when a plumber came to fix the sewage system: "I got really embarrassed in front of the plumber that I thought we spread so much dirt in the surroundings and we should be cleaning that, not the plumber. We should not have something like this." This embarrassment signalled that she considered it her own responsibility to keep the area clean and felt bad when others had to address the issue.

BEHAVIOUR 3: CONSUMERS KEEP THE ENVIRONMENT AROUND THEIR HOUSE FREE OF UNCOLLECTED SOLID WASTE

Below are the primary determinants and their associated odds ratio. The odds ratio represents how much more likely the first category is to practice the behaviour than the second



94% of respondents indicated that they disposed of their solid waste in community collection sites outside of their homes. It is common across all demographics, age, education, income and marital status, with a significant but small decrease in Mingora (88%). Respondents reported a high awareness of the hazards of solid waste to their health and to the pleasantness of their environment. Many people comment on the bad smell, presence of insects and disease that solid waste can cause.

Primary behavioural determinants

Capability	Opportunity	Motivation
Drivers		
	<p>Physical Opportunity Behaviour 2. Those who are doers of behaviour 2 are significantly more likely to be doers of this behaviour</p>	<p>Reflective motivation Willingness to pay. Those willing to pay for the service, if affordable, are significantly more likely to be doers.</p>
Barriers		
	<p>Physical Opportunity Government should pay. Those who indicate that the government should pay for the service are significantly less likely to be doers</p>	<p>Reflective motivation Willingness to pay. Those not willing to pay for the service at all are significantly less likely to be doers.</p>

Table 15. Behaviour 3 Primary Determinants.

Willingness to Pay

P-value of <0.020 X² of 5.383; OR = 2.016	Doer	Non-Doer
Willing to pay	61% (428)	44% (20)
Not willing to pay, regardless of cost	39% (276)	56% (26)

Table 16. Willingness to pay significance.

Being willing to pay is equally common among doers and non-doers but the other two options both saw significant associations with being a doer or non-doer. Those who were willing to pay if it was an affordable price were more likely to be doers. The caveat of affordability makes it a considered condition rather than just aspirational and is much more likely to be associated with a desire to deal with the problem in the respondent. It is assessed that this is likely to be the cause of the association. Those who are seriously motivated to address their solid waste disposal problems are more likely to have a serious, budgeted solution. It is assessed that the willingness to pay here is more associated to the motivation of the respondent to deal with the problem than their financial situation as there is no association to income level.

Women were significantly more likely to choose, not willing to pay for rubbish disposal, with 49.7% of women choosing this option in contrast to 33.9% of men. Based on the assessment in the previous finding, that this is a representation of motivation, it would follow that women are less motivated to dispose of their rubbish correctly. Many female respondents talked about the increased restrictions on their movement, particularly in more rural locations, this could account for a reduced awareness of the problem and therefore less motivation.

Behaviour 2 – Disposal of Liquid Waste

P-value of < 0.001 X² of 15.007; OR = 6.482	Doer	Non-Doer
Behaviour 2 doer	98% (691)	89% (41)
Behaviour 2 non-doer	2% (13)	11% (5)

Table 17. Behaviour 2 significance by doer.

Those who are doers of behaviour 2, disposal of liquid waste, are more likely to be doers of this behaviour. There is no association with the other behaviours suggesting that consumers think of waste disposal in similar terms. Indeed many respondents used similar language and comments to refer to the two behaviours, expressing concern for improper disposal beyond their homes, but not taking responsibility for it. It is assessed that the same drivers found in behaviour 2 apply to this behaviour resulting in this association. The consumers are concerned with the health implications of improperly disposed waste but have limited capability and opportunity to do anything about it. Programmes that address disposal of liquid waste could double up with solid waste as they are associated behaviours.

Government Financial Assistance

P-value of 0.016 X² of 5.768; OR = 2.984	Non-Doer	Doer
Government should pay for removal of rubbish	60% (12)	34% (94)
Government should help in other ways	40% (8)	66% (183)

Table 18. Government Financial assistance significance by doer.

Non-doers are more likely to expect the government to pay for the disposal of rubbish. This option had no association to income but was significantly more common in Mingora (55% compared to Lahore, 30% and Karachi, 26%). It is assessed that this is an indication of opportunity, many respondents from Mingora mentioned relying on private street sweeps and collection services due to the unreliability of the municipal services. Without suitable government services the respondents are more likely to indicate that the government should be more responsible for this service by paying for it.

Secondary behavioural determinants

Capability	Opportunity	Motivation
Drivers		
	<p>Social opportunity</p> <p>Gender. Men are significantly more likely to be responsible for this task.</p> <p>Gender and distance. Women are significantly more likely to be restricted by the distance to the collection site.</p>	<p>Reflective motivation</p> <p>Health and cleanliness. People value cleanliness, both to prevent the consequences of its absence and for pleasure of its presence.</p>
Barriers		
<p>Physical capability</p> <p>Quality of service. The ability to control the situation beyond the community drop off point is limited to paying more money or burning the solid waste.</p>	<p>Social opportunity</p> <p>Empty lots. Empty lots create an environment that encourages improper disposal of solid waste</p>	<p>Reflective motivation</p> <p>My house – my responsibility. The high rate of practicing this behaviour seems to be limited to the confines of the household where it becomes the governments problem.</p> <p>Automatic motivation</p> <p>Not my house – not my responsibility. Rental or multi-occupancy residences are less likely to make the financial or social investment in maintaining good practices that do not benefit them</p>

Table 19. Behaviour 3 Secondary Determinants.

Gender

P-value of <0.001 X² of 68.113; OR = 6.633	Male	Female
Rubbish disposal is my responsibility	32% (142)	7% (20)
Rubbish disposal is my spouses, children, governments or others responsibility	68% (304)	93% (284)

Table 20. Gender significance by doer.

Men are significantly more likely to be named as responsible for the disposal of rubbish by both men and women. Some respondents mentioned that limitations on the freedom of movement of women limited their ability to dispose of rubbish properly and indeed, as is shown in the next finding, they are more likely to feel that the collection point is too far away. It is also possible that if the rubbish is disposed of on a daily basis and has to be carried some distance to a collection site, the physical requirements of the task favour the man's responsibility. Unlike collection of water it can also only require transportation in one direction and therefore is more conveniently done as part of a commute to work.

Distance and Gender

P-value of <0.001 X² of 23.199; OR = 2.174	Female Doers	Male Doers
Collection site is far	44% (127)	26% (110)
Collection site is close	56% (162)	74% (305)

Table 21. Distance significance by gender.

Female doers are more likely to indicate that the collection site is far away. This is assessed to be an indication of the perception of the distance rather than an actual measure of it. It is unlikely that there is any difference in the actual distance from a male respondent to a female distance. This difference in perception could be caused by the limitations on movement of physical requirements discussed in the previous section. The finding is reinforced by the female non-doers being more likely to indicate that the distance to the collection site is the reason they do not dispose of their rubbish. A third of women indicate this option as opposed to just 6.5% of men.

Quality of Service

Why don't you take your household rubbish to a community collection point

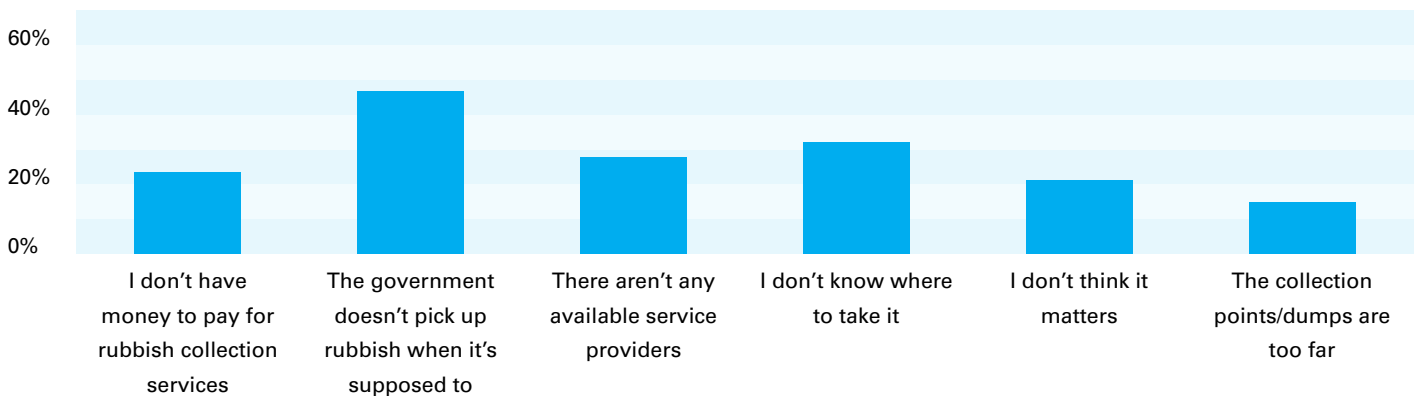


Figure 17. Why don't you take your household rubbish to a community collection point?

The main complaint made about the solid waste collection service is about the reliability of the service. Respondents regularly mentioned that street sweepers or collection trucks came on an irregular basis and sometimes not at all. The build-up of solid waste at collection points caused by a collection truck not turning up quickly becomes a concern to the community. Many respondents commented that within two to three days the collection site becomes intolerable and some then resort to the only opportunity they have, to burn the solid waste. One respondent said that even within the confines of the Karachi they would burn the solid waste at a collection point after just a few days without collection. The unreliability of solid waste collection services is exacerbated by low level corruption. Several respondents said that municipal services would prefer to work on private contracts as it makes them more money. Some indicated that they encouraged street sweepers to clean in their areas by giving them extra money as a tip for attending to their street as a priority. Although in these comments it is not clear from the transcripts that these are municipal services or private ones.

Figure 18 shows that quality of service is the main complaint made by respondents when asked why they were not satisfied with their collection service.

It is hard to separate reliability from quality and therefore it does not undermine the findings from. Indeed, they shed further light on the issues relating to quality. Many respondents talked about the solid waste that is left or spread during the collection process, with one respondent stating that they had to burn what remained after the collection company had been. The solid waste appears to be dealt with in a responsible and careful manner as far as leaving the house, however once it reaches the collection point there are serious issues with how it is processed further.

Why are you not satisfied with rubbish collection service?

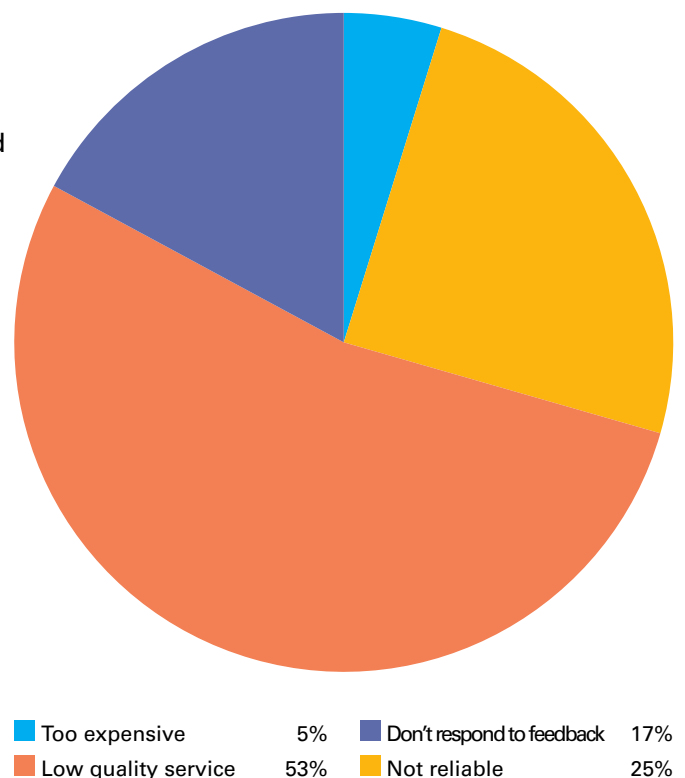


Figure 18. Why are you not satisfied with solid waste collection service?

Cost

The cost of the service was not listed very highly, among non-doers, as the primary reason for not engaging in the behaviour, however as respondents elaborated further it became clear that it was a factor in gaining more reliable, better service. Many respondents indicated that they had to pay for additional services such as private collection trucks or street sweepers. As indicated previously there is a willingness to pay for this service shown from the survey data however the collective feeling throughout the FGDs and KIs is that anything more than the minimum required to keep their household clean is prohibitively expensive. Accusations of corruption were made by some respondents who told stories of giving tips to street sweepers or collection drivers to ensure more regular attendance. It is not clear whether these payments were made to municipal workers as a bribe or were supplementary payments to private service providers.

Cleanliness

There is a very strong message from respondent's verbal accounts that people care about the cleanliness of their household. There are several comments about the problems with having to keep solid waste inside for even a day. The extremely high rate of doers is testament to how communities feel about the storage or disposal of solid waste within their homes.

Community Pressure

Throughout the surveys, respondents tend to be forgiving of other community members not adhering to good WASH practices, with solid waste however, many respondents said the disposal of solid waste caused arguments and even fights within the community. These are particularly caused by people disposing of their solid waste outside of other people's houses. This is even more prevalent in rented or shared accommodation where one person disposing of their solid waste outside their property affects other people directly. Many people reported that complaining had little effect in changing these behaviours. In one of the FGDs a respondent said they had invited a non-doer into their house to talk to them about their behaviour but that it had no effect stating, "they are basically bad people and have no respect for their social duty".

Among those who dispose of their solid waste correctly there is a feeling that non-doers are not educated or can't afford to keep their property clean. This infers some social stigma, that people think less of those who do not dispose of their solid waste correctly. Among non-doers there is a strong feeling that it should be the government's responsibility to dispose of the solid waste and therefore the non-doer is not to blame. This is to be expected from non-doers as they are unlikely to stigmatise themselves.

Only my House is my Responsibility

Figure 19 shows that the majority of service providers are municipal services provided by local government. There is a private element present in both Karachi and Lahore. The large number of people who indicated that they do not know who collects their solid waste shows the disconnect that consumers have at the point that they dump their solid waste. There is little awareness of what happens to it afterwards. This points to consumers not being engaged in the process nor having tried to hold the provider to account at any stage. This is explored further in the barriers where it is clear that the motivation driven by personal responsibility ceases as they leave the house.

Who collects the rubbish from the collection point?

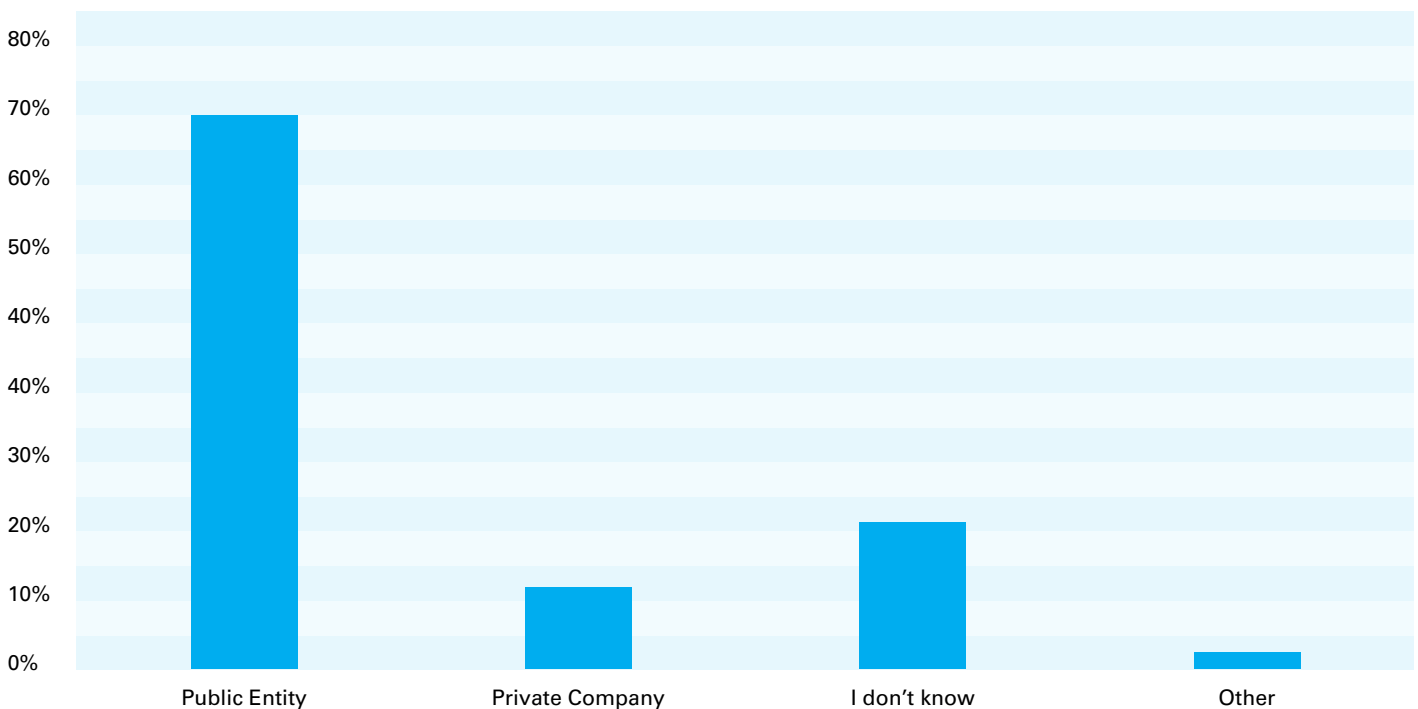


Figure 19. Who collects the solid waste from the dump? By Location

As discussed in the previous paragraph, respondents are driven to keep their household clean, they are doers. They ensure that solid waste is not left outside or inside their property. Indeed, in the qualitative surveys some respondents indicate that keeping solid waste inside the house for even one day is not desirable and is something to be avoided. The problem occurs beyond the walls of the compound where they no longer see it as their responsibility. Part of the problem is that solid waste is not dealt with well by the municipal and private services, leaving waste to be spread by environmental factors such as the weather and animals. The community is not happy with the end result; evidence from survey answers show that when the situation gets bad enough a community will come together and either pay for a private service to collect the left solid waste or burn it. There is also evidence of the will to address the problem, with 60% of respondents willing to pay additional money for the proper disposal of their solid waste. But there is a disconnect between the will and desires of the community and their actions. Evidence from the FGDs suggests a reason for this disconnect; the feeling of personal responsibility ends at the edge of their compound.

Rental Properties and Shared Accommodation.

This barrier was briefly discussed under behaviour two where lack of ownership prevented long term investment in a WASH infrastructure. With this behaviour it is more about short term benefit, but the effect appears to be equally as prevalent. Although there is no way to disaggregate by property type or ownership in the survey data, the survey respondents regularly comment about multi-occupancy buildings or rented properties being non-doers. Without this disaggregation, it is hard to tell whether this is merely a perception, but it is common enough throughout the KIIs and FGDs that it is likely to be true. The rationale for this correlation, according to the respondents, is related to the motivation of the occupants to feel personal responsibility for their property.

As identified multiple times throughout this study, ownership of a problem is more likely to result in proactive, doer behaviour. Tenants are not likely to feel the same amount of responsibility for their property. It is likely that the condition they accepted the property in will strongly anchor the accepted standard to be maintained. This is also the same for multi occupancy buildings where other residents who are not doers are likely to create an environment that discourages proper solid waste disposal. Without further data evidence it is harder to

speculate further but it is likely that renting a property or living in a multioccupancy building are likely to reduce the likelihood of practicing doer behaviours.

Empty Lots

The survey defines a doer as someone who takes their solid waste to a community collection point or dump. It relies on the respondent’s definition of what a community collection site is. The survey data has a very common theme of collection sites being self-nominated by the community, usually in an empty lot. As far as the service provider is concerned a collection point is where a large metal bin is located allowing solid waste to be contained and easily collected. The difference between these two definitions is important. A common complaint by respondents is a small amount of dumped solid waste becomes a social opportunity for others to dump their solid waste at this location too. Without the container to keep it in one place it is more likely to be scattered by environmental factors and less likely to be collected by service providers.

Uncollected rubbish, improperly disposed of bags and other minor issues create an environment that is likely to encourage others to incorrectly dispose of their rubbish in this way. It creates a socially acceptable opportunity to practice behaviours that you would otherwise not, knowing them to be wrong. In this way, vacant lots become informal dumping grounds, each respondent feeling that they are doing their duty by taking it to the communal location. The power of social consensus is well understood within the EAST behavioural framework and Cialdini’s principles of persuasion.⁹ It can overcome direct formal instruction and logic and here is likely the cause of non-doers.

Consumer Experience Accessing Services

Are you satisfied with the collection service?

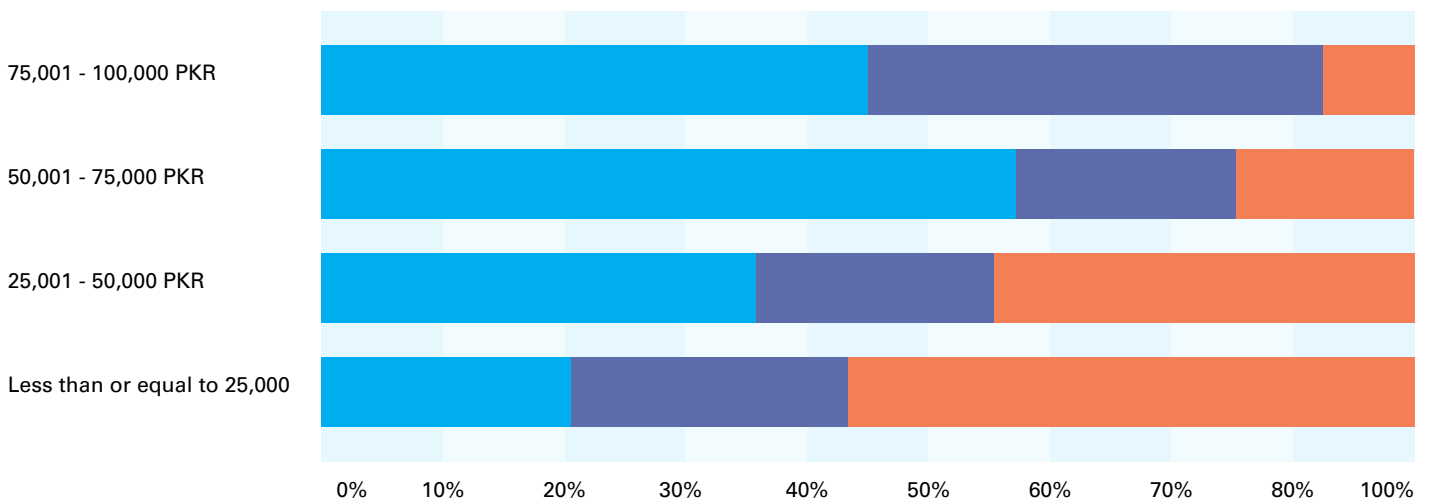


Figure 20. Are you satisfied with the solid waste collection service? By income.

Significantly more people from Mingora (69%) were satisfied with their solid waste collection service with a minority of respondents from Lahore (25%) and Karachi (24%) feeling the same way. In the largest cities the most common response was do not know. The wording of the question was specifically focused on not knowing due to the disconnect caused by just leaving the solid waste at the collection point and having nothing further to do with it. This disconnect is important and shed light on the larger problem of solid waste disposal in Pakistan. Despite 94% of respondents being doers the problem has moved on from the home and is now

9. Robert Cialdini, Influence: Science and practice, 1984

located at the collection site.

Throughout the survey data there is an expectation from respondents that solid waste collection services should operate daily. That the storage of solid waste inside the household or in collection points for more than a few days is unacceptable. This is most likely due to size of family. A large family living in a collective house would generate more solid waste than one internal dustbin could contain. One respondent talked about how if the truck didn't come for two days, on the third day they would go down and burn it all. This expectation is probably bought about by the fact that the solid waste is not adequately stored at the collection points and therefore spreads or putrefies quickly causing the negative environmental conditions that have been such effective drivers in making people doers in the first place. But this is not just a physical opportunity issue. It is also a social one. It is clear that this daily requirement is currently too much for the collection services and the collection points are not adequate to hold solid waste for more than a few days. To increase the consumer satisfaction without improving the regularity of the service provision it is important to either address the external storage of solid waste or to encourage internal storage for a less frequent collection schedule.

Some respondents mentioned the fact that public solutions normally favour more populated or easy to access areas. The areas of very high population density have their own issues exacerbated by a higher number of rental and multi occupancy properties, but low-density areas or back roads also have issues. One respondent talked about how they lived down a narrow alley and the collection truck would not come and collect from their road. Others mentioned poor roads preventing collection trucks coming. In all cases they stated that they felt left out that they had been forgotten. These may represent a minority of cases in a large city, but they were prevalent enough for their voice to be heard through the FGDs.

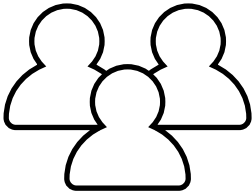
In such cases as the above and in many others where communities felt let down by either their service provider or by other community members there is a strong theme of community mobilisation. The high percentage of doers suggests that the community feeling about solid waste disposal is particularly strong when it affects their immediate vicinity. While community solutions were common in all behaviours, they were mostly out of necessity. Households giving out bore water to desperate neighbours, communities coming together to complain about service providers when the situation became desperate. With disposal of solid waste communities regularly talked about solving fairly minor problems together, for instance one focus group explained that a collection of neighbours paid a street sweeper to come on a regular basis to keep their street clean. When a collection truck failed to turn up one community mobilised to dispose of the solid waste themselves, though they did not mention what they did with it.

It appears with the disposal of solid waste there are drivers beyond the basic requirements of hygiene and safety. People care about the cleanliness of their streets.

BEHAVIOUR 4: CONSUMERS ENGAGE WITH SERVICE PROVIDERS AND ACTIVELY HOLD THEM ACCOUNTABLE FOR PROVIDING QUALITY, AFFORDABLE AND RELIABLE WASH SERVICES

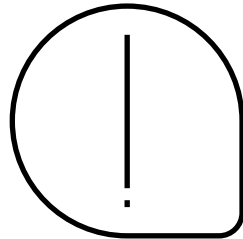
Bellow are the primary determinants and their asociated odds ratio. The odds ratio represents how much more likely the first category is to practice the behaviour than the second.

Community meeting Vs
other modality



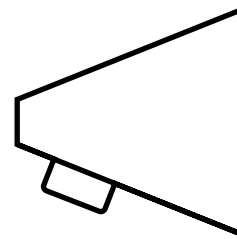
65.659

In-person vs other



1.706

Beleive complaints have
effect vs not



2.005

This behaviour examines the interaction between consumers and service providers from the perspective of a social contract between both parties. Service providers are responsible for providing quality, affordable, and reliable services to consumers, and consumers are responsible for paying for the service and providing feedback to service providers to support improvements; service providers, in turn, must respond properly to feedback and complaints. Thus, while service provision, including of WASH services, is often seen solely as the purview of service providers, consumers—and consumer behaviour—is also relevant to providing and improving services.

This social contract can present a sort of prisoners' dilemma: if service providers don't provide quality, reliable, and affordable services, consumers may become distrustful and either stop paying, and/or stop providing feedback, feelings their concerns are not considered. In such circumstances—i.e. without full payment and without feedback—it is difficult for service providers to provide and improve services. Thus, mutual trust is needed for both parties to play their role effectively; as the analysis will show, this trust is largely missing in the Pakistan context.

For the purposes of this study, government service providers were the main service providers considered; while other private and informal service providers do operate in the WASH sector in Pakistan, it is UNICEF's mandate to support the government of Pakistan, which extends to government service providers.

Primary Behavioural Determinants

Capability	Opportunity	Motivation
Drivers		
	<p>Social Opportunity: Community meetings. Those who have attended community meetings are more likely to submit feedback</p> <p>How to complain. Those who believe that submitting feedback at the office of the service provider is the most effective are more likely to do it.</p>	<p>Reflective Motivation: Agency. Those who believe feedback has the power to change the situation are more likely to do so.</p> <p>Automatic Motivation: Access to water. Inability to access water was the most likely cause for people to submit feedback.</p>
Barriers		
	<p>Physical Opportunity: How to complain. Those who thought that a formal complaint mechanism was the best way to complain were less likely to be doers.</p>	

Table 22. Behaviour 4 Primary Determinants

Community Meeting

P-value of < 0.001 X ² of 359.197; OR = 65.659	Feedback Doer	Feedback Non-doer
Attended a community meeting	66% (84)	3% (18)
Not attended a community meeting	34% (43)	97% (605)

Table 23. Community meeting significance by doer.

Those who have attended a community meeting are significantly more likely to have also submitted feedback or a complaint. There are two likely reasons for this, supported by respondents' anecdotal evidence. Firstly attending a community meeting creates the social opportunity for a consumer to hold a service provider to account, secondly, it creates the informal connections that mean that consumers know who to approach and

what the mechanisms are. It is assessed that community meetings are a great way to initiate community feedback mechanisms.

How to Complain

P-value of 0.007 X² of 7.342; OR = 1.706	Feedback Doer	Feedback Non-doer
Going to SP office	44% (56)	32% (197)
Other	56% (71)	68% (426)

Table 24. Method of complaint significance by doer.

Further to the last finding, the mechanism of complaint also has a significant effect. Believing that feedback in person, at the office of the service provider is the most effective solution is significantly more likely to result in a respondent being a doer. As was discussed in the previous finding this is likely due to the personal connection made during an in person visit. However there is also the possibility that it has the reverse causation, that those willing to complain are more likely to put additional effort in and go the service providers office to do it. Those who believed that a formal complaint mechanism was the most effective way of submitting feedback were significantly less likely to be doers. The perception of a formal system is assessed to be a barrier for people to complain. Respondents talked about the bureaucracy involved in formal systems and many felt that it was wasted effort as it was unlikely to have any effect. This formal system has the perception of being a barrier that separates the consumer from the service provider and makes submitting feedback less likely.

Agency

P-value of <0.001 X² of 12.826; OR = 2.005	Feedback Doer	Feedback Non-doer
Believe complaints have power to change	54% (69)	37% (232)
Does not believe complaints have power to change	46% (58)	63% (391)

Table 25. Belief in power to change significance by doer.

Simply believing in the effectiveness of feedback had a significant effect on respondents being a doer. Those who believed feedback had the power to change a situation were significantly more likely to be a doer than those who didn't. The causation is shown by further analysis. We can see from Table 26 that those who believe they have the agency to affect the situation have had positive experiences in the past. Where service providers

are actually attending to concerns it is creating a positive feedback loop that encourages future behaviour. However, this still remained a minority of respondents, just 29% of people were satisfied by the response to their feedback. Many respondents talked anecdotally about receiving no response at all from their complaints and a few even mentioned a fear of reprisals from submitting complaints.

P-value of <0.001 X ² of 13.486; OR = 4.798	Satisfied when engaged with the SP	No Satisfied when engaged with the SP
Believe complaints have power to change	80% (31)	45% (42)
Does not believe complaints have power to change	20% (8)	55% (52)

Table 26. Belief in power to change significance by previous experience

So improving the response of service providers will create a positive feedback loop that will help generate more feedback and greater community involvement in their services.

What happened when you did complain?

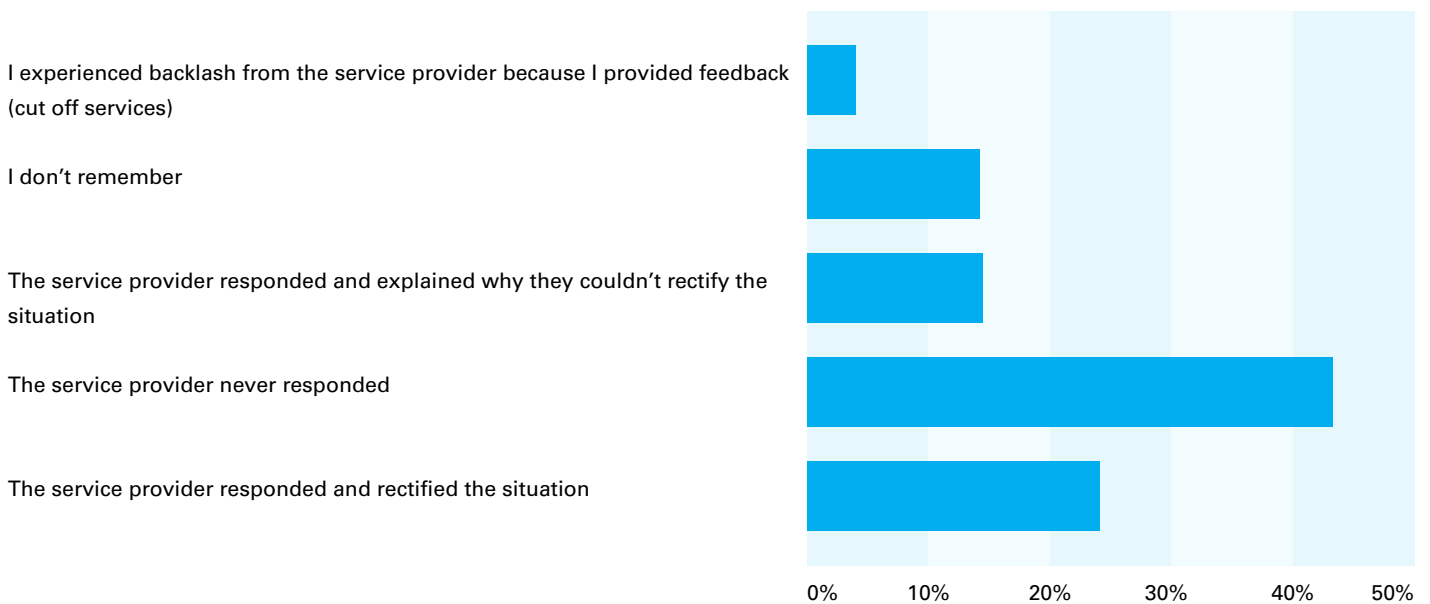


Figure 21. What happened when you did complain?

When respondents (doers) did provide feedback, they reported that the most common response from the service provider was no response at all, cited by 43%. Interestingly, this is nearly the exact same proportion as those who said they didn't provide feedback because they didn't think it would make a difference (43%).

The generally unresponsive attitude of service providers was also noted by many respondents anecdotally. Some noted that service providers often did not reply to their feedback, and several respondents mentioned that service providers and politicians (respondents seemed to conflate the two) only visit their areas to solicit votes, and then do not return to fulfil promises once elected. A man in Karachi explained that "We have tried

our best and have reached out to people as much as we can, but nobody cares, and it would obviously take a lot of money to ensure the quality of what we are supplied. No institution would take care of itself. Quality could only be ensured by giving in extra money which we don't have. This is exactly why we are living here in this poor neighbourhood, just so we could have a roof on our heads." Another man in Karachi was clearly frustrated by the political motives of the authorities: "No one takes the responsibility, they just come to earn vote and after that they don't care about us."

The narrative that services would only be provided—or could only be improved—by paying more was common.

As one man in Karachi summarized: "Nothing comes out from our feedback, because they are basically money driven providers. They need more and more money to provide better solutions. They aren't going to act on our feedback unless they are paid according to that level of quality."

While it is reasonable that payment is required to receive quality services, it is hard to determine whether respondents are unwilling to pay standard fees and expect to receive services for free, or whether they are being asked to pay extra (potentially as a bribe) to receive basic services that they should be receiving for less. The latter hypothesis is supported by some qualitative evidence from Lahore:

as one man explained, "Those who have resources and privilege they treat them well and they don't care about people like us who don't pay them extra,"

suggesting that access to services is determined by both, ability to pay and likely nepotism.

If the SPs could better acknowledge feedback and communicate a response, even if they are unable to solve the problem, it is likely to create this positive feedback loop that will help encourage this behaviour.

Access to water

P-value of <0.001 X ² of 21.731	Feedback Doer	Feedback Non-doer
Could not get safe water	41%	19%

Table 27. Reason for complaint significance by doer.

The most significant reason to complain is inability to access safe water. This is perhaps unsurprising as access to safe water is vital and respondents would be significantly more motivated to complain or feedback about faulty or unreliable water supplies than other aspects. It shows that the motivation to complain is associated to the consumers need for the service provided. As expectation for improved WASH services grows, we can expect to see an associated growth in feedback.

Secondary Behavioural Determinants

Capability	Opportunity	Motivation
Drivers		
	<p>Physical Opportunity: In most cases, service providers offer a number of feedback mechanisms that consumers can utilise.</p>	<p>Reflective Motivation: When consumers do engage with service providers, it is typically because they have a complaint, and can't access essential services.</p>
Barriers		
<p>Psychological Capability: Many consumers aren't aware of formal feedback mechanisms</p> <p>Physical Capability: In Mingora, consumers do not always have enough money to pay for WASH services (or least that is their perception).</p>	<p>Social Opportunity: Providing feedback to service providers and paying service providers is not a strong enough social norm to encourage the practices; the lack of these norms can be considered barriers.</p> <p>Physical Opportunity: In Mingora, respondents were not always given an opportunity to pay by the service provider. In addition, respondents in all locations requested more community feedback mechanisms to assist in providing feedback.</p>	<p>Reflective Motivation: Consumers do not believe that providing feedback to service providers will improve service. Many consumers also do not think that they should pay, for various reason.</p> <p>Automatic Motivation: Consumers do not have positive experiences when trying to provide feedback to service providers, which discourages them from trying again.</p>

Table 28. Behaviour 4 Secondary Determinants

Which kind of WASH service provider did you attend a community meeting with?

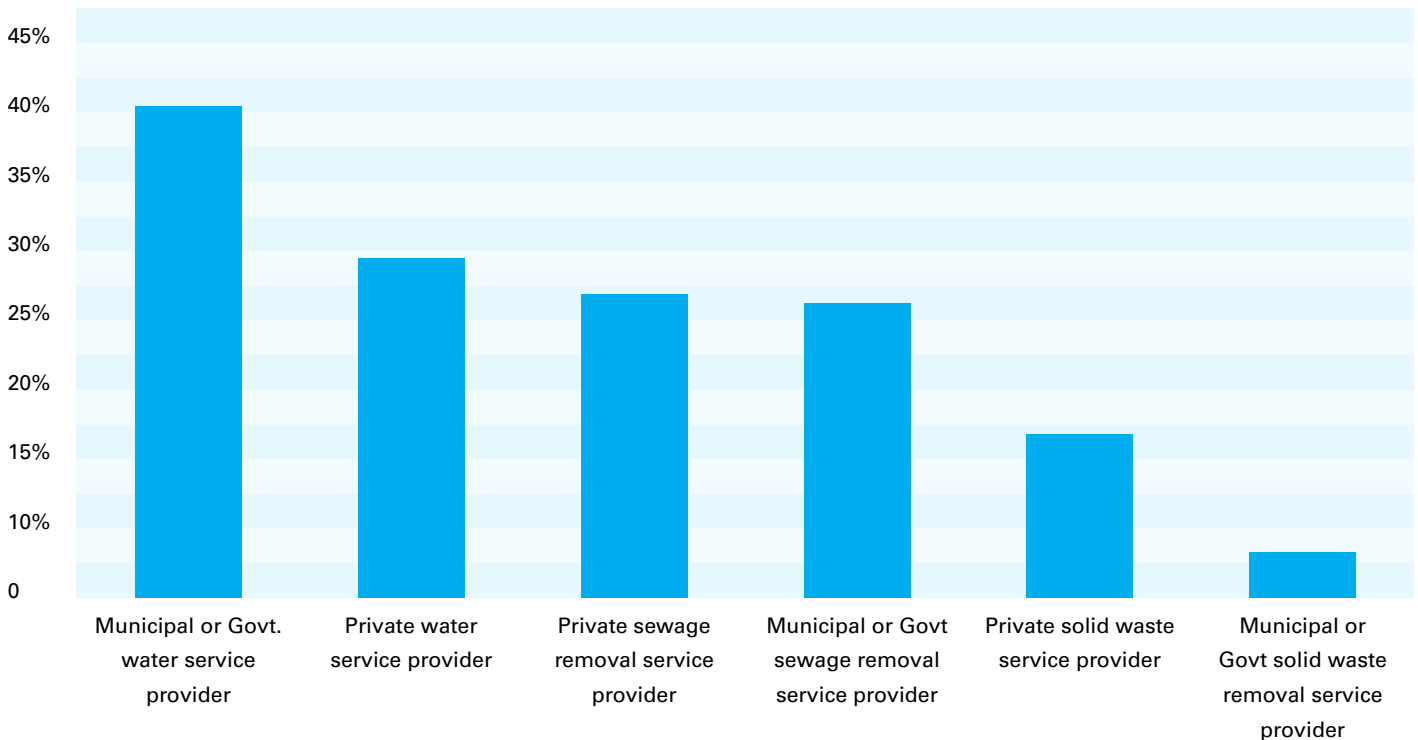


Figure 22. Which kind of WASH service provider did you attend a community meeting with?

Only 13.6% of respondents had ever attended a community meeting with WASH service providers, and 16.9% have submitted a complaint or feedback. Men were more likely than women (19.3% vs 13.5%) to have submitted feedback. Overall, 62.1% of respondents report that they’ve always paid WASH service providers. Older respondents (ages 55-60 years) were more likely than younger respondents to have submitted a complaint or feedback (31.9% vs 14.0%), which is somewhat surprising given that younger respondents would be more likely to use technology, which would provide more options for submitting feedback. However it may be seen that only the head of a household or and elder of the community could complain resulting in this bias.

Of the 13.6% of respondents who had ever attended a community meeting with WASH service providers, the most commonly attended community meeting was with a municipal/government water service provider (41.2%), and in general respondents were mostly likely to attend meetings for water services, followed by sewage services, followed by solid waste removal services.

Any respondents who have attended a community meeting, submitted a complaint or feedback, and have always paid for their services are considered doers for this analysis.

Below, the behaviour of paying service providers is presented first, followed by providing feedback to service providers, which encompasses both attending a community meeting and submitting feedback/complaints more generally.

Paying Service Providers

As mentioned above, overall, 62.1% of respondents report that they’ve always paid WASH service providers, Of the service providers that respondents did not always pay, it was most likely that they did not pay solid waste service providers (23.1%), with about equal non-payment rates for water services (15.1%) and sewage removal services (15.3%). There were some differences between gender. Men were more likely than women to not pay for sewage services, and not pay for solid waste removal services. These association di not extend to paying

for water services. It is assessed that this difference is accounted for by what people deem to be important. Men seem to care less about these additional services but are equally as committed to safe drinking water as the women.

	Men	Women
Not paying for sewage service P-value of 0.017 X ² of 5.747; OR = 1.68 Paid for sewage Services	18% (80) 82% (366)	12% (35) 88% (269)
Not paying for solid waste removal P-value of 0.008 X ² of 7.219; OR = 1.63 Paid for solid waste removal	27% (118) 73% (328)	18% (55) 82% (249)

Table 29. Payment of SP significance by gender.

Reflective Motivation

Motives for not paying service providers are varied, the most common reason was that respondents think the service should be free (39.8%). Often, respondents think that the services (especially water) should be provided by God, or that because they hadn't been paying before, they shouldn't have to pay now. Perhaps more encouragingly, 33.7% of respondents didn't pay because the service providers didn't meet their expectations—indicating that a third of respondents are in fact using payment as a feedback mechanism for service providers. (However, as discussed later, very few respondents think withholding payment is the most effective feedback mechanism). Less encouragingly, 16.3% of respondents said they didn't pay because they could keep receiving the service without paying. This could include through illegal connections to piped water, or not contributing to communal municipal sewage or solid waste services.

Physical Capability

In Mingora, 33.3% said they didn't have enough money to pay for services—higher proportions than in Karachi and Lahore.

As one male respondent in Lahore explained "Everyone is financially restrained. No one has the resources to take out and spend on waste management."

Another woman from Lahore noted that "They are affordable but not reliable. We can't trust them," though a different respondent in the same FGD disagreed: "It is usually not affordable for people like us because we pay for sweepers and buy water from outside. Also we pay the water utility bill."

Men were also more likely than women to say that they didn't pay because they didn't have enough money (27.3% vs 7.7%), perhaps because men are more likely to be in control of household finance. Karachi respondents were more likely to state that they thought the service was too expensive (21.2%).

Social Opportunity

Looking at levels of social stigma against those who do not pay for WASH services, overall, 39.1% of respondents said that people in their community thought poorly of those who didn't pay; while not a majority, this is still a large minority for whom not paying is shameful. Notably, fewer people in Mingora (27.5%), and fewer women (31.6%, compared to 44.2% of men) said that others think poorly of non-paying households. Comparing doers and non-doers for payment, exactly equal proportions of both groups mentioned that they thought poorly of those who didn't pay, suggesting that those who do pay are not specifically motivated by the fear of stigma. Comparing doers and non-doers for attending community meetings and providing feedback, in both cases doers were more likely than non-doers to say that the community thought poorly of those who did not pay for WASH services (57.8% vs 36.1% for attending a community meeting: 55.1% vs 35.8% for submitting a complaint/feedback). This is strong evidence that consumers who interact with service providers are more likely to see non-payment as shameful—and therefore be more likely to pay themselves.

Also mentioned by respondents, in the context of sewage services, service providers can only be pushed to respond to complaints if many consumers together urge them to; individual complaints are not addressed. A man in Karachi explained the necessity of collective action:

"The whole KMC department is corrupt, no one is right... If we file an application and visit their office, you'll see that your application is beneath his table. In the dustbin... around 50 to 60 of us go outside their office and protest. But we can't do this every time, some of us have to go to work, till when we have to do it like this."

This aligns with other findings mentioned above that respondents perceived going to the service providers' office as an effective way to provide feedback, and respondents' perception that community feedback mechanisms would make it easier to provide feedback. Respondents, again particularly in Karachi, also mentioned that service provider action is often delayed.

Similar responses were given by respondents in Mingora, indicating lack of responsiveness when complaints are submitted.

One man noted that "We have complained but tube well is still not working, and bill has to be paid at any cost."

As another male respondent explained, even community leaders in Mingora are unsuccessful at providing feedback:

"The counsellor of our town is as much in trouble as we are. Complaining is of no use and it's not that we haven't tried it. It's just that when the head of our society faces the same problem what good we think will it bring to us"

reiterating the problems he knows everyone faces.”

Respondents even mentioned that WASA staff live in the same areas and experience the same problems.

In general services providers were very confident and optimistic in their ability to receive and respond to feedback; in several cases, service providers quoted response rates of nearly 100%. A representative from WSSC in Mingora stated,

“We get complaints through Pakistan Citizen portal and if you do a background check, you will see how many complaints we have resolved. In fact, in KPK, our organization has the highest number of resolved complaints. ”

A representative from Karachi Water and Sewage Board (KWSB), however, gave a more sober assessment, mentioning that their hotline number and SMS service have not been working lately, and that there is a project underway to improve complaint registration system. The KWSB representative noted that they try to address complaints within 24 or 48 hours, but that sometimes consumers' feedback cannot be fully or properly addressed due to infrastructure limitations. A representative from the Karachi Solid Waste Management Board (District East) said that “obviously” they get complaints and that “complaints are always there.” He explained that “if the garbage is not lifted then the people would make complaints that on this certain place certain location, the garbage has not been collected and you people have not visited this area. These complaints are automatically generated and then we resolve those complaints as soon as possible.” Apparently, the SWM Board uses Chinese contractors (presumably an online or phone-based platform) to help resolve complaints.

A representative from WASA in Lahore mentioned that

“we keep on getting complaints from customers every day and because people have no direct water supply other than WASA so they cannot survive even for one day will if the supply is not coming. So quantity can be a question, but quality over quantity can be a question mark, but quality is not... The average number of quality complaints are around 1400 per year.”

Another representative from the Lahore Waste Management Company mentioned that based on an independent survey conducted, 80% of people are satisfied with the services they provide; however, the aggregate findings presented in this report would suggest a much lower rate of satisfaction.

Psychological Capability

The second most common reason why non-doers did not give feedback was because they didn't know how (33.0%). Only 34.0% of respondents said there were formal mechanisms in place to complain to service providers. Disaggregating by locations reveals that while 50.0% of respondents in Karachi said there were formal mechanisms in place, only 33.3% in Lahore and 19.6% in Mingora reported the same; this pattern matches actual prevalence of submitting complaints, which is highest in Karachi and lowest in Mingora. When asked what would make it easier to provide feedback, presence of a formal mechanism was the top response, mentioned by 37.4% of respondents, including 46.7% of respondents from Karachi; it is likely that Karachi residents' knowledge of formal response mechanisms has encouraged them to cite this as an enabling factor.

However, it is difficult to tell whether this is because there are in fact no formal mechanisms in place, or because respondents did not know about the mechanisms that are in place. The latter is considered more likely, in particular because comparing doers and non-doers reveals that 61.4% of those who had submitted a complaint said there was a formal mechanism in place, compared to 28.4% of those who had not. This suggests that lack of knowledge of complaint mechanisms is real barrier between doers and non-doers.

In addition, service providers mentioned numerous different feedback mechanisms they had available, including email, hotlines, mobile short codes, dedicated mobile apps, social media, WhatsApp, in-person visits, and the Pakistan Citizen Portal. While in at least one cases a service provide in Karachi admitted that some of these channels were not currently working, it is unlikely that there really are no feedback channels available. However, how service providers respond to feedback provided through these channels is a separate issue, addressed below.

Lack of self-efficacy was also mentioned by one male respondent in Mingora (first wave of qualitative research) to explain why his community often did not provide feedback: “We are busy all day, and when we get back from work, we are very tired, so we don’t have much time to talk to anyone. In this country, the poor are always silent and those who see any benefit do everything to achieve their goal. We are people fallen in our wages and poverty, we have never thought about what to do, we are low level people and not have enough worth to talk or convey feed to any organization or political leader.” When asked if “do you just help yourself,” the responded replied that yes, the community took responsibility for their own needs.

While the perception that feedback won’t make a difference—indicating a lack of psychological motivation—may be more difficult to address, not knowing how to give feedback—suggesting a barrier of psychological capacity (i.e. lack of knowledge)—could be more easily addressed.

Physical Opportunity

As noted above, it is unlikely that there are no feedback mechanisms available to consumers. However, it is worth considering whether the mechanisms available are the ones desired by consumers. Respondents in Lahore and Mingora, and men, said that community feedback mechanisms would make it easier to provide feedback. Comparing doers and non-doers, 41.2% of those who don’t attend community meetings vs 26.5% of those who do mentioned that a formal mechanism to provide feedback would make it easier, and 36.3% of those who attend community meetings vs 23.1% who don’t, mentioned having a community feedback representative. This further supports the finding that raising awareness of formal feedback mechanisms would help non-doers provide feedback; at the same time, establishing community feedback representatives would assist those who already provide feedback.

PREFERRED COMMUNICATION CHANNELS

Recognising the intention to use the findings from this study to design a SBCC Strategy, the final research question explored the main media and interpersonal channels through which urban Pakistanis consume messages related to WASH and public health. This information will be used to select trusted and relevant communication channels through which to disseminate any future WASH and public health information to consumers, as part of a future SBCC campaign.

Communication Channels

How do you usually hear about ways to make WASH improvements in your HH?

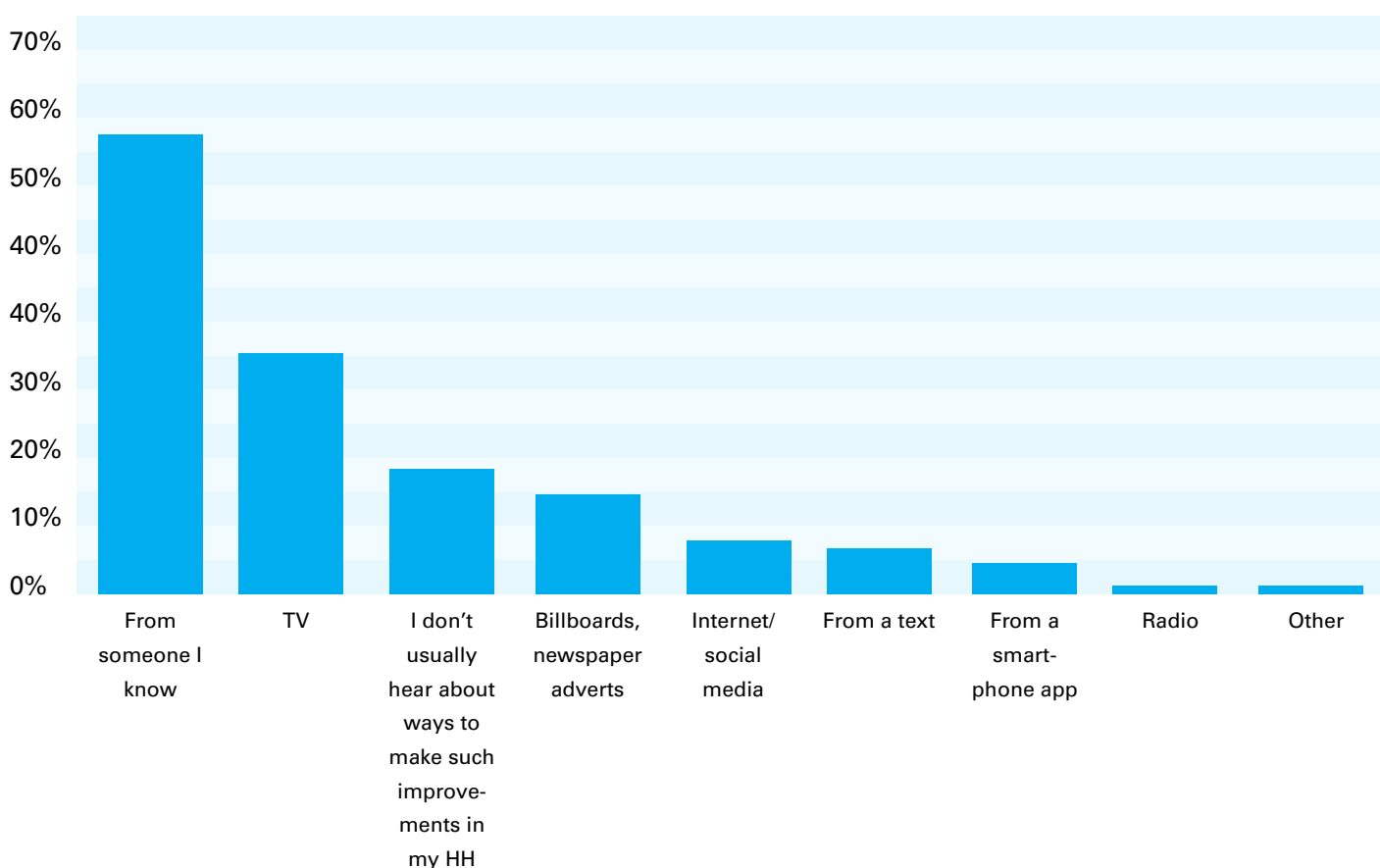


Figure 23. How do you usually hear about ways to make WASH improvements in your HH?

A majority of respondents (57%) said that they usually hear about how to make WASH improvements in their HH from someone they know, and 30% mentioned TV as a source of this information (Figure 22). This aligns with the general media landscape in Pakistan: access to media and communication channels is increasing, but interpersonal communication still remains the most commonly used channel. However, a small but notable minority (15%) of respondents mentioned that they don't usually receive such information, suggesting communication gaps.

There were not consistently notable differences between doers and non-doers for behaviours 1 – 3 (clean water, sewage, solid waste). For behaviour 4 (holding service providers accountable), however, respondents who attended a community meeting were more likely than those who didn't to get information about WASH and health improvements from someone they know (74.5% vs 54.6%), and from internet or social media (13.7% vs 5.6%). In addition, those who attended a community meeting were far less likely to say that they don't usually hear about this type of information (3.9% vs 17.3%). This suggests that attending a community meeting is correlated with having access to more information about WASH and public health. A similar pattern can be

seen between doers and non-doers vis-à-vis submitting a complaint or feedback to WASH service providers (it is very likely there is substantial overlap between those who have attended community meetings and those who have submitted complaints or feedback).

For nearly all communication channels, men were more likely than women to mention that they receive such information through that channel, whereas women were more likely to report that they don't usually hear about such information (29.6% of women compared to 5.8% of men). Respondents with any education were also generally more likely to report that they heard information about WASH improvements from one of the communication channels, while about one in three respondents who were illiterate reported they usually don't hear about this information.

How do you usually hear about ways to make WASH improvements in your HH?

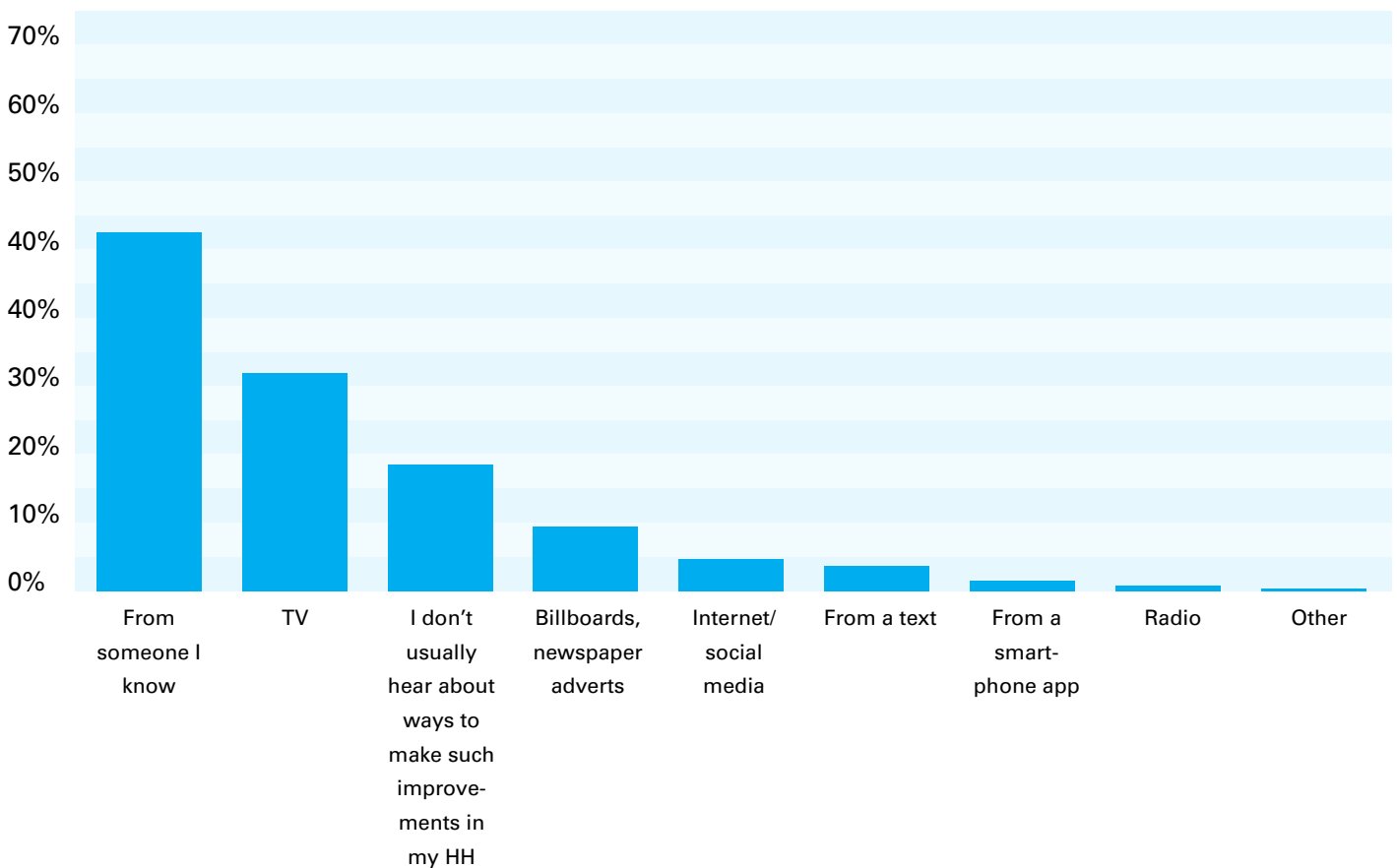


Figure 24. How would you prefer to receive information about WASH and public health?

When asked about how they would prefer to receive information about WASH and public health, answers mirrored the above: a plurality (43%) mentioned from someone they trust, and 26% said from TV. Notably, 15% said they don't want to receive information about WASH and public health (Figure 24), and very few mentioned through internet, social media, or smartphones.

Sources of Information

When asked who respondents primarily received information about making WASH improvements from, most mentioned either family (53%), friends (42%), or community leaders (30%), aligning with the responses above indicating that most people hear this information from someone they know. Notably, only 11% mentioned that they hear this information from the Municipality or WASA. Men were more likely than women to report that they received information from any source, and 25.7% of women said that they don't usually hear about this information, compared to 1.6% of men. Interestingly, non-doers of behaviour 1 (clean water) were more likely

than doers to say they got this information from the Municipality or WASA (30.6% vs 6.2%), CHWs or clinicians (34.4% vs 14.0%), and community leaders (51.6% vs 24.8%). However, doers of behaviour 1 were more likely to say that they don't usually hear about this information (13.3% vs 3.8%).

How do you usually hear about ways to make WASH improvements in your HH?

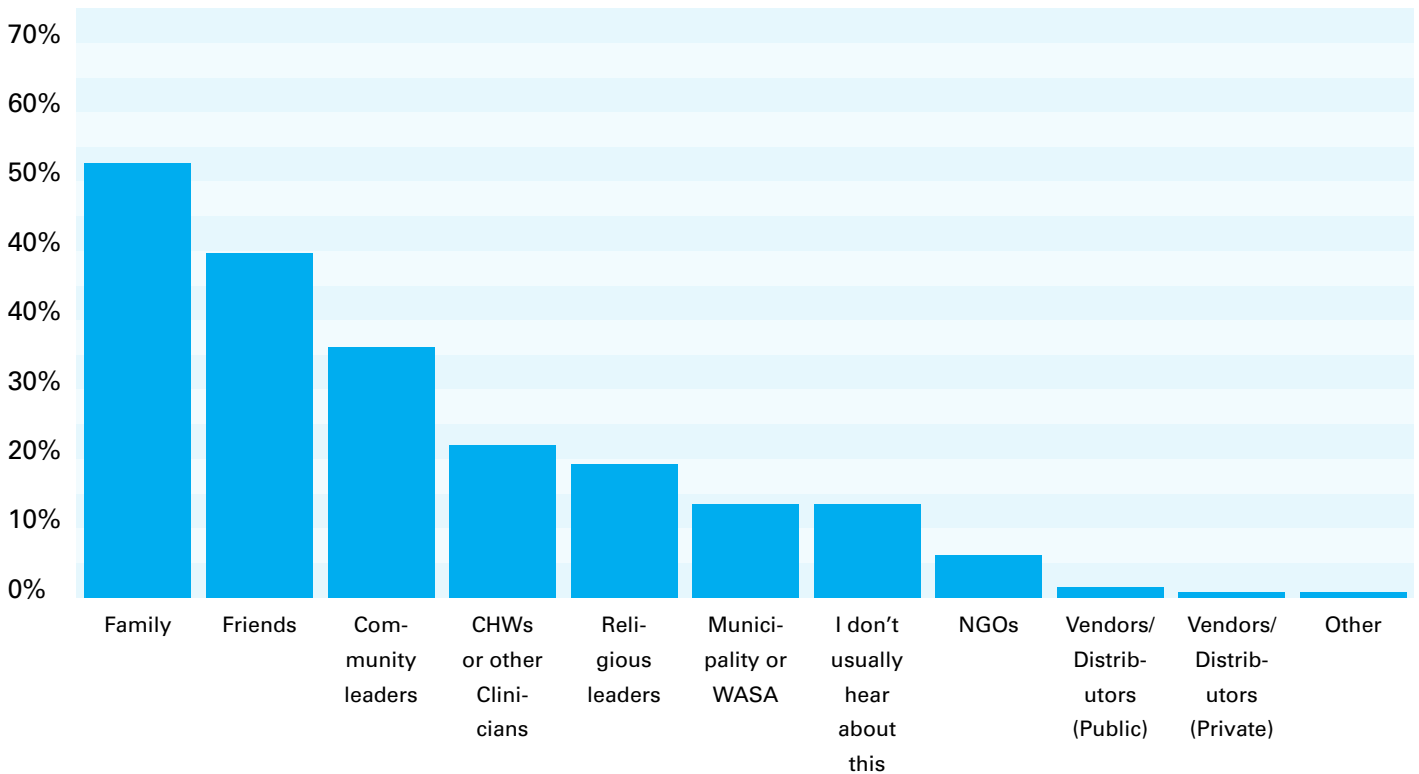


Figure 25. Who do you primarily receive information about how to make WASH improvements in your HH from?

Doers for behaviour 4 (both those who have attended a WASH meeting and have submitted a complaint or feedback) were more likely than non-doers to report they got this information from CHWs or clinicians, or community leaders; in both cases, non-doers were more likely to say that they don't usually hear about this information, again suggesting that attendance at community meetings and providing feedback to service providers is correlated with having more access to WASH information. Comparing results by location show that respondents in Lahore are more likely to rely on religious leaders for this information, though less likely to rely on community leaders. Respondents in Mingora are more likely to rely on CHWs or clinicians, or the Municipality or WASA, but are also more likely to report they don't usually hear about this information. As above, men are more likely to use nearly all of these sources of information than women, and illiterate respondents are more likely to report that they don't usually hear about this information.

When asked who respondents would trust to receive this information from, their answers mirrored who they currently receive this information from: 39.3% said they would trust family, followed next by friends at 15.1%. Only 8.8% said they would trust the Municipality or WASA to share this information. A few gender differences stood out: 47.4% of women vs 33.9% of men reported that they trusted family, and 22.0% of women vs 6.7% of men trust CHWs and clinicians.

CONCLUSION

PRIMARY BEHAVIOURAL BARRIERS AND DRIVERS

This section identifies the key behavioural barriers and drivers, organised by behaviour, that have emerged from the analysis presented above. As an overarching conclusion, this study has found that there is demand among consumers for improved WASH services, as an important behavioural driver is consumers' awareness and knowledge of the negative health and environmental effects of insufficient WASH services. This awareness and demand critical, as it provides a foundation for social and behavioural change communication (SBCC) interventions.

The behavioural barriers and drivers are the key insight in building an SBCC strategy. Each behaviour can be encouraged by highlighting drivers and reducing barriers. The recommendations in this report each take primary determinants and suggest how they can be utilised to form an SBCC. The most prominent findings are around access to safe water and engaging with service providers. An integrated strategy can be developed that addresses both of these behaviours.

Behaviour 1: Households seek clean water solutions for drinking water and personal hygiene

Most people have some access to some kind of safe water source. What is lacking is reliable, easy access to water that consumers can be certain is safe. Ease of access appears to be the greatest barrier and having an established household and a familial network encourages the safe practices that, in particular, single, male economic migrants do not share. To move beyond basic access to safe water, money becomes a significant factor prohibiting many from accessing the safest supplies.

Knowing whether one's water is safe or not is a luxury many respondents do not have. There is evidence that where the reliability of the water quality is known to be low, consumers are likely to treat their water as a precautionary measure, but most people rely on a source that has proved reliable in the past, using their senses to indicate any change in quality

Behaviour 2: Consumers install a septic tank in their household/community

Most people in urban areas in Karachi and Lahore have piped sewage systems, while those in Mingora tend to use a combination of septic tanks, open drains, and pipes to dispose of sewage. Inefficient sedimentation pits, or leaking pipes, untreated sewage is a risk for superficial groundwater, as most private household drinking water wells are tapping this aquifer. Municipal sewage lines are not connected to any treatment plant: they simply shift the problem elsewhere.

There is limited concrete motivation among consumers to make improvements, and in the absence of quality standards, there is minimum incentive to invest more money in better systems constructed by professional builders. Meanwhile, there are several barriers that serve to maintain the status quo. Consumers feel the most responsibility about what's happening directly in their household – once sewage leaves the household and the immediate vicinity; they feel less responsibility. Ideally, sludge treatment should be provided at the end of sewers, and leakages addressed. However, there is also limited motivation among service providers—who are already overstretched—to improve sanitation. Key drivers and barriers for this behaviour are shown in Table 11.

Behaviour 3: Consumers keep the environment around their house free of uncollected solid waste

Consumers care about solid waste: they care about its unsightliness, smell, and its potential to harbour disease and insects. This creates a strong impetus to dispose of solid waste correctly, and many respondents reported that they do this. However, at the point of dropping the solid waste off at the community collection point, it is perceived by consumers to become a municipal problem, and the agency, motivation and capability of the community to deal with the problems caused by poor service is limited.

It is difficult for consumers to care about the cleanliness of their street when the solid waste from collection points continues to spill over and spread back onto it. The community has limited capability to deal with this, with some resorting to burning the solid waste, even in the heart of busy cities.

Behaviour 4: Consumers engage with service providers and actively hold them accountable for providing quality, affordable and reliable WASH services

- There is a discrepancy between consumers' satisfaction with services, and service providers' understanding of consumers' satisfaction; service providers generally overestimate how satisfied consumers are, and how available and responsive their feedback mechanisms are. Consumers' dissatisfaction derives from the perceived low quality and reliability of services, as well as from the perception that service providers are unresponsive, and do not genuinely care about the concerns and needs of consumers.
- There is a correlation between engaging with service providers and both stigmatizing those who don't pay for services, and the belief that providing feedback can be effective. This suggests that engaging with service providers is a mutually beneficial endeavour, for both consumers and service providers.

PREFERRED COMMUNICATION CHANNELS

- Interpersonal channels (especially family, friends, community leaders, and religious leaders) should be leveraged to disseminate information about WASH and public health in Karachi and Mingora, including by encouraging consumers to share relevant information with their family and friends; in Lahore, it is recommended to use TV.
- Information about WASH and public health should specifically target women, given women's current lack of access to such information compared to men, and in order to increase women's interest in this information. There is also a need to focus on Mingora, given that location's lack of access and current disinterest in WASH and health information. For both women and consumers in Mingora, SBCC materials should be designed specifically to address their lack of interest in receiving this information.

RECOMMENDATIONS

Behaviour 1: Households seek clean water solutions for drinking water and personal Hygiene

- SPs, with support from UNICEF, should use behavioural determinants identified in this report to help consumers be more informed about the quality of their water source. An SBCC program can be designed to highlight both the mistaken perceptions of water safety and also the varying standard of single sources. Treatment should be encouraged as standard practice to deal with this uncertainty.
- UNICEF should focus future WASH education on the consequences of ill health and sickness, particularly at the cost implications of not being able to work and therefore the prudence of investing in safe water.
- SPs, with support from UNICEF, should use behavioural determinants identified in this report to develop a communication campaign can be used to change the social norm around personal responsibility for water access. Creating the social opportunity for consumers to take control of the process and therefore seeing the associated increase in behaviour practice.
- UNICEF should work with service providers to consider the behavioural barriers for single working men, installing collected water sources on common commuting routes and providing treatment options that do not require prior preparation.
- UNICEF should work with service providers to consider providing alternative sources in addition to one prevalent source. Due to aging infrastructure and external factors such as rain, sometimes a water source can become unreliable or unsafe. Single water sources can also prevent consumers from complaining as they feel it is the only option they have. Providing more than one type of source allows consumers to overcome both of these barriers.

Behaviour 2: Consumers install a septic tank in their household/community

- SPs, with support from UNICEF, should investigate how positive behaviours can be encouraged beyond the personal responsibility of a household.
- Further research should be conducted specifically about the individual drivers surrounding septic tank behaviours; such as emptying. UNICEF should consider a communications campaign to highlight the benefits of such a system and create a distinction between a septic tank and a collection pit. This behaviour would benefit from the full 360 approach; further research, campaign design and implementation and M&E.

Behaviour 3: Consumers keep the environment around their house free of uncollected solid waste

- SPs, with support from UNICEF, should use behavioural determinants identified in this report to mark official collection sites with a supporting campaign that explains the difference. This will help stop the disconnect between service provider's and consumers' expectations as to the collection service and is also likely to help prevent burning of uncollected rubbish. Service providers should clearly communicate their collection requirements and schedules where possible.

- SPs, with support from UNICEF, should use behavioural determinants identified in this report to design alternative actions to help prevent the burning of uncollected waste. The ability to alert the municipality to the issue before burning becomes required. Further education on the harmful side effects of burning rubbish in cities would also help to at least delay this solution.
- SPs, with support from UNICEF, should consider multi-occupancy and rented residents when communicating with their customers. They are likely to be a significant proportion of residents in the target audience and have different behavioural determinants to others.
- When designing an information campaign, UNICEF can address both behaviour 2 and 3 together as they were shown to be significantly associated.

Behaviour 4: Consumers engage with service providers and actively hold them accountable for providing quality, affordable and reliable wash services

- SPs, with support from UNICEF, should use community gatherings, to encourage participation from their customers. Not only are they likely to be more effective because of the weight of the community but they are also more likely to create doers from their attendees.
- SPs, with support from UNICEF, should acknowledge and feedback on consumer complaints, which will help create a positive experience among consumers creating a positive feedback loop that will help encourage future engagements.
- SPs should use informal, in-person complaint systems, as these are more likely to encourage the behaviour.
- SPs, with support from UNICEF, should use the topic of access to safe water to encourage consumer engagement in the feedback system.
- SPs, with support from UNICEF, should use a positive narrative campaign to remove the stigma that complaints are likely to cause retribution.

ANNEX 1: KEY DESK REVIEW DOCUMENTS

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- Mohammad Qasim¹, Shabbir Ahmad^{2,*}, Saira Akhtar³, Shakeel Imran¹, Kashif Nazir Qureshi¹ “Urban Population Behaviour and Knowledge Assessment about Water Quality, Consumption, and Conservation in Pakistan” *Environment and Ecology Research* 6(6): 525-536, 2018
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- Naeem Ejaz and Nasir Sadiq Janjua, “Solid Waste Management Issues in Small Towns of Developing World: A

Case Study of Taxila City", International Journal of Environmental Science and Development, Vol. 3, No. 2, April 2012.

ANNEX 2 SAMPLING TABLES

Location	FGD		KII		
	Consumers		Consumers		Service Providers
	Female	Male	Female	Male	
Karachi	2	2	10	10	3
Lahore	2	2	10	10	4
Mingora	0	0	9	9	4
Total	4	4	29	29	11

Table 30. FGD and KII sampling table.

Lahore	Karachi	Mingora
Sohail Anwar Malik, Lahore Waste Management Company	Ayoob Shaikh, Water and Sewerage Board, Deputy Managing Director	Mian Shahid, Associate Manager of Operations in WSSC Swat
Zahid Aziz, WASA; CEO of Punjab Water Supply Authority; Head of Pakistan Water Operators Network	Abdul Rehman, Water and Sewerage Board Superintendent Engineer	Shaida Mohammad, CEO in WSSC Swat
Tajwar Saeed, WASA Assistant Director of Social Mobilization	Rehmat Ullah, Solid Waste Management Board, District East Deputy Director	Saifullah, WSSC Swat Manager
Zohaib Butt, WASA Executive Engineer Operations		Muhammad Tahir Khan, WSSC Swat Assistant Manager

Table 31. Service provider KII sampling table.

	Male	Female	TOTAL
Karachi	1 (ages 36-45)	1 (ages 25 – 35)	2
Lahore		1 (ages 36 – 45)	1
Mingora	2 (ages 24 – 35)	0	2
TOTAL	3	2	5

Table 32. Second wave FGD sampling table.

	Female	Male	Total
Karachi	101	139	240
Lahore	100	155	255
Mingora	103	152	255
Total	304	446	750

Table 33. Quantitative research sampling table.

	Female	Male	Total
Karachi	14	15	29
Lahore	13	16	29
Mingora	8	11	19
Total	35	42	77

Table 34. Consumer journey sampling table.

ANNEX 3 DEMOGRAPHIC TABLES

This is a summary of demographic data from the methodology section

Location	Female Citizens						Male Citizens						Total
	18-35 yr		36-50 yr		>50 yr		18-35 yr		36-50 yr		>50 yr		
	Low SES	Mid SES	Low SES	Mid SES	Low SES	Mid SES	Low SES	Mid SES	Low SES	Mid SES	Low SES	Mid SES	
Karachi	3	1	2	1	2	1	3	1	2	1	2	1	20
Lahore	2	1	3	1	2	1	2	1	3	1	2	1	20
Mingora	2	1	2	1	2	1	2	1	2	1	2	1	18
Total	7	3	7	3	6	3	7	3	7	3	6	3	58

Table 35. Wave 1 KII demographics.

Location	Female		Male		Total
	18-35 yr	36-50 yr	18-35 yr	36-50 yr	
	Mid SES				

Karachi	1	1	1	1	4
Lahore	1	1	1	1	4
Total	2	2	2	2	8

Table 36. Wave 1 FGD demographics.

Location	Gender	Age	SEC1
Karachi	Male	36 - 45	CD
Karachi	Female	25 - 35	AB
Lahore	Female	36 - 45	CD
Mingora	Male	24 - 34	AB
Mingora	Male	25 - 35	CD

Table 37. Wave 2 FGD demographics.

