Scoping User-led Water Behaviours under the Jal Jeevan Mission in Gujarat, India

WORKING PAPER 2201

OCTOBER 2022

Nymphea Maria Noronha

Jocelyn Joseph

Nilanjana Bargotra

Ananya Iyer

© 2022 The Centre for Social and Behaviour Change. All rights reserved.

All information, ideas, views, opinions, estimates, advice, suggestions, and recommendations (hereinafter 'content') in this publication should neither be understood as professional advice in any manner nor interpreted as policies, objectives, opinions or suggestions of the Centre for Social and Behaviour Change (CSBC), Ashoka University. Readers are advised to use their discretion and seek professional advice before taking any action or decision, based on the contents of this publication. The content in this publication has been obtained or derived from sources believed by CSBC to be reliable but CSBC does not represent this information to be accurate or complete. CSBC does not assume any responsibility and disclaims any liability for any loss or damages caused due to any reason whatsoever, towards any person (natural or legal) who uses this publication.

Acronyms and glossary

FHTC	Functional Household Tap Connection
GP	Gram Panchayat
GWIL	Gujarat Water Infrastructure Limited
GWSSB	Gujarat Water Supply and Sewerage Board
JJM	Jal Jeevan Mission
PS	Paani Samiti
WASMO	Water and Sanitation Management Organization

Table of contents

Acknowledgements **4**

Executive summary **5**

Introduction **7**

1.1. OBJECTIVE & RESEARCH QUESTIONS 8

1.2. RESEARCH METHODOLOGY 8

1.3. GEOGRAPHICAL AND SOCIO-CULTURAL CONTEXT 11

Research findings **14**

2.1. FACTORS IMPROVING COMMUNITY PARTICIPATION 15

2.2. WATER QUALITY: PERCEPTIONS & PRACTICES 24

2.3. WATER CONSUMPTION AND CONSERVATION 29

Behavioural barriers & way forward **33**

3.1. LIST OF BEHAVIOURAL BARRIERS 34

3.2. WAY FORWARD 36

Appendix **37**

4.1. SAMPLE BREAK-DOWN 38

Contact us **43**

Acknowledgements

This work has been made possible by the dedicated efforts of multiple individuals. First and foremost, we would like to thank Dr. Pavan Mamidi, Dr. Sharon Marie Barnhadt, Dr. Shagata Mukherjee for their guidance and support throughout this study. We would also like to thank Ms. Cheistha Kochhar, Ms. Nilanjana Bargotra and Ms. Ananya Sridhar Iyer for their enthusiastic support, both on and off the field. The authoring of this was made possible by Ms. Nymphea Maria Noronha and Ms. Jocelyn Joseph.

We would also like to thank our field partner Tata Trusts and the Coastal Salinity Prevention Cell (CSPC) who went above and beyond to provide us with locations, field guides, language support and effectively managed the logistics. Without them, this project would not have been successful. We would like to especially thank Mr. Divyand Waghela from Tata Trusts and Mr. Ketanbhai Hingu from CSPC who have been a great pillar of support from the beginning of this project. We would like to appreciate the field support by Mr. Sujit Kumar, Mr. Manoj Mori and Mr. Dashrath Baraiya from the CSPC team.

Thirdly, we would like to profess our immense gratitude to our field team from NYAS Research and Development Pvt. Ltd. for their tireless efforts in conducting a well managed qualitative study. The team included Jagdish ji, Jasvant ji, Laxmikant ji, Mittal ji and Harshada ji.

Last but not least, we would like to thank the Bill and Melinda Gates Foundation for making this project possible and the NITI Aayog for supporting us through it all.

In accordance with the massive scope and scale of the exercise, this paper owes its successful completion to the dedicated efforts of a wide variety of stakeholders. We extend our deep gratitude to them all.

Executive summary

The Jal Jeevan Mission is a flagship scheme of the government which seeks to not only provide functional household tap connections/infrastructure for all rural households by the year 2024 but also seeks to promote the holistic management of local water resources. Users are key stakeholders in the holistic management of water resources, and the programme can be further strengthened by complementing the ongoing systematic efforts with a behavioural lens as well.

This report is a scoping study containing learnings from our field diagnostic research conducted in Gujarat in July 2022. Prior to this, we had conducted literature reviews, policy reviews, stakeholder conversations, and a previous field diagnostic research in Jharkhand in March 2022. The Gujarat field diagnostic research aimed to understand user-led behaviours around community participation, judgement and maintenance of water quality, and consumption and conservation behaviours. Gujarat provided us with an opportunity to study such user behaviours in a mature phase of the rural-piped water scheme, thus providing us insights on best practices and the identification of gaps.

Our field research findings are detailed within Section 2. of the report along the following categories:

TABLE: CATEGORIZATION OF FIELD RESEARCH FINDINGS

FACTORS IMPROVING COMMUNITY PARTICIPATION	• Community's engagement with the scheme • Adherence to payments • Raising of grievances
WATER QUALITY: PERCEPTIONS & PRACTICES	• Judgment of water quality by the community • Water quality & health: decision making regarding drinking water
WATER CONSUMPTION & CONSERVATION	• Consumption & conservation dependant by perception of availability • Conservation practices varying across segregation of usage • Additional influences to attitudes towards water conservation

Following this, Section 3. contains a list of behavioural barriers identified through our field diagnostic research and literature review. We have identified a few behaviours to be addressed within these and will be designing interventions for behavioural change. These interventions will subsequently be evaluated in the field.

SECTION 01:

INTRODUCTION

Introduction

1.1. OBJECTIVE & RESEARCH QUESTIONS

Aim: To conduct diagnostic field research to understand community participation, water quality & water conservation behaviours concerning the Jal Jeevan Mission programme.

To achieve this, we wish to diagnose and develop an understanding of the ground realities of the scheme, implementation barriers, challenges and/or benefits the community has received through it, and potential pathways for behavioural interventions to improve community participation and water conservation. The questions we asked were based on the following thematic areas and research questions:

1. **Community participation**
    - What leads to the community being engaged with the piped-water scheme?
    - Willingness to Pay (pecuniary): What are the perceptions around the costs and benefits of FHTCs and JJM community assets?

2. **Water quality**
    - What are the influences on water quality-related behaviours

3. **Water consumption & Conservation**
    - What are influences on water conservation-related behaviours
    - What can we learn from pre-FHTC behaviours to encourage reduced water usage?

1.2. RESEARCH METHODOLOGY

1.2.1.Site Selection

The diagnostic field visits were conducted in Gujarat, focussing on 2 districts - Amreli and Bhavnagar. The sites were selected based on post-FHTC coverage and in consultation with support from on-ground partners. These are as follows:

TABLE: SITES FOR QUALITATIVE RESEARCH

VILLAGE	DISTRICT, BLOCK	NOTES

1	Babariyadhar	Amreli, Rajula	Abundant water, good quality, 100% FHTC, heterogenous village
2	Mota Ringaniyala	Amreli, Rajula	Abundant water, bad quality, 100% FHTC, heterogenous village
3	Lilivav	Bhavnagar, Talaja	Scarce water, bad quality water, 100% FHTC, heterogenous village
4	Jalvadhar	Bhavnagar, Talaja	Abundant water, good quality, 100% FHTC, homogenous village
5	Dipadiya	Amreli, Rajula	Scare water, mixed quality, in-process of FHTC installation, largely homogenous (only two communities, Darbar - higher caste/class; Koli - lower caste/class)
6	Mathavada	Bhavnagar, Talaja	Scarce water, bad quality, the initial process of JJM infrastructure, heterogenous village
7	Hindorna	Amreli, Rajula	Scarce, bad quality, no JJM infrastructure, heterogenous
8	Dharabandar	Amreli, Rajula	Scarce water, good quality, infrastructure developed but water yet to flow, heterogenous village

1.2.2. Sample

The study used a convenience sampling frame, identified directly by the enumerators, based on various factors like feasibility, availability of respondents, social caste and class, and gender. The sample draws from a variety of populations based on their social and geographical background, which aids in establishing generalizability. We spoke to a total of 74 respondents, the further breakdown of the SES levels can be found in the Appendix.

TABLE: RESPONDENTS SURVEYED

	VILLAGE	FEMALE	MALE	GRAM PANCHAYAT	PANI SAMITI
1	Jalvadhar	5	5	1	1
2	Lilivav	3	2	1	1
3	Babariyadhar	6	5	1	2
4	Mota Ringaniyala	5	5	1	2
5	Dipadiya	4	4	1	0
6	Mathavda	3	2	1	0
7	Dharabandar	2	2	1	2
8	Hindorna	1	2	1	2
		29	**27**	**8**	**10**

1.2.3. Methodology

- The data was collected in a phased approach, wherein the **first phase** collected basic information from men, women, members of the Paani Samiti and the gram panchayat about water practices and experience with the programme.
- Once this was collected, the team **reconvened** to understand the findings from the first phase and accordingly made alterations to the inquiry for the second phase.
- Since we found most of the villages in a mature stage of the JJM programme, we pivoted in the **second phase**. We visited a few non-FHTC or pre-FHTC villages to understand the process and trajectory of FHTC installation and adoption and get deeper insights into users' behaviours.

Given this sectioning, we undertook a qualitative approach in our diagnostic research phase. We conducted IDIs and observational activities with our sample to gain

insights into FHTC usage, water conservation practices and the idea of paying for clean water across various stakeholders.

1.3. GEOGRAPHICAL AND SOCIO-CULTURAL CONTEXT

1.3.1 Socio-cultural context

Figure 1.3.1: Gujarat

We visited the Saurashtra region of Gujarat, which is the peninsular tip of the state. It is an economically well-to-do region, wherein most people were employed in salt mines, fishery, ship ports, agriculture, animal husbandry and the diamond industry. It was interesting to note that even though the education levels were low, most families had moderate to high incomes, from multiple sources. Additionally, there was a high level of migration, to cities like Surat, by the younger generation, which developed a socio-cultural divide between the older generation (who have stayed back in the village) and the younger migrant generation. Many households had milk-producing livestock, which was sold to local dairies. Some villages, such as Jalvadhar, were producing up to 800 litres of milk a day! We found both homogenous and heterogenous villages with varying caste dynamics, class struggles and resultant politics - especially around water. Even though women were mostly responsible for domestic chores that utilized water, men too would involve themselves in ensuring that some amount of water was available at home.

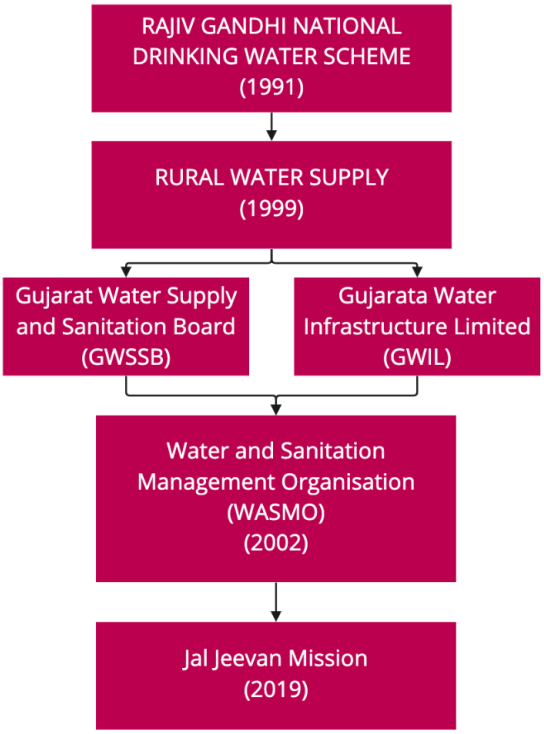
1.3.2 Water Availability

In Saurashtra, we visited Amreli and Bhavnagar districts which were close to the

coast, but not on the coastline. However, people still had a visible abundance of water, even though the water was not necessarily of good quality. Depending on the terrain, water was either abundant or scarce, however abundant water did not always mean good quality water. The TDS levels, as tested by TATA Trust's field team, were dangerously high in some areas. Typically, most households had private borewells or tap connections at home provided by the panchayat (connected to the well). There were hand pumps available at different points in the village along with stand posts to fill water more effortlessly. A lot of the drudgery that women are expected to undergo to fetch water was resolved in these villages. However, this is not to say that there were no water availability issues - some villages like Dharabandar had to provide water tankers for the villages, the cost of which was shared by the community and the panchayat.

1.3.3 History of Water schemes in this geography

DIAGRAM: OVERVIEW OF WATER SCHEMES IN GUJARAT



In line with the guidelines issued by Rajiv Gandhi National Drinking Water Mission regarding the implementation of rural water supply programmes, the Government of India introduced a sector reform programme for Rural Water Supply in 1999.

Water and Sanitation Management Organisation (WASMO) was set up in 2002 borne out of pre-existing water schemes, when the Government of Netherlands extended a helping hand post the devastating Bhuj earthquake in 2002. It was the WASMO scheme that brought taps to people's households, however, it did not reach hilly terrains and other difficult-to-reach geographies - this gap was filled by the Jal Jeevan Mission (JJM) scheme. The WASMO scheme is being subsumed under JJM. The scheme draws water from the Narmada river, conducts purification and delivers it to villages. All the villages that came under WASMO have achieved 100% FHTC rates, with the newer villages slowly catching up.

In addition to this, there have been Implementation Support Agencies such as TATA Trust - Coastal Salinity Prevention and Mitigation Cell, Piramal Foundation etc, that have been working closely with the system-side actors, and the communities to improve the success of the programme.

It is relevant to note that, since schemes providing rural piped water have existed for around two decades in Gujarat, it is largely in a mature phase, as they have been improving their processes and filling in gaps, leading to robust functioning.

SECTION 02:

RESEARCH FINDINGS

Research findings

The following section contains our research findings from the Gujarat field diagnostic work conducted in July 2022. They have been segregated across three thematic areas:

1. Factors improving community participation
2. Water quality: perceptions and practices
3. Water consumption & conservation

2.1. FACTORS IMPROVING COMMUNITY PARTICIPATION

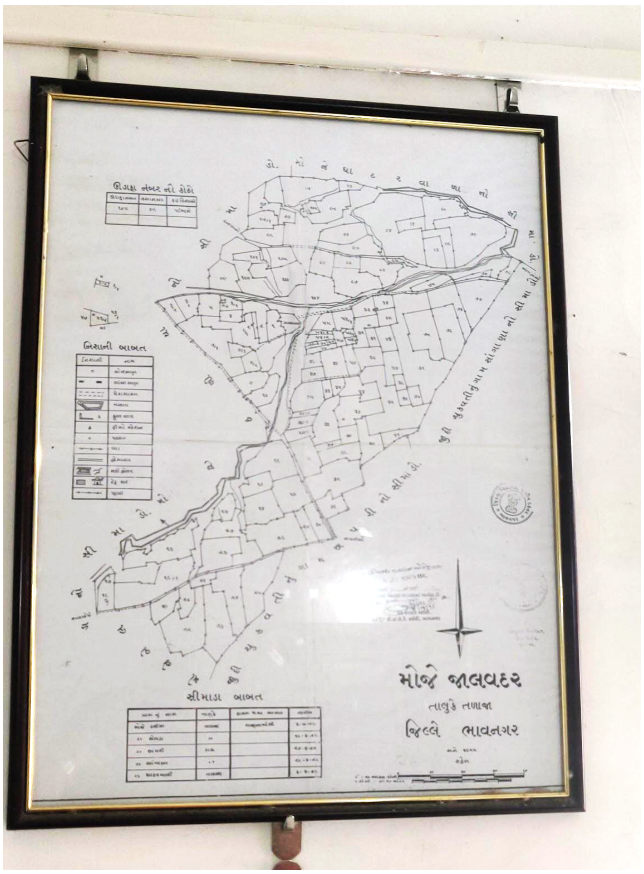


Figure 2.1: Source and Land Plotting of a village in Gujarat

2.1.1 Factors improving community's engagement with the scheme

i) Regular communication improving transparency

a) Active communication for the community to understand the water-delivery system

The system-side actors had actively communicated the extensive process of the water delivery system which also led to the community understanding to a greater extent about where the problem lay and who could rectify it, alongside being more forgiving of the village leadership.

Information was communicated through murals of public expenditures, timely broadcasts of water supply problems and thought through village water policies.

- In Jalvadhar, we saw multiple public walls painted with the expenditures made by the panchayat and the water committee for the current year and the previous years. Additionally, there was a record of all the water-related logistics, which was made available to the public on request.

- In reference to a framed poster of the water distribution system and process: *shuru shuru mein jab hum sabha rakhte the, toh isse dikha ke logon ko samjhate the ki pani kahaan se aa raha hai, wadi mein kitna aur kya pani jayega aur gaon mein kitna. Toh zyadatar logon ko samajh rehti hai. I.e. "At the beginning, we arranged for multiple community meetings where we showed this map to explain to people where the water comes from, how much water, and which source of water, is directed towards the field and how much is directed towards the village. So people largely have an understanding of this. - Up-sarpanch, Jalvadhar.*

b) Clear and timely communication of water supply process and possible deviations in service

The community was seen to comply better with the leadership when they were made aware of the processes and stakeholders involved in providing water - which meant that the village leadership had to be abreast with the district level processes. Any possible delays were conveyed in advance to the village-level authorities through WhatsApp groups, which were then communicated to the community. This helped the community to plan for their household in advance and retained trust in their authorities, even when the water service was impacted.

- In Dipadiya, a village where the JJM assets were in the process of being installed, a male member of the community told us about how they were updated regularly. Similarly, in Mota Ringaniyala, the operator would get notified of any delays and in turn, he

would spread the word in the village.

Figure 2.1.1.a: Public mural on expenditures under WASMO

ii) Active and trusted community leadership

a) Regular contact between the leadership and community

Regularly conducted community meetings keeps the community abreast with the happenings and gives a regular platform for questions. This was seen to be most helpful during the initial set up of the programme wherein a lot of questions would arise. These meetings were conducted weekly and as needs arose, with high attendance from the community because this gave everyone a common ground to clarify their doubts with complete transparency from the system's side.

b) Paani samiti being composed of members who are already trusted by the community

The *Pani Samiti* (i.e water committee), was often composed of multiple trusted members of the community, such as Anganwadi workers, ASHAs, community leaders etc. This allowed for a smooth interaction between the system's last-mile delivery and the community. Having community representation also

supported in bringing a wider range of voices, especially marginalized sections to the fore

- In Jalvadhar, the Anganwadi worker was a part of the water committee which made it easier for women to approach her with grievances or questions. "*pehle mujhe laga ki committee mein nahi judna chahiye kyunki waise bhi bahut kaam rehta hai. Lekin ab mujhe lagta hai ki achi baat hai ki main aur ASHAben hain, kyunki ab behenlog bhi aake apna baat rakhte hain. i.e Anganwadi worker, "earlier I didn't want to join the committee because I have a lot to do anyway, however now I realise that because the ASHA and I are a part of the committee, women can come to confide in us. - Anganwadi worker.*

iii) Active participation of women leading to better community engagement

The active participation of women was seen to lead to better community engagement, prompting community leaders to take action as well

- In Mathavda, men mostly migrated seasonally to catch fish from the coastlines, so women were seen to take a more active role in the functioning of the household. At some point, when the village had not been receiving water for weeks, women came together and broke pots at the Sarpanch's house, prompting village leadership to look into the problem.

iv) Regular training and checks for the community

Programme hygiene is maintained by the district-level body of Water and Sanitation Management Offices (WASMO), called Gujarat Water Supply and Sewerage Board (GWSSB) by conducting regular checks to ensure smooth functioning of the system. This smooth functioning is aided by regular training workshops held for members of the village water committee, maintenance operators and the village leadership. This allows them to present the community's grievances that may not be resolvable at the village level. This regular interaction with the district allows for seamless communication between the village-level authorities and the district-level authorities, which makes communication between the village authorities and the community easier.

v) Community-led rules and punitive measures

Since there is an understanding that the water committee has to liaise between the larger system and the community multiple times, most villages had step-by-step rules, around water wastage, water theft, pipeline systems etc. which eased the

interaction between the system and the community. The rules were communicated to the community in advance which allowed for citizen vigilance in these matters.

Along with the rules, there existed a list of punitive measures that allowed room for mistakes and reproach. Usually, a first strike would involve warnings, a second strike would lead to a monetary fine and then a third strike would lead to the discontinuation of water services. Given the community-driven nature of the villages, it was rare to find people who broke the rules after the first or second strike

- In Jalvadhar, regarding the issue of holes being made in the main pipeline to have multiple connections to a household, punitive actions were arrived at and this prevented further water theft. "*Jab kuch galat kaam hota hai, tabhi toh pata chalta hai ki kya karna chahiye aur kya nahi. Lekin jab niyam ban jaata hai, uske baad bohot hi kam chori-chapata hota hai." i.e. Only when these [negative] behaviours happen, do we know how to deal with them. However, once we lay down the rules, there are very few cases of theft and other things. - Up-sarpanch*

vi) Ability for system-side actors to be held accountable by leadership

a) Active panchayat

In most of the villages that we visited, the sarpanch took an active role such as attending training sessions conducted by the district, transference of knowledge to the O&M operator and the community, etc. There was a high level of cost-benefit salience amongst the community members and they would hold the village leadership accountable if they failed to provide them with a well-functioning system.

- *"yahaan pe log bohot tez hain, jitna paisa diya hai uska hisab mangenge. Toh hum meetings mein jaate hain aur jo bhi prakriya hoti hai hum waapis aake operator ko aur sabha mein samjhate hain ''. i.e People are very sharp here, they want an account of every penny they've contributed. Therefore, I go for [district] meetings and then pass on the message to my operator and the village meeting. - Up-sarpanch (deputy sarpanch) of Jalvadhar*

b) Proactive members of the community holding the system accountable

The community was seen to keep track of what they were paying for and what they received in return. Hence there was a desire for continuous access to the systemic actors through Whatsapp and regular meetings to ensure that their funds are being utilized well for the maintenance of assets and the functioning

of the system.

- *"Agar humse itna paise le rahe hain aur acha pani de rahe hain, toh achi baat hai, lekin hume bhi pata rehna chahiye ki hamara paise kahan jaa rahe hain." i.e. "If they're taking money from us and giving us water in return, that's a good thing. However, we should also know where our money is going." - Male, 32, Mota Ringaniyala*

c) Close monitoring by district-level

Hiring and monitoring of contractors was conducted at the district level, allowing for greater accountability towards the system, and the possibility of a higher authority to mete out greater punitive action.

vii) Positive reinforcement of well-performing villages

Multiple panchayats/villages participate in a general governance award ceremony, wherein the best performing villages would be presented with a shield by the chief minister of Gujarat. This recognition seemed to push the leadership to perform better and ensure the smooth functioning of their villages.

- In Lilivav, the sarpanch proudly showed us that he had won this award for multiple years. He had arranged them on his mantel and made sure that anyone who visited the village or his home would see them.

2.1.2 Factors improving adherence to Payments

i) Regular and timely collection of payments

This allowed the households to budget their expenditures of the month, in advance and reduce the possibility of lapses on any monthly payments.

- *"Humein ghar ghar jaane ki zaroorat bhi nahi padti, sab log dairy [sarpanch's house] pe aake khud jama kardete hai, mahine ke 5 tareek ko.. i.e. We don't even need to collect money house to house. On the 5th of every month, everyone comes and submits the fees at the dairy [sarpanch's house0 - Sarpanch, Jalvadhar,*

ii) Bundling of utility costs/village taxes, and cost-breakup being explained to the community

Households were provided with a common receipt for all the taxes and bills to be paid, such as land tax, farm tax, electricity bill, water tax, JJM contribution and any overdue payments. The receipt's contents and a breakdown of the amounts were explained to users. The community was observed to have a clear understanding of

government-owned resources and taxes to be paid. The village leadership developed a singular receipt book to record the various payments, which allowed for easy tracking and maintenance of payments.

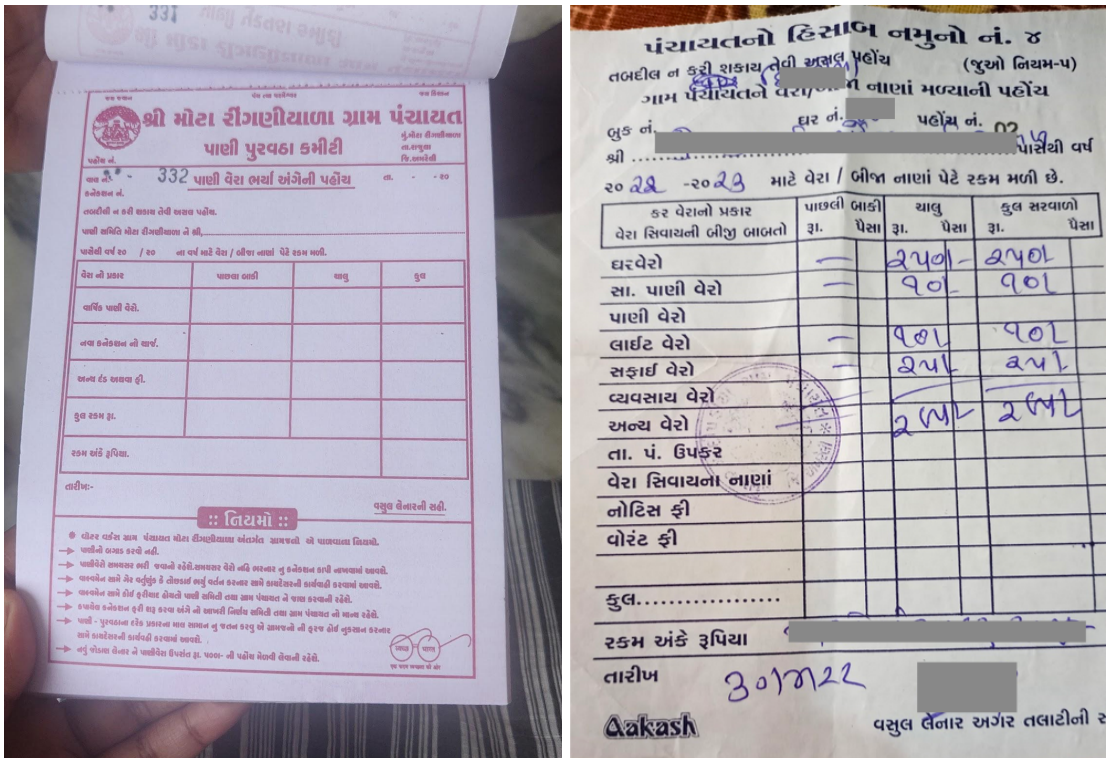


Figure 2.1.1.b: Water bill included in utility bill, in Gujarat

iii) Proof of payment for no-dues

This receipt was proof of payment which households had to produce to receive benefits from other government schemes like ration, government school admissions etc. This suggests that adherence to payments was linked to other community benefits, which gave defaulters enough yet limited time to pay their dues.

- In Dipadiya, the JJM scheme hadn't entered into force, however, they still followed this common receipt for all taxes. "*Jab koi school mein admission ke liye apne bachhe ko laate hain, toh humein unka raseet check karna hota hai ki unhone saara veda bhara ki nahi" i.e. When people bring their children in for admissions, we need to check their previous receipts to see if they've paid their taxes or not. - School principal, Dipadiya,*

iv) Payment amount customized at village level based on financial capacity

The villages we visited had varying levels of income which meant that the socio-economic levels between villages varied greatly. The frequency and amount of financial contribution were customized to the village and its demography. Based on the community's economic levels, the village leadership segmented the payments differently across different villages. In case of any remainder cost, the village leadership petitions the district level to bear the costs or asks the community to make up for it by contributing in 'seva' (a practice of donating work instead of money, towards the welfare of the community

- In Babriyadhar, an economically lower village, paid a water contribution (towards JJM) of Re. 1 per day i.e Rs.365/year, whereas in Mota Ringaniyala, the community had to pay Rs. 1000/year. They could choose to break it up into monthly payments or pay a lump sum annually. Furthermore, if they paid the lump sum, they would get a discount of Rs. 100.

v) Altruistic forgiveness

In most villages, there was a strong altruistic sense of financial forgiveness when it came to punitive actions. This was driven by common knowledge in the community, led by the panchayat's decision. Even though a thorough rulebook was in place, fines were waived off for households with little or no means of income.

- In Babriyadhar, there was an old couple with no income or means of payment, hence they had lapsed on the payment for multiple months and were called to explain themselves at the community meeting. When it was discovered that they are unable to pay, the community, led by the sarpanch and ward members, decided to waive off their fines and financial contributions altogether.

vi) Inculcating a service mindset: paying for management and maintenance

In Gujarat we observed that the community was willing to pay for the JJM resources, however, there was very low self-participation in the maintenance of the assets. It was believed that their payment should cover the maintenance of assets. There is low desirability, from the community's side, to participate in the upkeep and maintenance of water assets because of the belief that their payments should cover all the requirements of the programme.

- *"Agar hum paise dete hain toh uske service bhi toh hona chahiye. Jaise ki main Surat mein rehta hoon, wahan pe agar paani ki koi samasya ho, toh board waale hi aake theek karte hai na?" i.e. "If we pay for a service, we*

should get equivalent maintenance also. For example, I live in Surat and if there's a problem with water pipelines there, it's the board that comes and fixes it right?" - Male, 29, Mota Ringaniyala.

2.1.3 Factors improving the raising of grievances

i) Ease of access to the grievance redressal mechanism

In Gujarat we saw extensive measures to set up grievance redressal mechanisms which were actively accessed by the community as this was an additional way to ensure accountability from the system. The community could register their grievances with any front-line workers in the village (since most of them held a post in the Paani Samiti), and they could send their complaints over the community WhatsApp groups or directly raise them with the sarpanch at a community meeting.

- *"Mujhe logon ka WhatsApp aur SMS aate rehte hai cheezein theek karwane ke liye, kuch safai karwane wagera" i.e. Translation: Operator, Mota Ringaniyala, I keep getting WhatsApps and SMSes from the community to fix things, clean things etc. - Operator, Mota Ringaniyala,*

ii) Multiple pathways to raise grievances

The community was introduced to multiple points of grievance redressal, based on their comfort levels and literacy levels. Whatsapp groups allowed for asynchronous communication, while the O&M operator would visit the households to check for any problems. Since there were many women who were a part of the committee, such as the Anganwadi worker, and the ASHA worker, women too felt comfortable in airing their grievances directly to them.

- *"Abhi tak aisi dikkat toh nahi hui hai, lekin agar kuch hota hai toh main inko [husband] bata deti hoon ya phir Sunitaben [anganwadi worker] ko bata deti hoon. Mujhe toh WhatsApp nahi chalana aata, lekin gaon mein kuch log hain jo ispe bhi batate hai sarpanch ko. i.e. Female, 41, Jalvadhar - "I haven't faced any major issue till now, however, if something happens I inform my husband or Sunitaben [the Anganwadi worker]. I don't know how to use WhatsApp, but some people in the village use WhatsApp to directly inform the village head. - Female, 41, Jalvadhar*

iii) Multiple checkpoints to ensure problems are addressed

Apart from their interaction with the community, the water committee set up regular checkpoints with the district officials and other technicians to have a direct understanding of repair status and maintenance procedures.

- In Mota Ringaniyala we were shown a water sources map which is used to keep track of all the water sources and their functioning. This is also shared with the district officials and anyone who visits the village for inspections.

Figure 2.1.3: The operator of Mota Ringaniyala

2.2. WATER QUALITY: PERCEPTIONS & PRACTICES

2.2.1 Judgment of water quality by the community

i) Judgement of water quality is limited to sensorial aspects

Decisions around water quality were made based on perceived taste, smell and visual clarity. If water looked, smelled and tasted fine, it was considered fit for consumption.

ii) Sensorial aspects, such as taste seem to take precedence over other tangible effects

Tangible effects of low-quality water observed by the community include milk getting spoilt when mixed with water, water taking a long time to boil, clothes wearing out easily due to harsh water, rashes on bodies and kidney stones and weak bones in the long run. However, in spite of observing these effects, the community weighed on taste preferences when it came to their judgment of water.

iii) Habitual factors seen to strongly influence preferences

Water that had been consumed for generations was considered better water than any new source of water because people had grown accustomed to its taste. Their tastes had adapted to the '*khara*' (salty) borewell water, which tastes '*mittho*' (sweet) to them, rather than the '*modo*' (tasteless) water of JJM.

- In some of the pre-FHTC villages, we saw that people were apprehensive and unwilling to pay for the JJM scheme because the water seemed tasteless to them. We saw this in Hindorna, Dharabandar and Dipadiya alike.

iv) Visible value addition enhances value perception of water quality

There was a recognition of the value addition an RO unit makes to water, however, there was no personal effort made at a household level to purify drinking water further

- Factory: Some villages, like Mathavda, that had factories near them, would get drinking water from these factories' RO purification system.
- School: In Dipadiya, there was an RO system set up, by TATA Trust, in the school as a factor to get children to go to school.

Figure 2.2.1: RO plant installed in a public school

v) Beliefs about source purity predominate

a) **Rainwater was considered the purest form of water**, even purer than water provided by JJM. Hence during monsoons, this became one of the first sources for consumption, and this practice has been passed down through generations.

b) **Water that comes from underground was considered pure** because of the belief through generations, that multiple layers under the ground purify the water.

2.2.2 Water quality and health: decision-making regarding drinking water

i) Segregation by water use

Given the **multiple sources of water available** to the community, there were specific uses for each source. Different kinds of water are demarcated and stored separately, pointing towards careful segregated usage:

TABLE: SEGREGATION OF USAGE FOR DOMESTIC CONSUMPTION

ORAL CONSUMPTION	Generally JJM water, borewell water or in extreme conditions, well water.
CLEANING/WASHING	This was generally borewell water, well water and in some cases, hand pump/stand-post water. It was interesting to note that even when JJM water was available, the community still used borewell water.
CONSUMPTION FOR ANIMALS	This was a mix of different kinds of water poured together into a '*haveda*' (trough). However, it was still ensured that the animals got clean water (not grey or black water)
GREYWATER & WASTEWATER	Notion of grey water was seen to exist only in villages with scarce water supply, resulting in the reuse of greywater. However, in water-abundant villages, the concept of grey

water did not exist and any used water was disposed of. At most, it was disposed off into the houseplants.

Figure 2.2.2.a: Careful storage of drinking water in a household

ii) Behaviours around drinking water

a) No perceived need to purify drinking water further if it appears clean

Water was generally not filtered or purified before drinking, however some households had strainers that they used to fill storage pots with drinking water.
If the water appears visually clean, there was no perceived need to purify it.
Additionally, since they have habitually witnessed water being consumed without purification, they do not f l the need to purify.

b) Designated location and careful storage of water

Water was observed to have a designated place, kept at a height to safeguard it

iii) Taste preferences seem to dominate over long-term health effects

Households acknowledged that quality of water impacts health, however in despite being aware of long-term health effects, their taste preferences were seen to dictate

their choice of drinking water.
were seen to depend on taste as a key factor in their choice of drinking water
there is a contradiction between their belief and their behaviours.

- Though they understand that hard water (borewell water) causes kidney stones and weak bones, they continued to use this as a source of drinking water
- In Mathavda, the ASHA worker told us that most people assumed that diarrhoea, especially in children, is inevitable regardless of what kind of water is consumed.

Figure 2.2.2.b: TDS testing done by third-party actors

iv) Low participation in water testing

Community members themselves do not participate in water testing activities and hence have low awareness of the technicalities behind water testing and quality. Due to this, in most villages, there is a third-party entrance of private players such as Piramal Foundation, TATA Trusts etc who have field-level officers who conduct regular tests of the different sources of water and inform the community and the village leadership.

2.3. WATER CONSUMPTION AND CONSERVATION

2.3.1 Consumption and conservation determined by the perception of availability

i) Visibility scarcity determining conservation behaviours

Scarcity necessitates a conservation mindset. If there is no visible scarcity, even though people may believe that it is good to conserve water, there may be no resultant conservation behaviours because there is no perceived need to worry.

ii) Perception of water availability based on shorter-term memory

There was observed to be a short-term memory of the perception of water availability, rather than long-term remembrance. This meant that water availability in the more recent weeks on months dictate water conservation behaviours rather than an overall view and long-term understanding of water availability.

- In Jalvadhar, water was abundant in the monsoon season which was filled into four check dams to last till after monsoons get over. This water generally lasts till Diwali (October-November) up till when people use the water indiscriminately, with little remembrance of what it was like before monsoon. Conservation behaviours enter only after the visible abundance of water reduces.

iii) Careful use of water for washing/cleaning purposes

Using flowing water (from a tap or pipe) was considered wasteful and people preferred to use a controlled amount of water, through containers, buckets etc.

- It was common to see men having baths under taps, however, they wouldn't leave the tap running, rather fill buckets and then use that to have a bath. Also, women would rarely use running water for washing dishes or clothes, it was always in a controlled container like a bucket or a utensil.

Figure 2.3.1: Usage of the same water to wash utensils all day

2.3.2 Conservation practices vary across segregation of usage

i) Water use purpose defining value placed on different sources of water thus influences conservation practices

The **water usage purpose was seen to determine the value of the water**, conservation practices, how the water is stored, for eg: drinking water is always kept at a height and never on the floor, while water used for cleaning purposes was left open and on the floor.

ii) Wastage and conservation behaviours seen to simultaneously exist

Wastage and conservation behaviours seen to simultaneously exist: **One could observe both wastage and conservation behaviours by the same person**. This would depend on a number of factors, such as their beliefs, social norms, rules to abide by etc.

- A person who may not be okay with an open tap might be okay with using a flowing pipe of water to wash their vehicle
- This points to the fact that conservation and wastage are not overarching mindsets, hence understanding them requires nuance.

2.3.3 Water on the ground viewed as renewing the groundwater table, rather than wastage

Water thrown on the ground, including wastewater was believed to renew the water table and hence their consumption sources:

- *Pani jo neeche ya bahar daali jaye, woh toh wapas neeche hi jayegi na? Wapis humko peene ko hi milega. i.e. Water that is thrown out or on the ground will go back underground only, right? We'll then have more water to drink. - Male, 74, Mathavda*

2.3.4 Additional influences to attitudes towards water conservation

i) Beliefs shaping attitude towards water consumption and conservation

Beliefs were seen to shape attitudes towards water consumption and conservation. This belief system is against water wastage, however, this does not translate to all behaviours. There is also an acknowledgement of the 'life-giving' nature of water, and thus religious practices intertwined with it

- Storage area for drinking water was coupled with pictures of deities
- Religious rituals were conducted by the community wherein offerings were made to the water god 'Nived' to provide them with ample rains

ii) Social Norms

a) A lot of water conservation beliefs are passed on from one generation to another (mostly through observed learning). In some cases, with newer activities (such as the washing of vehicles), there were no standard behaviours to follow, and thus some amount of water wastage was observed

- Although there was careful water use for washing of vessels/clothes - eg. a consciously limited quantity, vehicles were seen to be washed with a constant flow of water

b) People were seen to be more careful with water wastage in the public eye to avoid getting dismissed by neighbours about it

- During interviews, people said that dripping taps was a waste of water, however during the observation exercises, their own taps were seen to be leaking or dripping.

iii) Community Rules

Two things mainly resulted in reprimand or punitive action - wastage and theft. Any deviation from these rules would result in, first - a warning, second - a fine, and third - cutting off the water connection. Though these rules were in place, in most cases a

warning had sufficed. These rules, overtime, were viewed as norms by the community. Hence resulting in adherence due to social desirability.

SECTION 03:

BEHAVIOURAL BARRIERS & WAY FORWARD

Behavioural barriers & way forward

3.1. LIST OF BEHAVIOURAL BARRIERS

Based on insights developed from the field, and literature reviews, we developed a list of significant behavioural barriers for each of the thematic areas:

TABLE: THEMATIC BEHAVIOURAL BARRIERS

THEME	BEHAVIOURAL BARRIERS
WATER QUALITY	Poor judgment of water quality - Linking water quality to merely the perceptible aspects (appearance, taste). Low salience of quality in drinking water decision making - Low intent, driven by habit, to purify water before consuming it - Salience of correlation between health and water quality does not translate into demand for good quality water Low valuation of private benefits to water quality - Negligent attitude towards physical effects of low quality (hard) water Low valuation of child health. (Kremer et al., 2010: Households with young children did not change their chlorination behaviour from other households, when offered price and non-price interventions) - Flippant attitude towards diarrhea, expecting it to remain constant regardless of any behaviour change Low intent to utilize testing methods to judge quality of water. Low demand for quality drinking water - Habitual factors create a perception of quality
GRIEVANCE REDRESSAL:	Lack of grievance submission mechanism (system side) Low intent to raise grievances

	Low self-efficacy of grievance submission and subsequent follow up
	- While grievances are raised there is low follow-up on the grievances (unless driven by someone with higher agency)
	Low trust of local officials / operators
	Low transparency on addressing / resolution of grievances by operators
	Low ability to raise grievances
	Low intent to self-participate in upkeep of assets, beyond financial contribution
WATER CONSERVATION: REDUCING	Poor judgement of water quantity used (Personal, child, community pipeline leaks?)
	Lack of salience of water wastage in general (not only leakages)
	Lack of salience of water wastage, specifically through leakages
	- flowing tap seen as wastage, dripping tap not see as watsage
	Low self-efficacy (inability to link conserving water now to making a difference in the future)
	Lack of knowledge of concrete actions that would reduce their water usage. (Ideas42, 2016)
	Lack of responsibility for public/community water wastage
WATER LEAKAGES	Lack of salience of water wastage, specifically through leakages
	- flowing tap seen as wastage, dripping tap not see as watsage
	Low self-efficacy (inability to link conserving water now to making a difference in the future)
	Lack of knowledge of concrete actions that would reduce their

	water usage. (Ideas42, 2016) Lack of responsibility for public/community water wastage
WATER CONSERVATION: INCREASING GREYWATER REUSE	Lack of intention of grey water reuse Lack of knowledge and perception about safe grey water reuse practices

3.2. WAY FORWARD

For the purpose of developing and evaluating interventions for behavioural change, to strengthen the National Jal Jeevan Scheme, we prioritized amongst the above list and narrowed down to the following behaviours to be targeting :

1. **Poor judgment of water quality & low intent to use testing methods to judge water quality**
2. **Low intent / ability to raise grievances**

We are in the process of conducting ideation workshops and external stakeholder consultations to develop interventions to address the above target barriers. Once these interventions are developed, they will be deployed in the field, and evaluated through RCTs.

SECTION 04:

APPENDIX

Appendix

4.1. SAMPLE BREAK-DOWN

JALVADHAR

Abundant water, good quality, 100% FHTC, homogenous village

	RESPONDENT CODE	GENDER	SOCIO-ECONOMIC
1	A _F1	Female	High income
2	A_F2	Female	Low income
3	A_GP	Male	X
4	A_M1	Male	High income
5	A_M2	Male	Low income
6	A_PS_F	Female	Medium income
7	A2_F1	Female	Low income
8	A2_F2	Female	High income
9	A2_F3	Female	Low income
10	A2_M2	Male	X
11	A2_M1	Male	X
12	A2_M3	Male	X

LILIVAV

Scarce water, bad quality water, 100% FHTC, heterogenous village

	RESPONDENT CODE	GENDER	SOCIO-ECONOMIC
13	B _F1	Female	General

14	B_F2	Female	SC
15	B_F3	Female	General
16	B_GP	Male	X
17	B_M1	Male	SC
18	B_M2	Male	General
19	B_PS_F	Female	X

BABARIYADHAR

Abundant water, good quality, 100% FHTC, heterogenous village

	RESPONDENT CODE	GENDER	SOCIO-ECONOMIC
20	C_F1	Female	General
21	C_PS_F	Female	General
22	C_F1	Female	General
23	C_F2	Female	SC
24	C_GP	Female	X
25	C_M1	Male	General
26	C_M2	Male	SC
27	C_PS	Female	SC
28	C2_F1	Female	General
29	C2_F2	Female	OBC
30	C2_F3	Female	SC
31	C2_M1	Female	X

32	C2_M2	Female	X
33	C2_M3	Female	SC

MOTA RINGANIYALA

Abundant water, bad quality, 100% FHTC, heterogenous village

	RESPONDENT CODE	GENDER	SOCIO-ECONOMIC
34	D_F1	Female	General
35	D_F2	Female	SC
36	D_GP	Male	X
37	D_M1	Male	SC
38	D_M2	Male	General
39	D_PS_F	Female	X
40	D_PS_SC	Female	SC
41	D2_F1	Female	X
42	D2_F2	Female	General
43	D2_F3	Female	OBC
44	D2_M1	Male	SC
45	D2_M2	Male	SC
46	D2_M3	Male	General

DIPADIYA

Scare water, mixed quality, in-process of FHTC installation, largely homogenous (only two communities, Darbar - higher caste/class; Koli - lower caste/class)

	RESPONDENT CODE	GENDER	SOCIO-ECONOMIC
47	E_F1	Female	Darbar
48	E_F2	Female	Koli
49	E_F3	Female	Darbar
50	E_F4	Female	Koli
51	E_GP	Male	Koli
52	E_M1	Male	Darbar
53	E_M2	Male	Darbar
54	E_M3	Male	Koli
55	E_M4	Male	Koli

MATHAVADA

Scarce water, bad quality, initial process of JJM infrastructure, heterogenous

	RESPONDENT CODE	GENDER	SOCIO-ECONOMIC
56	F_F1	Female	General
57	F_F2	Female	General
58	F_F3	Female	SC
59	F_GP	Male	X
60	F_M1	Male	SC
61	F_M2	Male	OBC

DHARABANDAR

Scarce water, good quality, infrastructure done but water yet to flow, heterogenous

	RESPONDENT CODE	GENDER	SOCIO-ECONOMIC
62	G_F1	Female	General
63	G_F2	Female	SC
64	G_GP	Male	X
65	G_M1	Male	X
66	G_M2	Male	X
67	G_PS1	Male	X
68	G_PS2	Male	X

HINDORNA

Scarce, bad quality, no JJM infrastructure, heterogenous

	RESPONDENT CODE	GENDER	SOCIO-ECONOMIC
69	H_F1	Female	General
70	H_GP	Male	X
71	H_M1	Male	SC
72	H_M2	Male	General
73	H_PS1 (M)	Male	General
74	H_PS2 (M)	Male	SC

Contact us

W: www.csbc.org.in
E: csbc@ashoka.edu.in

@Centre for Social and Behaviour Change

@CSBC_AshokaUniv

@CSBCAshokaUniversity