



Functionality Assessment of Household Tap Connection under National Jal Jeevan Mission - 2022



STATE REPORT: PUNJAB
SURVEY DURATION: FEBRUARY TO APRIL 2022

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Abbreviations

AWC	Aanganwadi Centre
FHTC	Functional Household Tap Connection
GoI	Government of India
GP	Gram Panchayat
HF	Health Facility
HH	Household
HGJ	Har Ghar Jal
JJM	Jal Jeevan Mission
LPCD	Litres per Capita per Day
MVS	Multi-village Scheme
NJJM	National Jal Jeevan Mission
RC	Residual Chlorine
O&M	Operation and Maintenance
OHT	Over Head Tank
PSU	Primary Sampling Unit
PWS	Piped Water Supply
SVS	Single Village Scheme
VAP	Village Action Plan
VWSC	Village Water and Sanitation Committee
WQMIS	Water Quality Monitoring and Information System

Glossary

1. **Community** – Group of people living in one particular area or village/habitation
2. **Cross-sectional research** – A cross-sectional study is a type of research design in which data is collected from a relatively large and diverse group of people at a single point in time
3. **Drinking water source** – Groundwater (open well, borewell, tube well, handpump, spring, etc.)/ surface water (river, lake, pond, reservoir, etc.)/rainwater, available for drinking and domestic use
4. **Improved sources** – The following sources as considered improved by the National Family Health Survey definitions: Piped water into dwelling, yard/plot with a tap, piped water connected to public stand-posts, tube well or borewell, Hand pump, dug well–protected, Spring–protected, Rainwater, Water ATM/ Community RO plant/ Community Water Purification Plant (CWPP)
5. **Unimproved sources** – The following sources as considered unimproved by the National Family Health Survey definitions: Unprotected spring, unprotected dug well, cart with small tank / drum, Tanker/ truck, Surface water (river/ dam/ lake/ pond/ canal), and bottled water
6. **Functional Household Tap Connection (FHTC)** – A tap connection to a rural household for providing drinking water in adequate quantity of prescribed quality on regular basis.
7. **Functionality of FHTC** – Functionality of a tap connection is defined as having infrastructure, i.e., household tap connection providing water in adequate quantity, as presented:

Definitions	Fully-functional	Partially-functional	Non-functional
Quantity	≥ 55 LPCD	> 40 lpcd - < 55 LPCD	< 40 LPCD
Regularity	12 months or daily basis	9-12 months or $<$ daily basis	< 9 months or $<$ daily basis
Quality	Potable	Potable	Non potable

8. **Quantity (in litres)** of water received by households per person per day should meet the service level of 55 lpcd.
9. **Functionality Assessment** – An assessment of the functionality of rural household tap connections based on a sample survey
10. **Fully Regular** – Regularity of water is considered when a rural household receives water for 12 months on daily basis or as per schedule.
11. **Potability** – Potable water is water that is safe to be used as drinking water. Parameters of potable water are mentioned below:

Parameters for potable water tested in the survey	Unit	Acceptable Limit	Permissible Limit in the absence of alternative sources
i. pH (tested on site)	-	6.5 to 8.5	No relaxation
ii. Free residual chlorine (tested on site)	Mg/litre	0.2	1
iii. Turbidity	NTU	1	5
iv. Total hardness	Mg/litre	200	600
v. Total alkalinity	Mg/litre	200	600
vi. Chloride	Mg/litre	250	1000
vii. Ammonia	Mg/litre	0.5	No relaxation
viii. Phosphate	Mg/litre	0.3	1
ix. Iron (in hotspots only)	Mg/litre	1	No relaxation
x. Nitrate	Mg/litre	45	No relaxation
xi. Sulphate	Mg/litre	200	400
xii. Total dissolved solids	Mg/litre	500	2000

xiii.	Fluoride	Mg/litre	1	1.5
xiv.	Arsenic (in hotspots only)	Mg/litre	0.01	No relaxation
xv.	Bacteriological test for Total coliform bacteria and E. coli or thermotolerant coliform bacteria		Shall not be detectable in any 100 ml sample	

12. **Sampling** – Selection of a subset of individuals from within a statistical population to estimate water service delivery among the population. In the current study, households have been sampled to estimate the representation of the village and subsequently of the district as well as of the state.
13. **Types of schemes:** Following are the piped water supply schemes that were assessed
 - a. Mini-solar based piped water supply scheme in isolated/tribal hamlets
 - b. Single Village Scheme (SVS) in villages having adequate groundwater that needs treatment
 - c. Single village scheme (having adequate groundwater/ spring water/ local or surface water source of prescribed Quality)
 - d. Retrofitting of ongoing schemes taken up under erstwhile NRDWP for the last mile connectivity/ retrofitting of completed rural water supply schemes to make it JJM compliant
 - e. Multi-village PWS scheme - with water grids/ regional water supply schemes
14. **Village Action Plan (VAP)** – Plan prepared by Gram Panchayat and/ or its sub-committee, i.e., VWSC/ Paani Samiti/ User Group, etc. based on baseline survey, resource mapping and felt needs of the village community to provide FHTC to every rural household, treat the generated greywater and plan its reuse, undertake surveillance activities, etc. VAP also indicates the fund requirement and timelines for completion of work under the Mission and will be approved by the Gram Sabha. Irrespective of the source of funding, all drinking water-related works in the village are taken up based on the VAP.
15. **Source Sustainability** – includes measures such as aquifer recharge, rainwater harvesting, increased storage capacity of water bodies, reservoirs, de-silting, etc. improve the lifespan of water supply systems
16. **Har Ghar Jal (HGJ)** – An administrative unit wherein all HHs are provided with water supply through FHTCs is called “Har Ghar Jal”.
17. **Public Institutions** – The public institutions in the survey include Aanganwadi Centre (AWC), Health Facilities, Schools, Gram Panchayat, and government buildings.
18. **Working tap connection** – A tap connection supplied water at least one day in the week, preceding of survey
19. **Functional Scheme** – A scheme is said to be functional if it was reported to be working for all 12 months in a year.

Note: The detailed analysis of data at the district level has been incorporated in the District Reports presented separately. The State Reports are to be read in concurrence to the District Reports.

Executive Summary

Jal Jeevan Mission (JJM) was launched on the 15th of August 2019 with the objective to provide functional household tap connections (FHTCs) to all rural households. NJJM, GoI engaged HTA Kantar Public to conduct the 'Functionality Assessment' of the tap connection at households as well as public institutions/ buildings such as schools, anganwadis, gram panchayat buildings, public health facilities, and wellness centers in all the rural districts for the financial year 2021-22.

A cross-section research design was adopted for this functionality assessment study. As per the design, all villages having a piped water scheme (PWS) with 20 or more functional household tap connections were included in the sample frame. There after the required number of villages were randomly selected villages such that these are statistically significant at the district level.

In this study, data was collected from the households, and public institutions (i.e., schools, anganwadis, gram panchayat buildings, public health facilities and wellness centers, etc.) in the randomly selected villages. Water quantity and quality were also tested in the sampled households and public institutes. Quality testing was conducted for various parameters, out of which pH and residual chlorine were tested on the ground and for the remaining 12 different quality parameters water sample was collected and sent to the nearest NABL accredited district labs for testing.

The state of Punjab lies in the northern part of India and has a population of 2,53,51,462 (Census 2011). It has 22 districts and 6803 villages, and all the villages have PWS schemes. The State was declared Har Ghar Jal in 2021. A total of 363 villages, across all districts, and 9064 households were randomly sampled for the survey, and additionally, water samples from 1043 public institutions were tested.

In the assessment among sampled villages, 88% of villages have only one scheme, 11% of villages have 2-3 schemes, 2% have 4 and more schemes. Mostly all schemes across the state were found functional.

At the state level, 89% of the HHs were satisfied with the regularity of the supply, 88% with the quality of the water supplied, 89% with the colour of the water supplied, and 88% with the taste of the supplied tap water.

Overall functionality status of Punjab

At the state level, 95% of HHs received water on the day of the survey. While 77% of the HHs were found to have fully functional tap water connections within the premises. Out of which 96% received an adequate quantity of water, 82% reported receiving a fully regular supply of water, and 94% HHs received potable water.

It was found that 92% of households received water all 7 days a week, 6% of the households received water 3 or 4 days a week, and 1% of the households received water at least once a week. The average duration of water supply across the state was reported to be 2 hours per day.

In Punjab, 25% of the villages have reported that water is directly supplied to the households and the remaining 75% reported that water was supplied via an overhead tank, sump, or both.

During the roll-out of the data collection in the state, all-district level NABL accredited laboratories (labs) extended their support in accepting and testing water samples from HHs

and public institutions. One of the challenges identified by the labs was the capacity to test more than 30-40 samples within 24 hours given the shortage of technicians and availability of necessary reagents in the required quantity. In Punjab, 9526 samples of water were submitted, and 8448 were tested at the labs. The turnaround time of testing of water sample was more than 48 hours in most cases. Given this feedback, it can be conferred that these labs have limited scope to take up samples from the general public at large on a regular basis. The different quality parameters of the collected water samples that were tested were turbidity, total hardness, total alkalinity, chloride, iron, nitrate, sulphate, total dissolved solids, bacteriological test, arsenic, and fluoride.

Residual chlorine was found within the permissible limit only in 7% of the HHs. The percentage was relatively higher in HFs (more than 10%), wherein there is a possibility of additional chlorine being added locally for the purification of water. All the water samples passed the bacteriological contamination test.

Out of the 9550 HHs sampled for the FHTC assessment, a water quality test was carried out in 9095 HHs. pH was found within the acceptable limit in 99% of households. Among the public institution, pH was found in the acceptable limit of 100% in HFs.

21% of villages in the state reported having available field test kits. And 22% of these reported to have either VWSC/Pani Samiti or pump operators trained to use field test kits for testing the quality of water on-site.

Water quality management in village

It was found that 33% of villages in the state reported having a VWSC or a Pani Samiti out of which 18% of the VWSC/Pani Samitis reported to have more than 50% female members. In the state, 11% of the villages reported that VWSC/ Pani Samiti is responsible for the operation and maintenance of pipe water supply.

30% of villages reported having identified skilled manpower for O&M of PWS schemes. 9% of villages in the state reported having faced challenges with respect to O&M of PWS schemes.

81% of HHs reported that they are aware of any grievance redressal mechanism w.r.t. HH tap water through PWS, but only 8% HHs have reported a complaint in the last year and only 6% of complaints have been resolved. Among those who reported complaints (i.e., 8% HHs, 528 HHs), 92% of the HHs reported their complaints to pump operators besides other reporting channels.

Overall, 62% of villages in the state levy charge for water service delivery to households whereas 76% HHs reported paying water service delivery charges at the households.

88% of HHs reported that their daily requirement of water was being met by HH tap connections.

Overall, 71% of HHs reported using an improved source of drinking water, as their primary source. The state also needs to further strengthen communication for the quality of water supplied so that every household can use the same for drinking purposes.

Overall, 38% HHs reported using booster pumps to maximize the water flow through their piped water connections.

It was found that 21% of the villages have schemes that are based on groundwater sources, while 6% on surface water sources.

Age-wise functionality of the schemes indicates a decline in 'always functional' schemes in the UT since 2012. 13-% point decrease in the fully functional scheme was recorded from 2012 to 2013-18. In 2019 and later the percentage of fully functional schemes increased by 9% and 69% of schemes have been reported to be always functional and 2% as partially functional (i.e., a total of 71% of schemes).

Impact of JJM

Across the state, about 9% of the HHs reported having an incidence(s) of water-borne diseases in the last year.

Since having a functional HH tap connection, 32% HHs across the state have reported that there has been a change in the no. of employment days of the adult HH members while 47% HHs reported no change.

Out of the HHs reported (i.e., 3345) that female members used to fetch water before HH tap connection, 94% reported that post-installation of HH tap connection helped reduce of time and effort in collection of water.

Across the state, 27% of the HHs reported that since having a functional HH tap connection the attendance of the girls going to schools has increased, and 27% of the HHs reported no change in attendance which could possibly be an impact of shutting down of schools due to COVID-19 related lockdown during the survey period.

Functionality Status of Har Ghar Jal Districts

At the state level for Har Ghar Jal districts, 96% of households received water on the day of the survey. While 79% of the households were found to have fully functional tap connections. Out of which 96% received an adequate quantity of water, more than four-fifth reported receiving a fully regular supply of water and 95% received potable water.

Since having a functional HH tap connection, 34% reported that there has been a change in no. of employment days. Out of the HHs in which female members used to fetch water before HH tap connection, 95% reported that post-installation of HH tap connection helped reduce time and effort in collecting water. Across the Har Ghar Jal district, 22% HHs reported that since having a functional HH tap connection their income has directly benefitted.

Functionality Status of Aspirational Districts

At the state level for aspirational districts, 87% of households received water on the day of the survey. While 85% of the households were found to have fully functional tap connections. Out of which 99% received an adequate quantity of water, 87% reported receiving a fully regular supply of water and 99% received potable water.

Since having a functional HH tap connection, 19% reported that there has been a change in no. of employment days. Out of the HHs in which female members used to fetch water before HH tap connection, 94% reported that post-installation of HH tap connection helped reduce time and effort in collecting water. Across the aspirational district, 17% HHs reported that since having a functional HH tap connection their income has directly benefitted.

1. State Factsheet

Functionality status of tap connection at households	India	Punjab
Working tap connections- HHs which received water through tap connection at least once in last 7 days (%)	86	95
Quantity ¹ of water received by households		
Adequate quantity (>55 LPCD) (%)	85	96
Partially adequate quantity (> 40 LPCD - < 55 LPCD) (%)	5	2
Inadequate quantity (<40 LPCD) (%)	10	2
Regularity ² of water received by households		
Fully Regular Supply (as per schedule) (%)	80	82
Partially Regular Supply (not as per schedule) (%)	14	13
Irregular Supply (less than 9 months' supply) (%)	6	5
Potable ³ (Quality) water received by households (%)	87	94
Overall functionality ⁴ (%)	62	77

Service delivery parameters	India	Punjab
Overall user satisfaction on regularity at the household level (%)	83	89
Overall user satisfaction on quality at the household level (%)	82	88
Households receiving water supply daily-7 days a week (%)	74	92
Daily HH requirement of water being met by FHTC (%)	80	88
Households paying water service delivery charges (%)	35	76
Households aware of grievance redressal mechanism (%)	71	81
Households reported a reduction in time and effort in collecting water (%)	79	94
Average no. of times water is supplied in a day	1	2
Households reported incidence of water-borne diseases in the last year (%)	2	9
Households purifying water before drinking (%)	57	39
Residual Chlorine (RCL) detected within permissible limits (%)	24	7
Villages with Field Test Kits (%)	30	21
Villages in which bacteriological test was done in last 1 year by VWSC/ Pani Samiti (%)	29	26
Villages reported to have a mechanism for chlorination (%)	21	26

Institutional arrangement	India	Punjab
Village reported having presence of VWSC/ Pani Samiti (%)	38	33
Villages in which VWSC/ Pani Samiti is responsible for Operation & Maintenance of PWS schemes (%)	14	11
Villages in which persons are trained to use Field Test Kits (%)	31	22
Villages levying water service delivery to households (%)	34	62
Villages having skilled manpower for Operation & Maintenance of PWS schemes (%)	31	30
Community monitoring of water wastage in villages (%)	19	12
Villages in which signages about JJM were observed (%)	15	10

¹ Quantity (in litres) of water received by households per person per day should meet the service level of 55 lpcd

² Regularity is receiving water for 12 months or daily basis as per schedule

³ Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical, and bacteriological parameters (within acceptable/ permissible range) and onsite testing of pH.

⁴ Overall functionality has been computed as the intersection of Adequate Quantity, Fully Regular Supply and Potable (Quality) for households wherein water supply was available at the time of survey

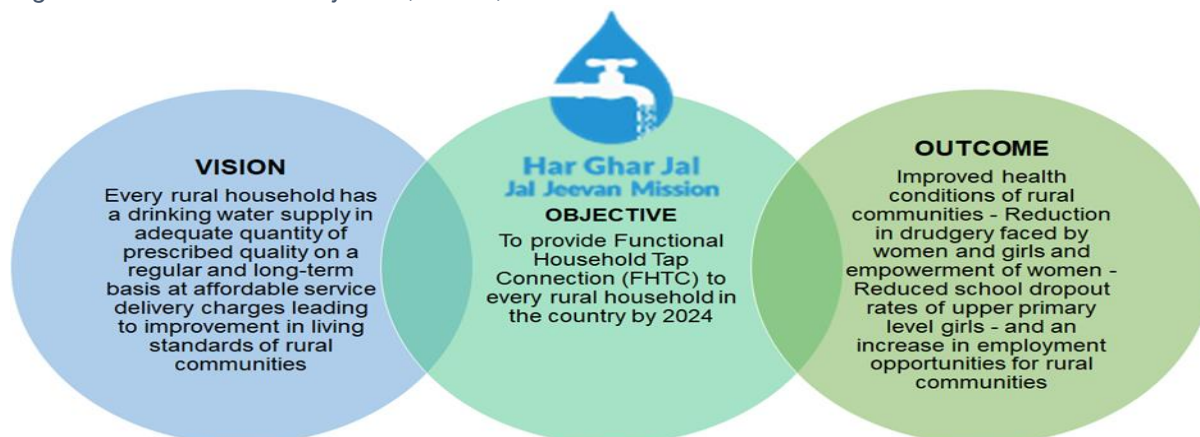
Functionality status of tap connection at households in Har Ghar Jal Districts	India	Punjab
Working tap connections- HHs which received water through tap connection at least once in last 7 days (%)	91	96
Quantity of water received by households		
Adequate quantity (>55 LPCD) (%)	88	96
Partially adequate quantity (> 40 LPCD - < 55 LPCD) (%)	4	2
Inadequate quantity (<40 LPCD) (%)	8	2
Regularity of water received by households		
Fully Regular Supply (as per schedule) (%)	84	84
Partially Regular Supply (not as per schedule) (%)	11	11
Irregular Supply (less than 9 months' supply) (%)	5	5
Potable (Quality) water received by households (%)	90	95
Overall functionality (%)	69	79

Functionality status of tap connection at households in Aspirational Districts	India	Punjab
Working tap connections- HHs which received water through tap connection at least once in last 7 days (%)	78	87
Quantity of water received by households		
Adequate quantity (>55 LPCD) (%)	85	99
Partially adequate quantity (> 40 LPCD - < 55 LPCD) (%)	5	1
Inadequate quantity (<40 LPCD) (%)	10	0
Regularity of water received by households		
Fully Regular Supply (as per schedule) (%)	77	87
Partially Regular Supply (not as per schedule) (%)	14	9
Irregular Supply (less than 9 months' supply) (%)	9	4
Potable (Quality) water received by households (%)	88	99
Overall functionality (%)	62	85

2. Context

Jal Jeevan Mission (JJM) was launched on the 15th of August 2019 with the objective to provide functional household tap connections (FHTCs) to all rural households.

Figure 1: Har Ghar Jal - Objective, Vision, & Outcome



In accordance with the overall objectives as specified in the Operational Guidelines for the implementation of the NJJM, GoI carried out a sample survey to assess the functionality of household tap connections. As part of this endeavour, NJJM, GoI engaged HTA Kantar Public to conduct the 'Functionality Assessment' of the household as well as public institution/buildings such as schools, anganwadis, gram panchayat buildings, public health facilities, and wellness centers in all the rural districts for the fiscal year 2021-22.

2.1. State snapshot: Punjab

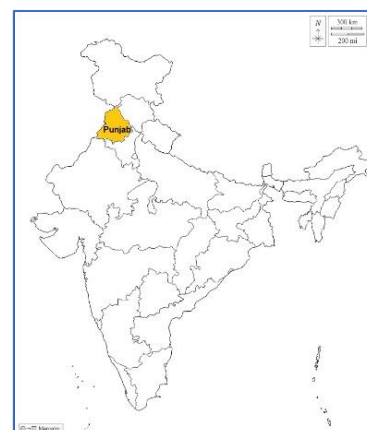
The state of Punjab lies on the northern part of India and has a population of 2,77,43,338 people. It has 23 districts and 12,016 villages where 11,753 villages have PWS schemes. The state lies on the Trans Gangetic Plains region, Western Himalayan region and receives an average annual rainfall of about 538.6mm. Among the villages with PWS schemes, 11280 villages (93.87%) have more than 20 households with functional tap connections. The state is yet to achieve the Har Ghar Jal status.

Presented here are state level information collated from the DDWS-IMIS:

Figure 2: State IMIS Status & Map

IMIS status:

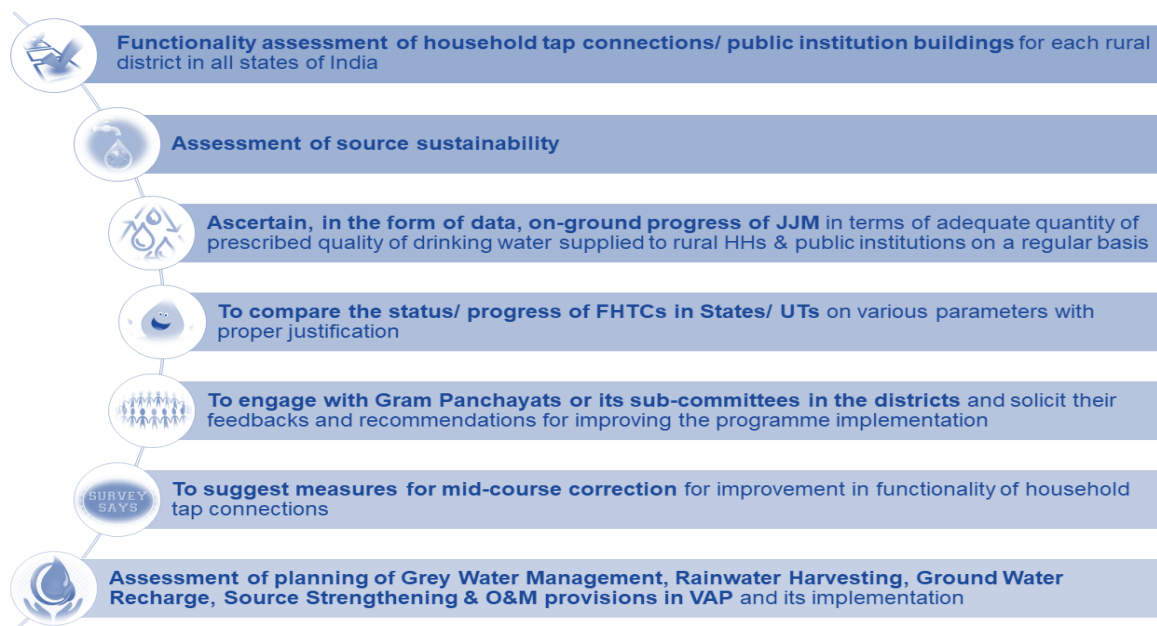
- Not a Har Ghar Jal state
- 15 districts are iron and 12 are fluoride affected
- 11280 (93.87% of all) villages with PWS more than 20 FHTC
- 82.19% villages covered under HH tap connections under HGJ



2.2. FHTC Assessment Objectives

The overall objectives of the FHTC assessment are as presented:

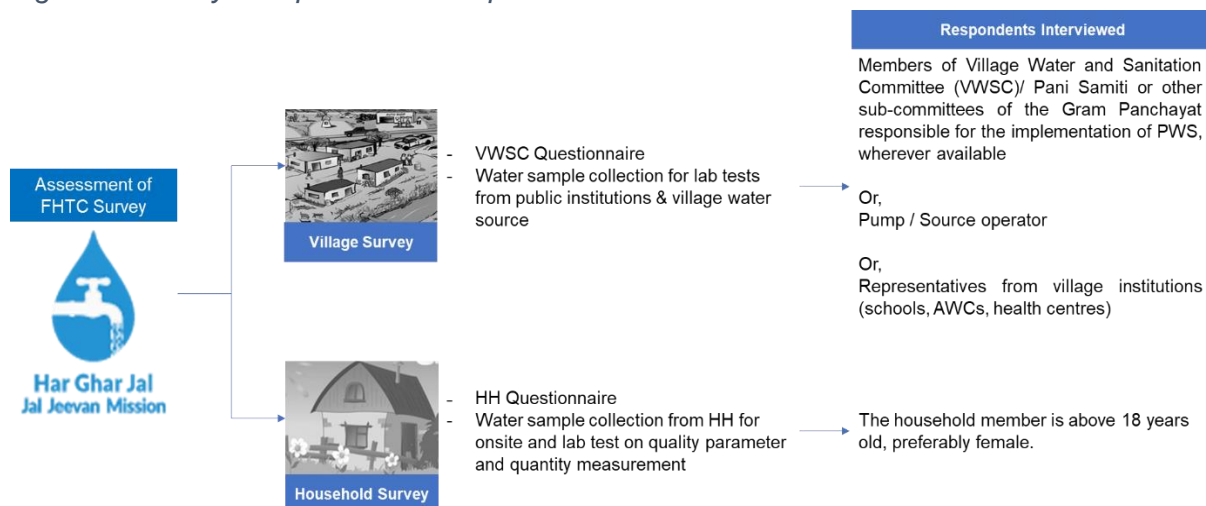
Figure 4: FHTC Assessment Objectives



2.3. Assessment Methodology

A cross-section research design has been used for this functionality assessment study. Quantitative data were collected from villages and households across all states/UTs using the CAPI (Computer Assisted Personal Interviewing) mode. The survey includes two components, village, and household.

Figure 5: Survey Components & Respondents



2.4. Sample Size

The sample size was calculated to provide estimates with a 95% confidence interval (CI) and 5% margin of error (MoE) after incorporating the correction factor for a finite population considering the total number of geographic units having FHTCs.

- Village sample is estimated to be representative at the state level
- HH sample estimated to be representative at the district level

- Number of Har Ghar Jal (HGJ) villages were proportionately sampled at the district level
- All PWS schemes (up to 4) were covered per village. Per scheme approximately 9 (3 each from the head, middle, and tail HHs) or 18 households (6 each from head, middle, and tail HHs) were sampled to achieve the desired sample at the district level.

2.5. Sampling Methodology

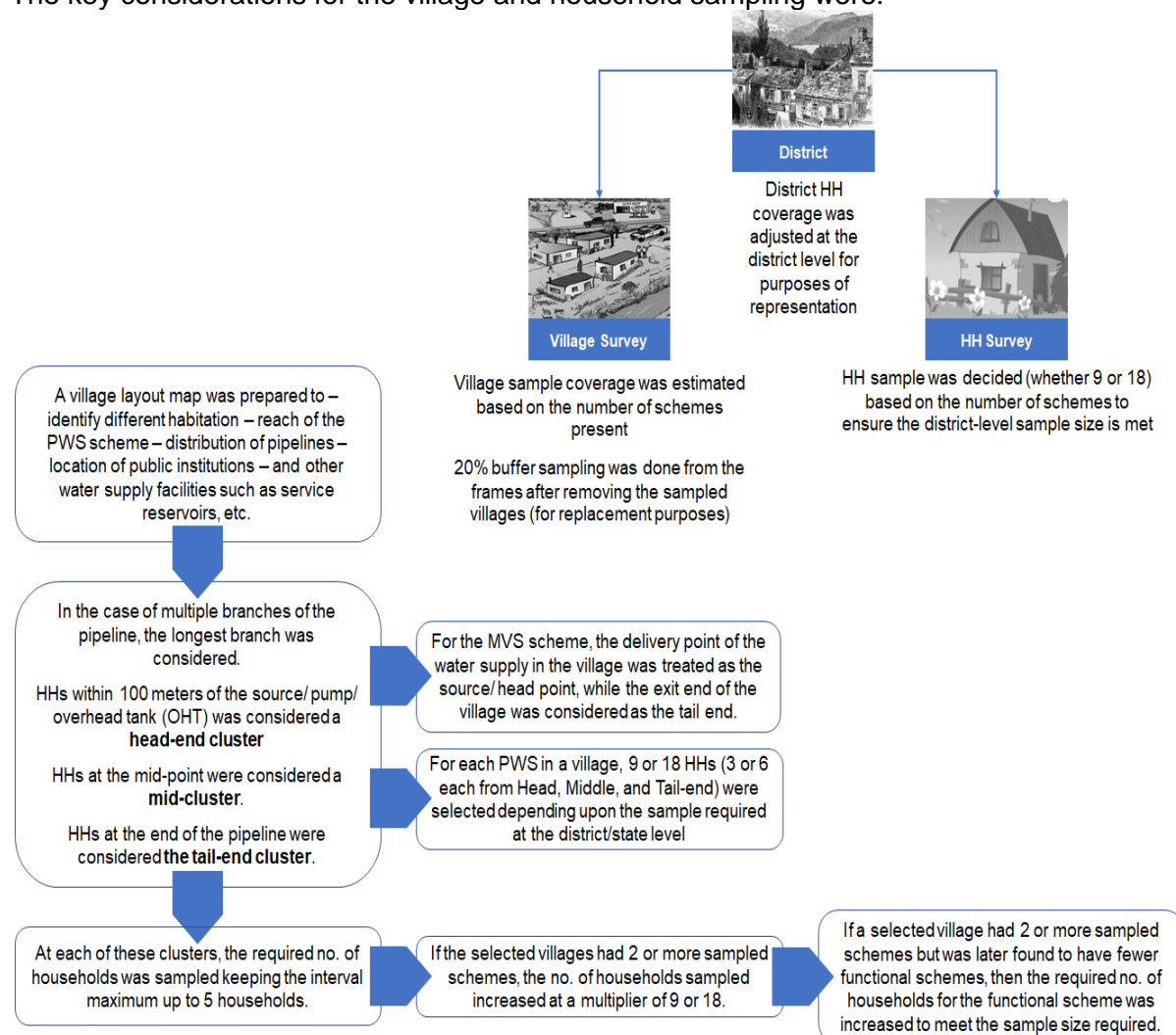
As per the design, all villages having a PWS scheme with 20 or more functional household tap connections were included in the sample frame. The probability proportionate to size (PPS) method was used for village selection in each district. The steps for random selection of villages using PPS are presented below:

Figure 6: Steps for Random Sampling of Villages



Figure 7: Household Selection

The key considerations for the village and household sampling were:

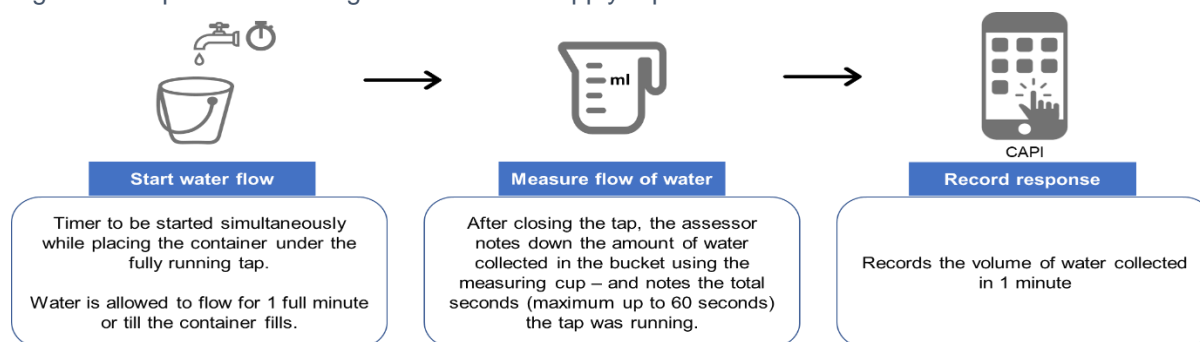


The record of all district-wise village replacements is maintained and reported as part of the annexure.

2.6. Methodology for Water Quantity Measurement at Households

The flow rate of the water supply was measured using a container with gradual markings (either 5 litres or 1 litre, based on the flow of the tap) and a stopwatch/timer-watch. The process followed is as described in Figure 6.

Figure 8: Steps for Measuring Flowrate from Supply-tap at HHs



In the case of households where the FHTC is connected directly with the storage tank, the following steps were adopted to measure the quantity:

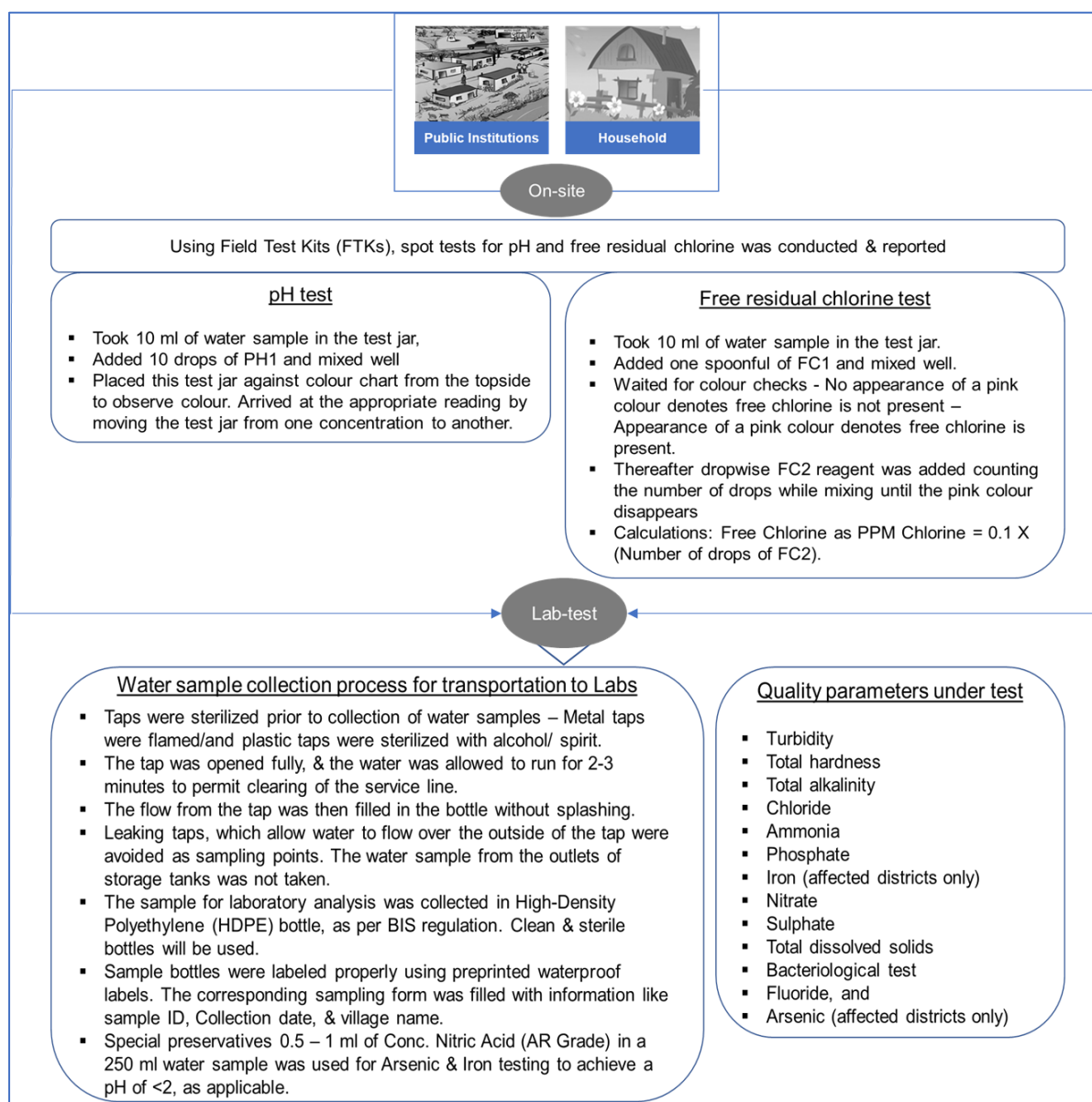
- Assessor first asked and recorded length, breadth, and height.
- Assessor dipped a 5 feet long rod, marked the level of the water table, and calculated the volume – length x breadth x-height of water.
- Next the assessor opened the valve of the connection and allowed the water to flow inside the storage for 10 minutes.
- After 10 mins, the valve was closed, and the assessor again dipped the rod and recorded the new height of the water inside the tank. Based on this new 'height' and the CAPI calculated the changed volume.
- The difference in the volume of water in 10 minutes divided by 10 provided the flow rate of the water supply per minute.

The water flow rate was not measured for village-level public institutions.

2.7. Methodology for Water Quality Measurement

Water quality was tested for all public institutions available in the villages, including schools, AWCs, gram panchayat buildings, public health facilities, and wellness centers, and at the selected households. Two types of quality tests were carried out – a) spot test for pH and free residual chlorine, and b) water sample was collected and transported to labs for testing against 13 quality parameters (total 15) as specified in Figure 7.

Figure 9: On-site & Laboratory-Based Quality Test

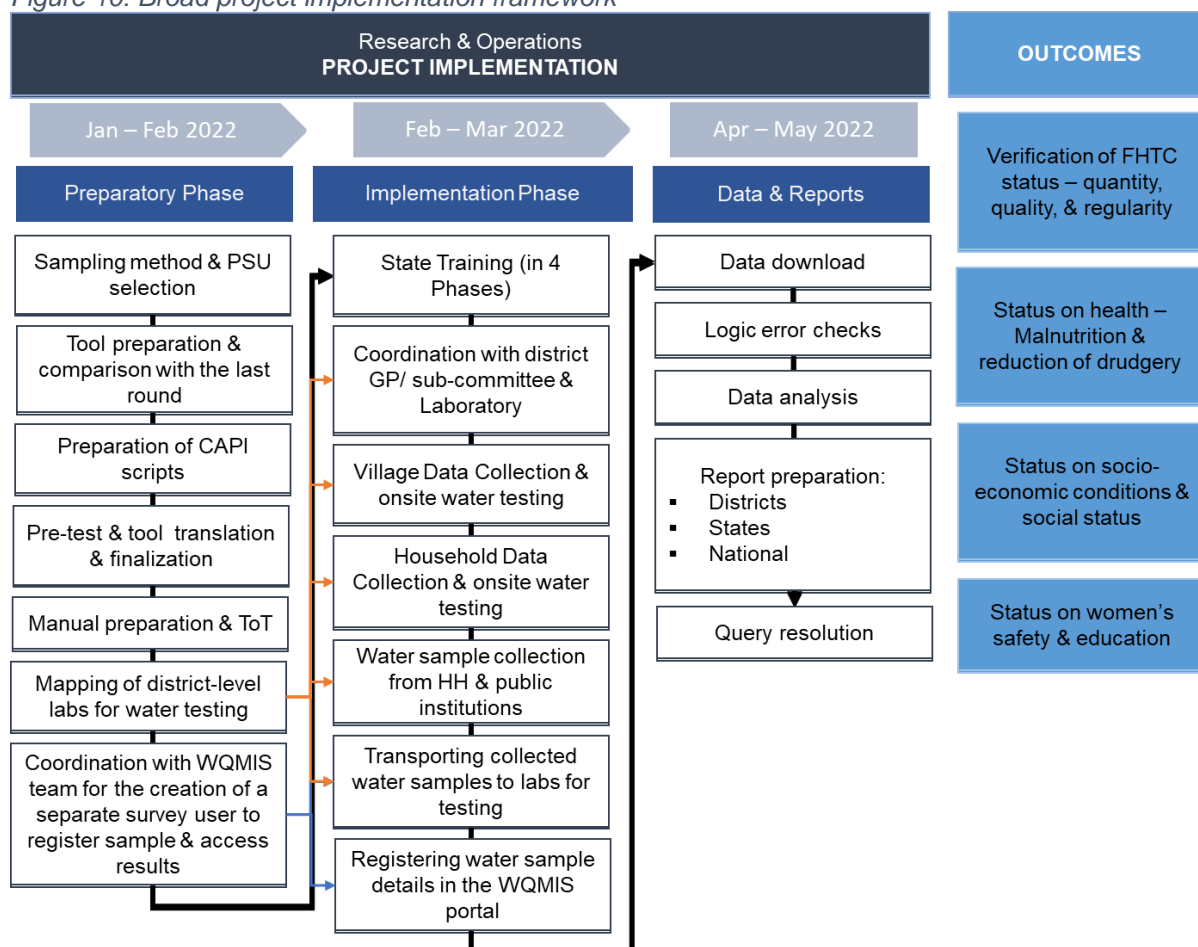


JJM, with the support of the BMI Division of ICMR, enabled a new interface on the WQMIS portal for “Functionality Assessment (FA) User” to enable seamless harmonization of water sample registration, and sample submission for testing, and sharing of results as per the applicable quality parameters.

2.8. Project Implementation

An overview of the project implementation is as presented:

Figure 10: Broad project implementation framework



A total of 9 teams (comprising 9 supervisors, 54 assessors, and 9 water collection assistants) were recruited, trained, and deployed to complete the survey across the states of Punjab. One survey team covered approximately 2 – 3 districts. The state-wise team deployment and fieldwork dates were as presented:

Table No. 1: Team deployment and data collection start & end dates

States	Teams deployed	Start date	End date	Total data collection days
Punjab	9 Teams	14th February	5th April	48 Days

A four-tier quality control (QC) system was put in place. At the ground level, the data collection exercise was done using a computer-aided Personal Interview (CAPI) application which contained all logic and skip-checks inbuilt. Also, 5% of the total samples were accompanied by the supervisors. Sub-targeted QC was done by the state field managers (5%) and the central project management team (5%). Apart from this, the central research team monitored the data trend and as per requirement debriefed data collection teams to improve quality.

2.9. Sample coverage

Table No. 2: Sample covered							
State	Targeted sample			Achieved sample			
	District	Village	HH	District	Village	HHs	PIs
India	712	13,300	3,00,000	712	13,299	3,01,389	16,148
Punjab	23	446	9,351	23	459	9,549	431

2.10. Sampled village and household profile

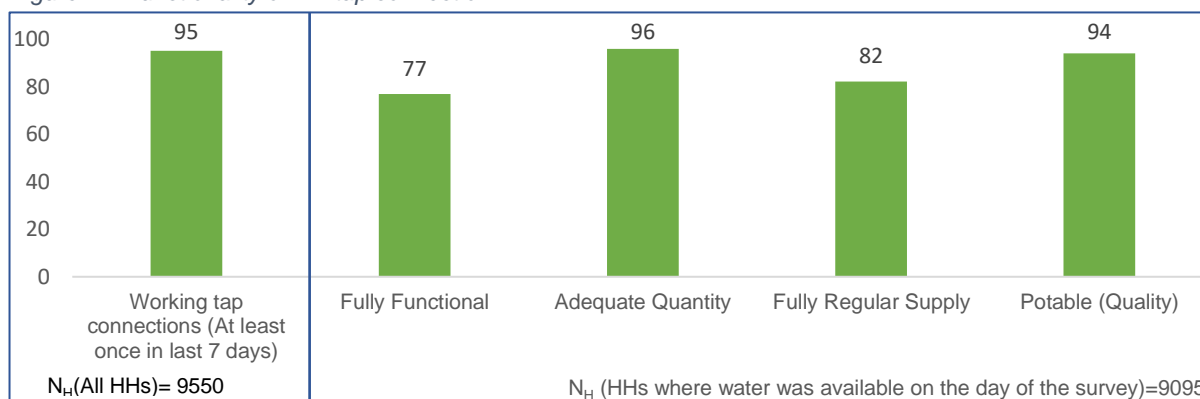
SAMPLED VILLAGES	SAMPLED HOUSEHOLDS
<ul style="list-style-type: none"> Total no. of villages covered in the state – 459 Percentage of SC dominated villages covered in the State is 48.7% (while at national level the average is 12.6%) Percentage of ST dominated villages covered in the State is 0.0% (while at national level the average is 20.2%) Higher proportion of pump operators interviewed at the village level 2.0% of the villages reported to have any historical incidence of water contamination 	<ul style="list-style-type: none"> Total no. of households covered in the state – 9549 (Respondents: Male 2068, Female 7481) Proportion of General – 34.9%, SC 49.8%, ST 1.8%, OBC 13.5% households 78.3% of the FHTC connections are under the name of a female member Average household size – 5.4 100% positive user experience in 5/5 measures

3. Findings

3.1 Functionality status of FHTC at household level

A. Overall Functionality* (in %)

Figure 11: Functionality of HH tap connection



* Fully Functional has been computed as = Adequate Quantity \cap Fully Regular Supply \cap Potable (Quality)

Please note: Henceforth, N_H=9095 implies all HHs where water was found on the day of the survey.

It has been found that 95 percent of the sampled HHs (N=9550) had working tap connections. Moreover, almost all households (96 percent) received adequate (≥ 55 LPCD) water supply and more than 4 out of 5 received regular supply (82 percent) of water. The on-site testing for pH and all the different quality parameters in the water tested in laboratories indicate that 94% of the sampled households in the state receive potable water.

Out of the 9550 HHs sampled for the FHTC assessment, water quantity and quality test was carried out in 9095 due to non-availability of water in 5 percent HHs on the day of survey.

S. No.	District	Working tap connections for 7 days preceding the survey (%HH)	Quantity ≥ 55 LPCD (% HH)	Regularity (% HH)	Potability# (% HH)
1.	Tarn Taran	100	95	93	100
2.	Ludhiana	100	99	87	100
3.	Jalandhar	100	100	95	98
4.	Hoshiarpur	100	100	93	90
5.	Rupnagar	100	100	98	100
6.	S A S Nagar	100	98	88	89
7.	Patiala	100	99	76	79
8.	Barnala	100	100	98	99
9.	Faridkot	100	93	72	100
10.	Muktsar	100	89	64	98
11.	Mansa	99	81	42	100
12.	Amritsar	98	99	95	56
13.	Fazilka	98	76	22	96
14.	Kapurthala	96	100	92	100
15.	Malerkotla	95	99	85	98
16.	Bathinda	95	88	49	82
17.	PUNJAB	95	96	82	94
18.	Shaheed Bhagat Singh Nagar	94	99	93	93

Table No. 3: Quantity, Regularity, and Quality of FHTC at the district level (%HH)					
S. No.	District	Working tap connections for 7 days preceding the survey (%HH)	Quantity ≥ 55 LPCD (% HH)	Regularity (% HH)	Potability# (% HH)
19.	Pathankot	92	100	100	93
20.	Moga	92	99	89	99
21.	Fatehgarh Sahib	91	100	91	100
22.	Firozpur	82	99	83	100
23.	Gurdaspur	81	100	93	99
24.	Sangrur	76	100	96	97
# Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical, and bacteriological as given in Table 5 parameters (within acceptable/ permissible range) and onsite testing of pH. The details of laboratory test are mentioned in the table given above in the glossary.					
JE-AES Affected		Aspirational Districts	Aspirational & JE-AES Affected		

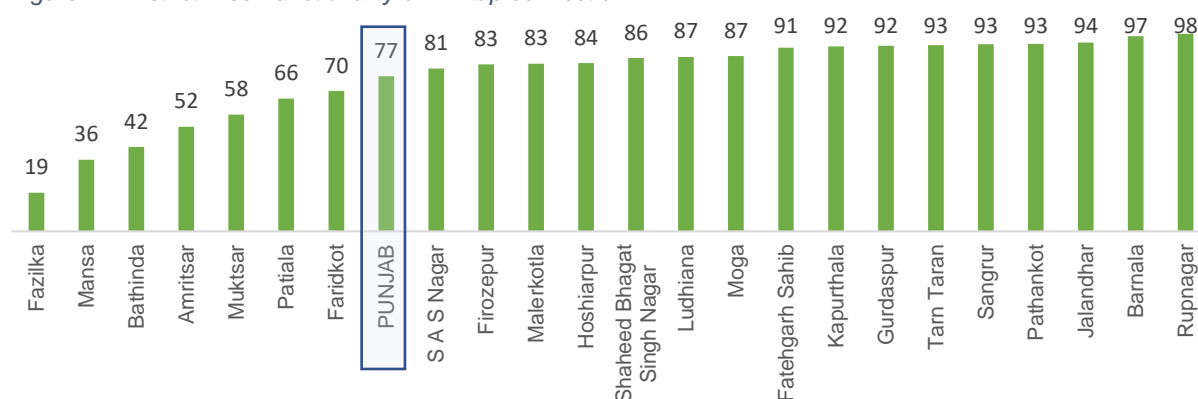
District level comparison across the districts indicate that Pathankot, Moga, Fatehgarh Sahib, Shaheed Bhagat Singh Nagar, Firozpur, Gurdaspur and Sangrur reported functionality less than the state average. The districts of Jalandhar, Barnala, Rupnagar, Hoshiarpur, Kapurthala, Gurdaspur, Sangrur, Pathankot, Fatehgarh Sahib and Firozpur FHTC provide more than 55 LPCD of water in more than 99 percent HHs.

More than 95 percent HHs in the districts of Pathankot, Barnala, Rupnagar, and Sangrur reported to regularly receive water through FHTC. Regular supply of water is less than 50 percent in the districts of Bathinda, Mansa and Fazilka.

Potability of water was found to be 100 percent in the district of Firozpur, Fatehgarh Sahib, Kapurthala, Mansa, Faridkot, Rupnagar, Tarn Taran and Ludhiana.

B. District wise functionality status

Figure 12: District wise Functionality of HH tap connection



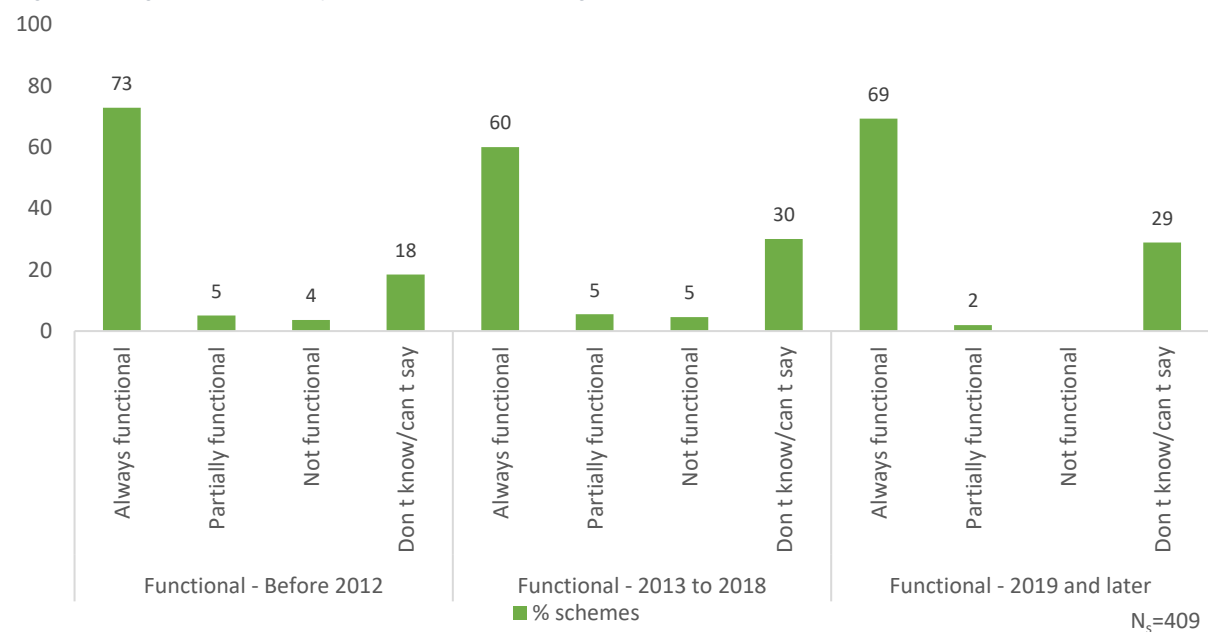
N_H=9095

* 'Functionality' has been computed as the intersection of Adequate Quantity, Fully Regular Supply and Potable (Quality) for households wherein water supply was available at the time of survey, i.e., 9095 HHs.

77 percent HHs in the state were found to have functional HH tap water connection. Rupnagar, and Barnala districts reported more than 95 percent functional households in the state. In the districts of Fazilka, less than two-fifth of the households have functional HH tap water connection highlighting scope for improved service delivery.

C. Age vs functionality of schemes in the villages

Figure 13: Age vs functionality of schemes in the villages



More than two-third of schemes are functional since 2019 which reflects a 9-point increase from 2013-2018.

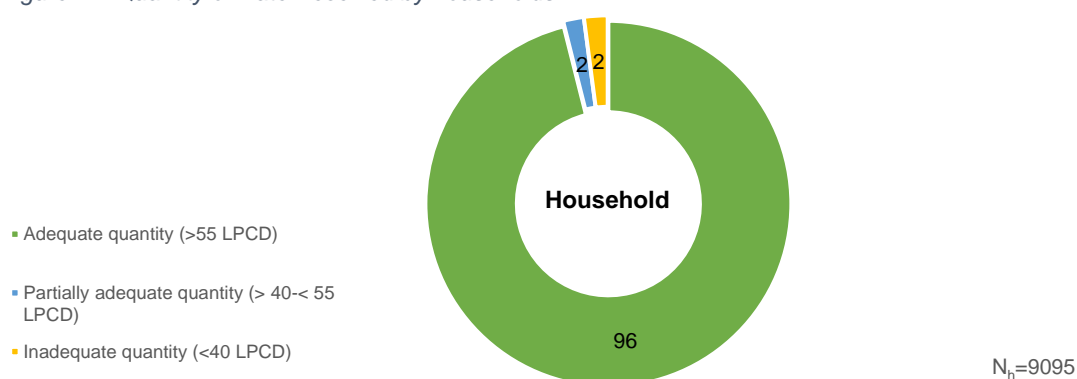
3.2 Quantity, Regularity, and Quality of Water

Under JJM, functionality is defined as having infrastructure, i.e., household tap connection providing water in adequate quantity (55 LPCD or more) of prescribed quality on regular basis (every day or as decided by GP and/ or its sub-committee) with adequate pressure. It also includes long-term source and system sustainability. For the purposes of this survey, the quality parameters are defined and measured on a set of 15 indicators (of which 2 indicators are tested on-site and for 13 indicators water samples have been sent to the laboratories), as mentioned in the glossary section.

A. Water quantity measured as LPCD (Litres per Capita per Day)

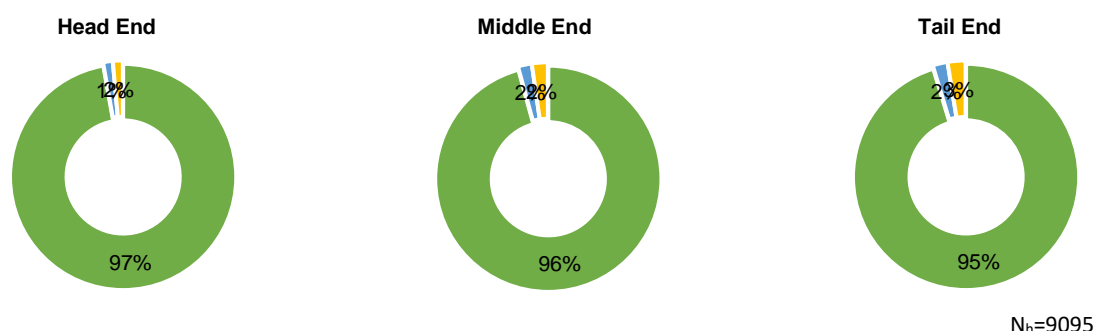
96% HHs reported receiving more than 55 LPCD of water

Figure 14: Quantity of water received by households



Quantity of water received across head, mid, and tail end HHs

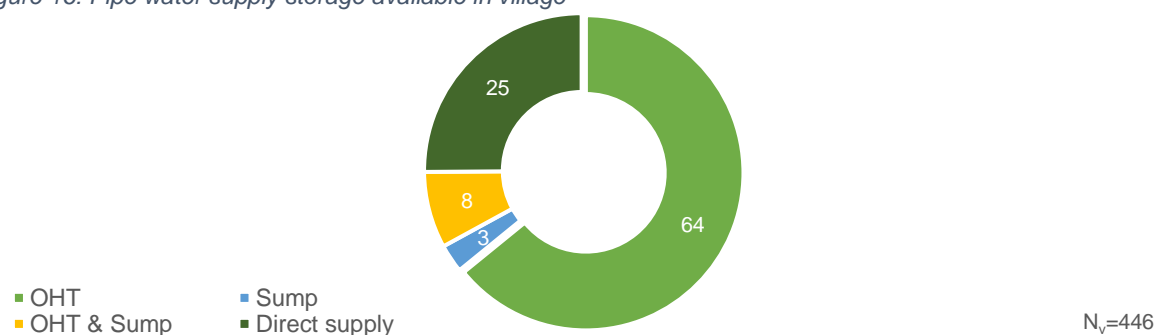
Figure 15: Quantity of water received across head, middle and tail end households



The quantity of water received across the head, middle, and the tail end was observed to be nearly same, and 96% of the sampled households received water in adequate quantity, i.e., greater than or equal to 55 LPCD.

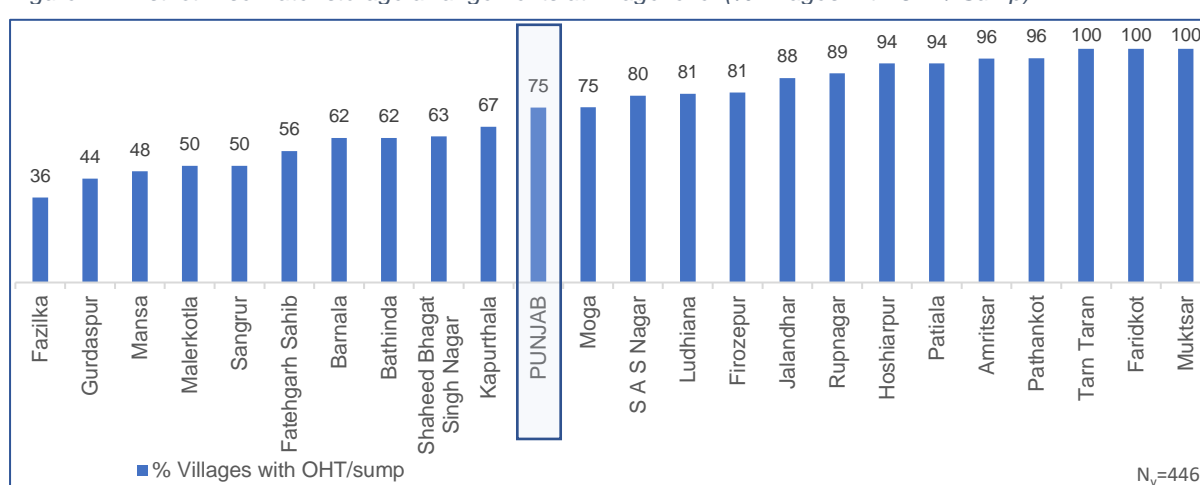
Types of water storage arrangements at village level (in %)

Figure 16: Pipe water supply storage available in village



Two-third respondents in the state reported water being stored in overhead tanks. And one-fourth reported water being supplied directly.

Figure 17: District wise water storage arrangements at village level (% villages with OHT/ Sump)

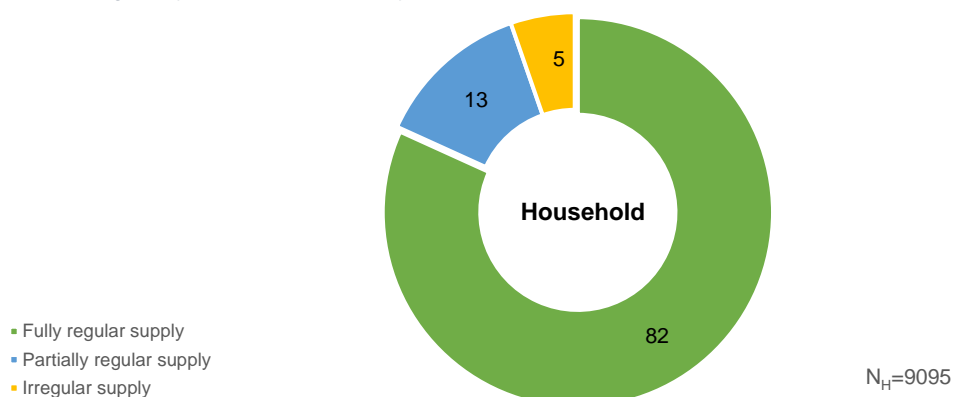


75 percent villages in the state have either an OHT or a sump for storing water for supplying to the households. Tarn Taran, Faridkot, and Muktsar are the only district where all the villages have either an OHT or a sump, followed Pathankot, Amritsar, Patiala and Hoshiarpur where more than 90 percent of the villages have facilities to store water for supplying to the households.

B. Regularity of water supply to households

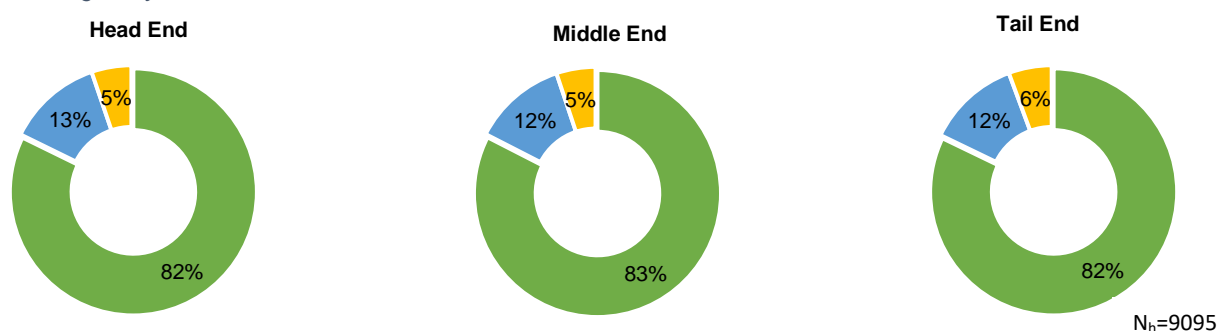
82% HHs receive a regular supply of water (as per agreed schedule).

Figure 18: Regularity of water received by households



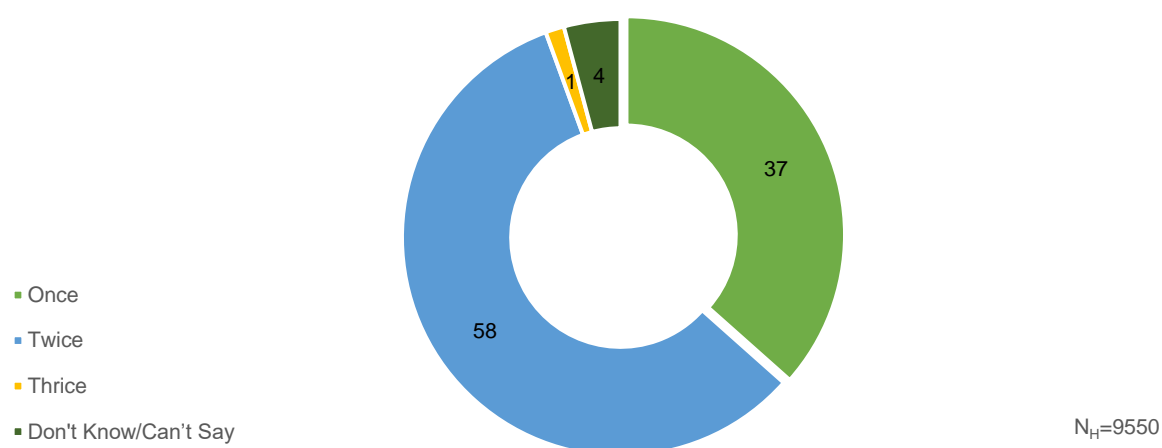
Regularity of water received across head, mid, and tail end

Figure 19: Regularity of water received across head, middle and tail end households



Water is more regularly available at the tail-end households of the PWS in comparison to the head-end.

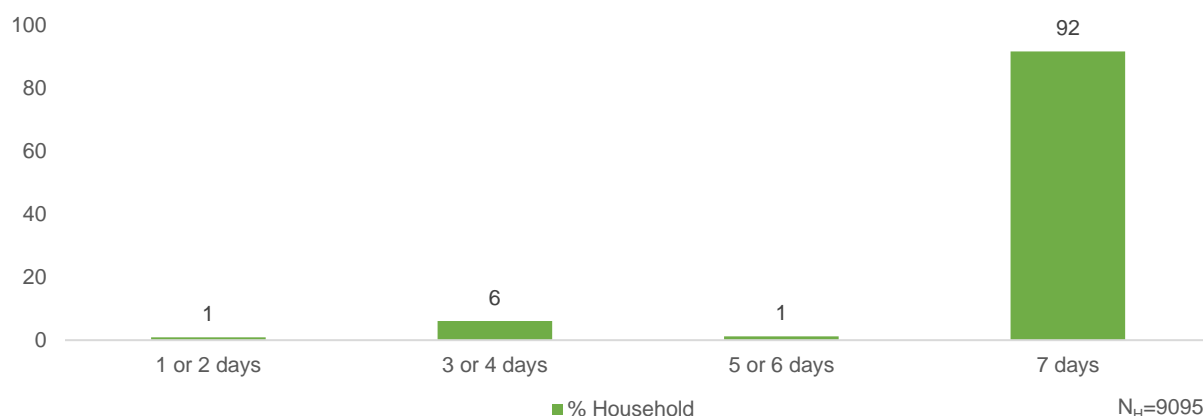
Figure 20: Average no. of times water is supplied in a day



HHs in **58% of districts** receive water twice a day. The average duration of water supply across the state was reported to be **2 hours per day**.

Average water supply days in a week to households

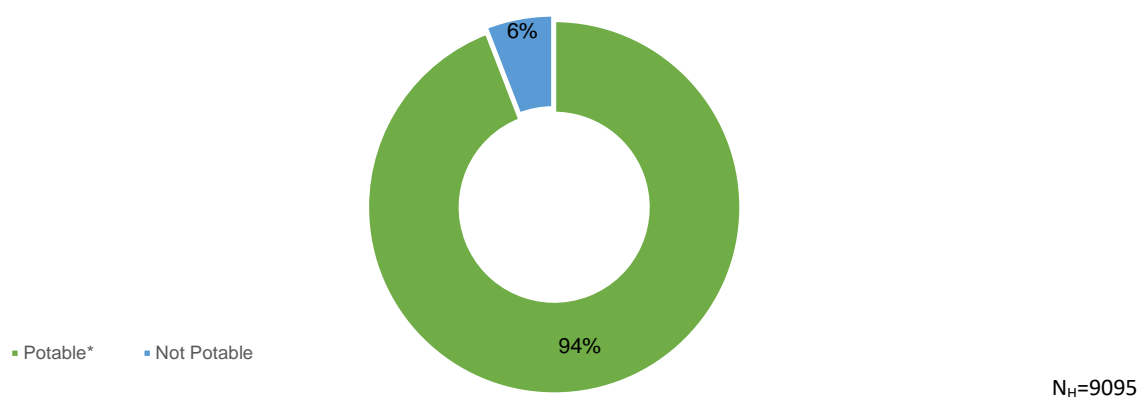
Figure 21: Average number of days households receive water supply in a week (in %)



92 percent of the sampled HHs receive water for all the 7 days in a week.

C. Potability Water – Quality

Figure 22: Potable water received by households



**Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical and bacteriological as given in Table 5 parameters (within acceptable/ permissible range) and onsite testing of pH. The details of laboratory test are mentioned in the table given above in the glossary.*

Among the sampled households in Punjab where water was found on the day of the survey, the potability of water was found to be 94%.

Table No. 4: Village quality parameters reported within permissible range (% sample within permissible range)

Quality Parameters (N _v =446)	Water Samples Tested from Public Institutes			
	Anganwadi Centre	Health Facility	Schools	Others
pH (on-site)	99	100	99	100
Turbidity	100	100	100	98
Total Hardness	98	100	99	100
Total Alkalinity	100	100	100	100
Chloride	100	100	100	100
Ammonia	Not Tested			
Iron	100	100	100	100
Nitrate	92	100	100	100
Sulphate	100	100	100	100
Total Dissolved Solids	98	100	99	100
Bacteriological Test (Absence)	100	100		
Fluoride	100	100	100	100
Arsenic	92	100	84	74

Table No. 5: Household water quality parameters reported within permissible range (in % sample within permissible range)

The number of water samples submitted to the laboratory for the calculation of the different parameters was the same as mentioned in the rest of the report (sample size for HH water submitted to labs=9095). However, the below data are presented based on the results received from the laboratories and the respective base sizes are mentioned for each of the parameters separately.

Quality Parameters	No of water samples tested	% Samples within permissible range
pH (on-site)	9095	99
Turbidity	8055	100
Total Hardness	8046	99
Total Alkalinity	8044	100
Chloride	7131	100
Ammonia	Not Tested	
Iron	1752	100
Nitrate	1773	97
Sulphate	1711	97
Total Dissolved Solids	7911	99
Bacteriological Test (Absence)	296	100
Fluoride	1771	98
Arsenic	1870	90

Safeguarding piped water supply for unforeseen bacteriological contamination- Presence of Residual Chlorine (RC)

The Residual Chlorine (RC) in the state of Punjab was found in 7% samples. Also, 1% samples were having RC outside range whereas 92% samples, had no RC. 100% of the water samples passed the bacteriological contamination test.

The Residual Chlorine in piped water supply is one of the most important preventive actions to assure quality of water against bacteriological contamination from source to consumption. The presence of residual chlorine within permissible limits is indicator of well-maintained and healthy piped water supply system.

It is advised that behavioural change communication campaigns on appropriate dosage of residual chlorine is held in all villages and monitoring system for chlorine dosing is established. The FTK must have residual chlorine testing facility for effective WQM&S.

Comment on functioning of District Lab:

The district lab tested water samples for 12 water quality parameters. 9526 water samples were submitted, and 8448 water samples were tested, and reports made available. The turnaround time for testing was more than 48 hours in most cases. Given this feedback, it can be conferred that these labs have limited scope to take up samples from the general public at large on a regular basis.

Table No. 6: Performance of Labs						
Sl. No	District	Lab available	HH surveyed	Samples submitted	Report received	Overall lab experience
1	Pathankot	Yes	460	459	451	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
2	Gurdaspur	Yes	379	321	317	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
3	Amritsar	Yes	420	438	387	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
4	Tarn Taran	Yes	416	438	430	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
5	Firozepur	Yes	419	355	349	The labs did not have any issue with testing the number

Table No. 6: Performance of Labs						
Sl. No	District	Lab available	HH surveyed	Samples submitted	Report received	Overall lab experience
						of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
6	Fazilka	Yes	415	415	255	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
7	Ludhiana	Yes	495	521	496	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
8	Jalandhar	Yes	381	409	369	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
9	Kapurthala	Yes	423	423	415	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
10	Hoshiarpur	Yes	382	384	299	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
11	Rupnagar	Yes	451	473	466	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
12	S A S Nagar	Yes	466	491	455	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays

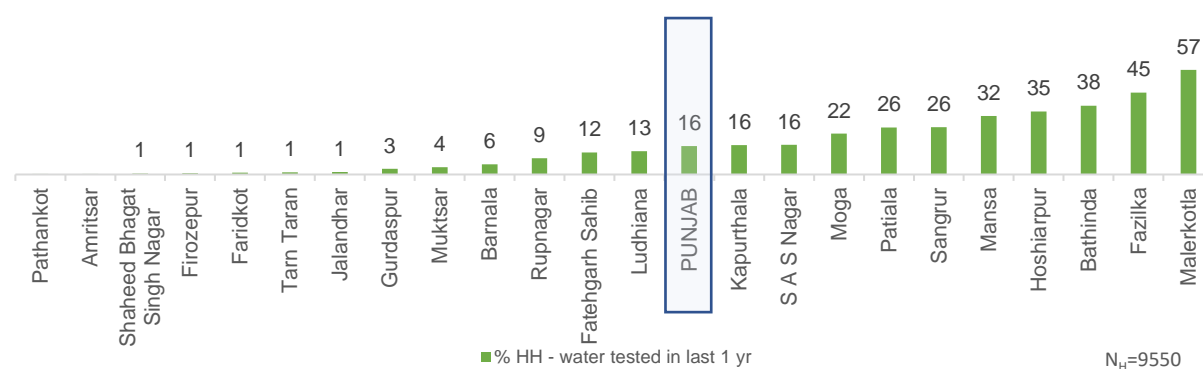
Table No. 6: Performance of Labs						
Sl. No	District	Lab available	HH surveyed	Samples submitted	Report received	Overall lab experience
13	Patiala	Yes	379	392	377	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
14	Malerkotla	Yes	383	374	349	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
15	Sangrur	Yes	409	317	290	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
16	Barnala	Yes	388	404	377	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
17	Bathinda	Yes	399	402	391	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
18	Faridkot	Yes	403	435	300	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
19	Shaheed Bhagat Singh Nagar	Yes	389	387	375	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
20	Fatehgarh Sahib	Yes	389	368	367	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab

Table No. 6: Performance of Labs						
Sl. No	District	Lab available	HH surveyed	Samples submitted	Report received	Overall lab experience
						did not accept any sample of weekends and public holidays
21	Moga	Yes	473	450	434	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
22	Muktsar	Yes	430	461	220	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays
23	Mansa	Yes	401	409	279	The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc. Only concern was the lab did not accept any sample of weekends and public holidays

Households reported that their HH tap-water was collected and tested in the last one year

16% of HHs reported that their HH tap-water was collected and tested in the last one year.

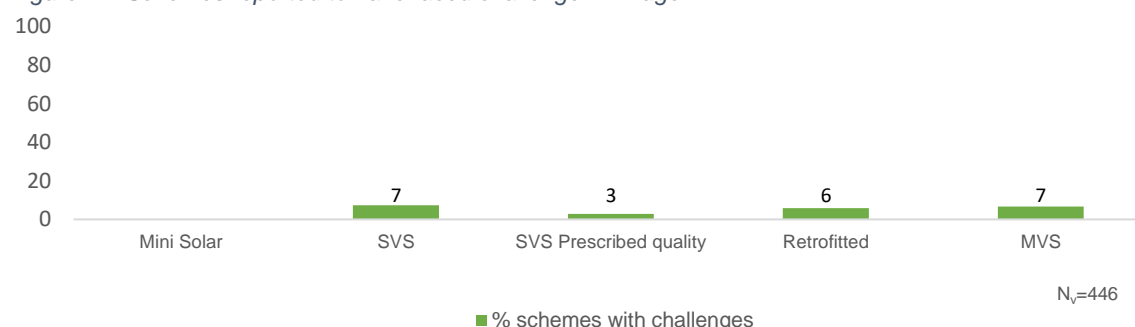
Figure 23: HHs where water was collected and tested in last 1 year



3.3 Operation and Maintenance (O&M) of schemes at village level

The SVS and MVS schemes faced the most challenges (7%) in comparison to the other schemes in the state.

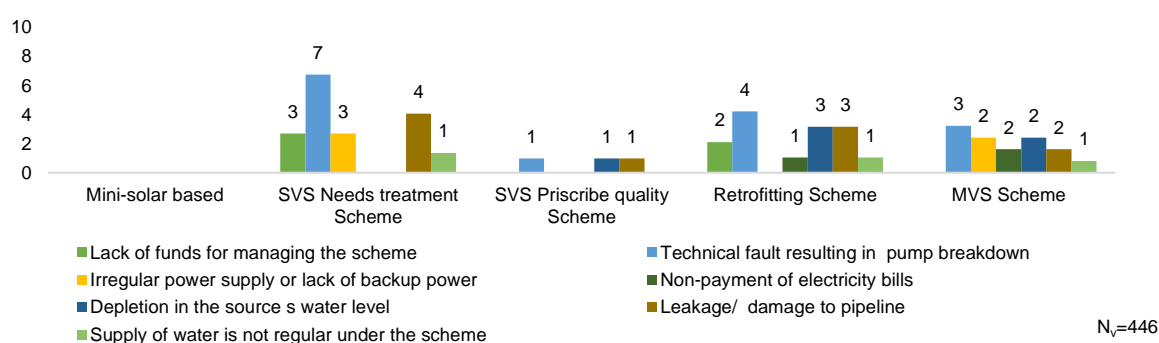
Figure 24: Schemes reported to have faced challenge in village



Type of challenge faced by the schemes

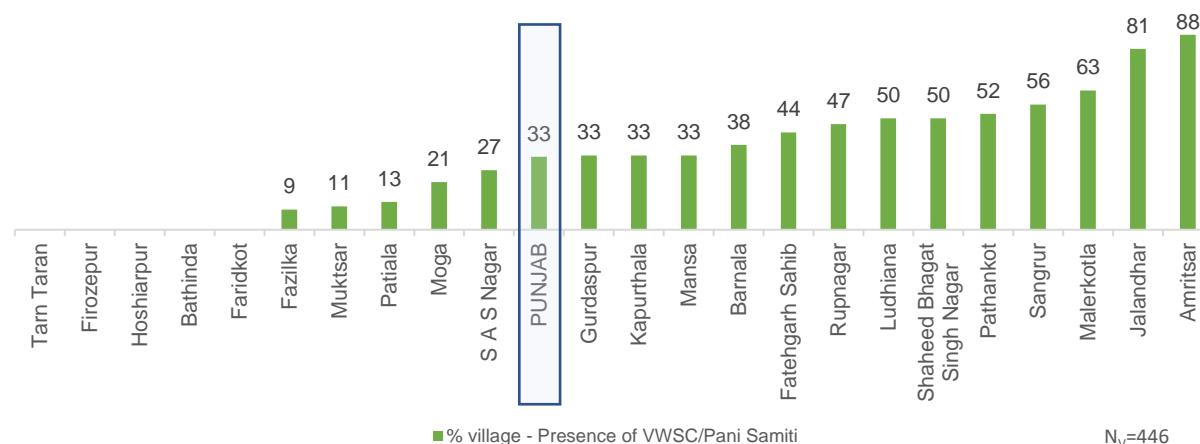
The most faced problem varied from one scheme to another. However, 'Technical fault resulting in pump breakdown' is a problem that was found unanimously in all the schemes.

Figure 25: Type of challenge faced by the schemes



A. Presence of VWSC/Pani Samiti

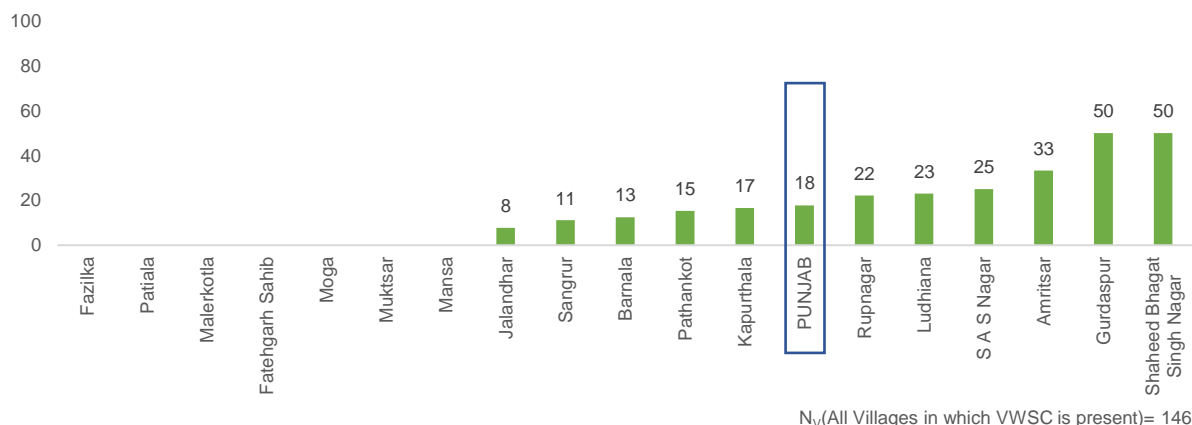
Figure 26: Villages where VWSC/ Pani Samiti is present



33% of villages in the state reported to have a VWSC or a Pani Samiti.

B. VWSC/Pani Samiti with more than 50 percent female members

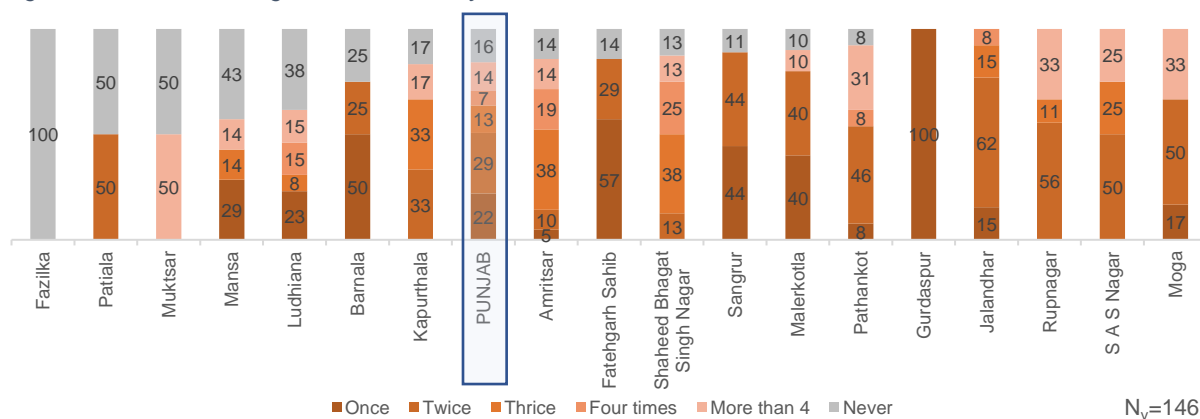
Figure 27: VWSC/ Pani Samiti with more than 50 percent female members



About 18 percent of the VWSC/Pani Samitis in Punjab were having more than 50 percent female members.

C. VWSC Meetings in last one year

Figure 28: VWSC meetings held in last one year

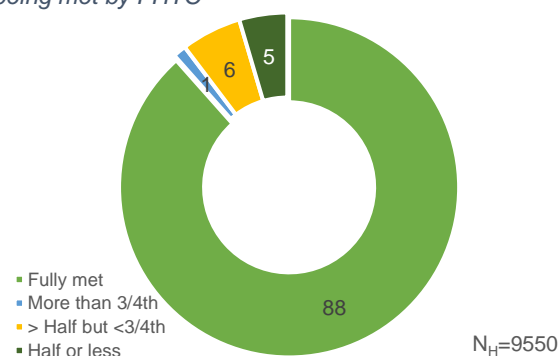


Across the villages in the state, that reported to have VWSC/Pani Samitis (146 villages), 2 meetings in last one year was reported the most (29%)

3.4 Utilization of water at HHs for drinking and other activities

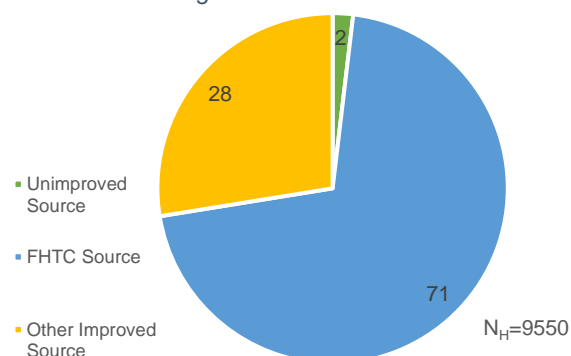
88% of HHs reported that their daily requirement of water was being met by HH tap connections

Figure 30: Daily household's requirement of water being met by FHTC



71% HHs reported HH tap connections as their primary source of drinking water

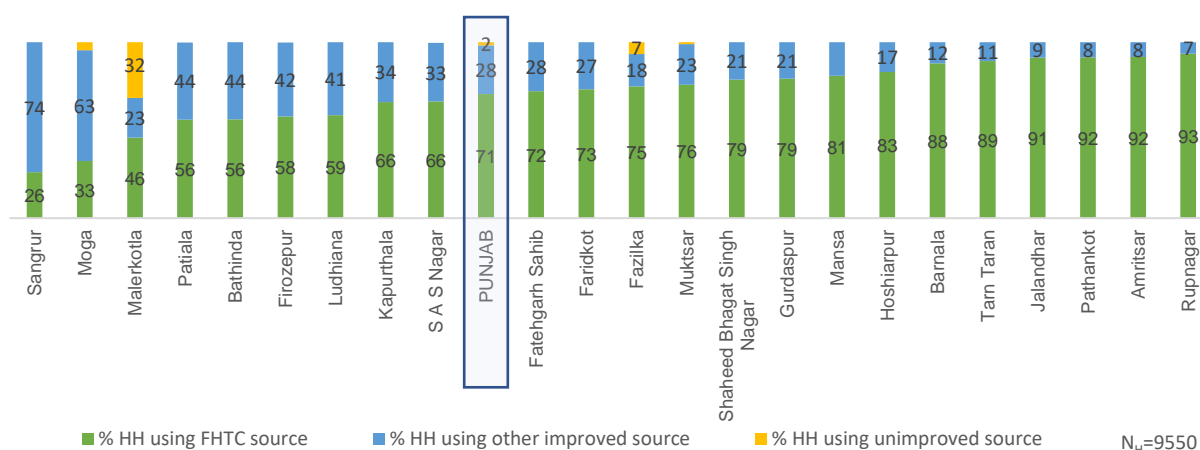
Figure 29: Households reported FHTC as primary source of drinking water



Almost 9 out of 10 (88%) HHs reported their daily requirement of water being fully met by the HH tap connections. And 71 percent HHs reported used household tap connection for drinking water (primary source). About 2 percent of the HHs even though have reported household tap connections to fully meet their requirements, were not found using the same for drinking purposes.

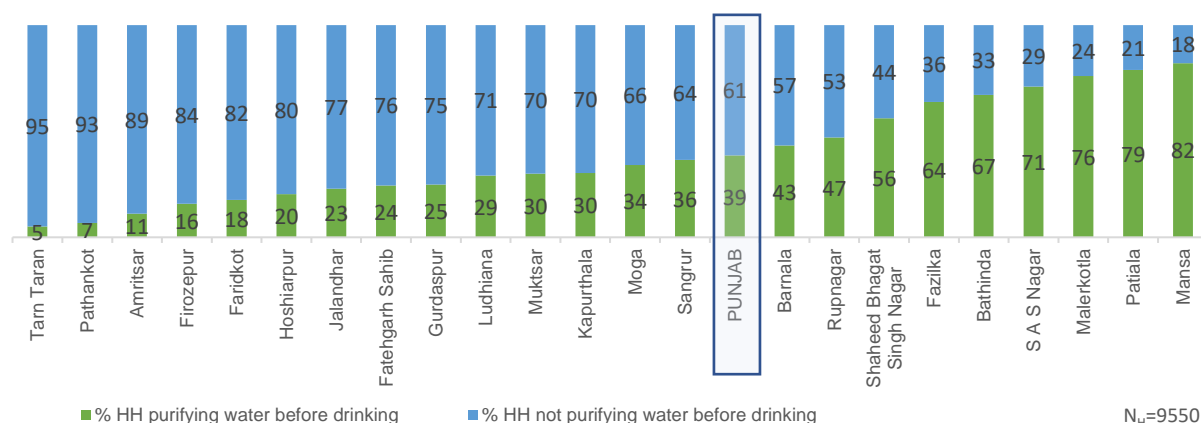
Overall, **98% of HHs** reported using improved primary source of drinking water, out of which **71% of HHs** reported HH tap water as their primary source.

Figure 31: District wise distribution of household's reported FHTC as primary source of drinking water



A. Households who practice of purifying water before drinking

Figure 32: Households who practice of purifying water before drinking

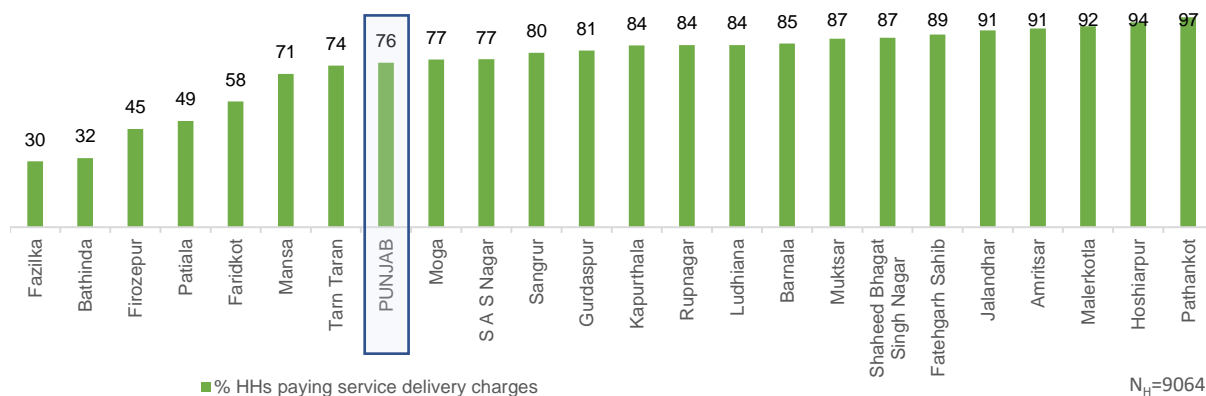


Practice of purifying water before drinking was reported the most in Mansa (82%) where 81% HHs reported using HH tap water as primary drinking water source, while the least was reported in Tarn Taran (5%) where 89% HHs reported using HH tap water as a primary drinking water source.

B. Households paying water service delivery charges

In Punjab, around 76% of the sampled households were found to be paying service delivery charges, Pathankot being the district with the highest percentage of such households (97%) and Fazilka being the districts in which 30% of the sampled households reported of paying water service delivery charges.

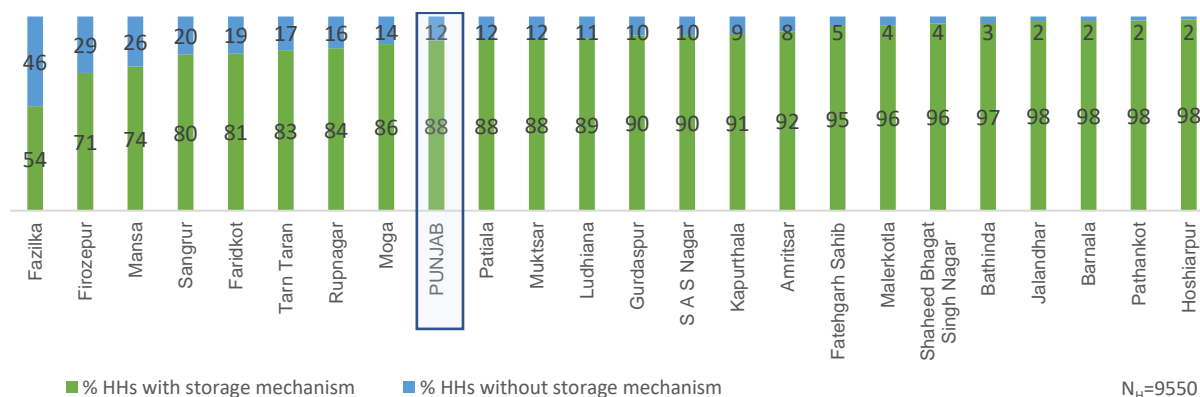
Figure 33: Households paying water service delivery charges



C. Storage mechanism used by households

Overall, 88% households in Punjab were found to use some mechanism to store water in the household.

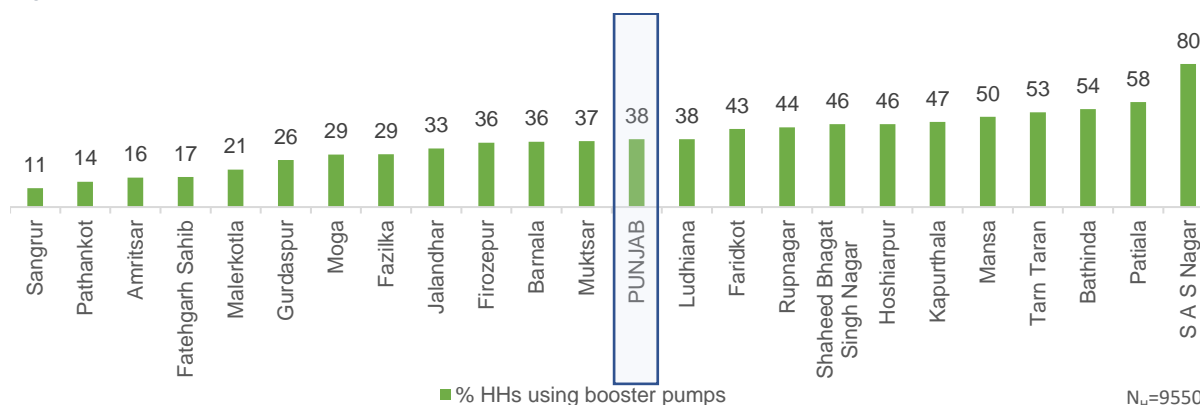
Figure 34: Households reported to have some mechanism to cope with scarcity of water



D. Households using booster pumps

Overall, **38% HHs** reported using booster pumps to maximize the water flow through their piped water connections. SAS Nagar reported 80% of HHs using booster pump in the state while Sangrur reported only 11%.

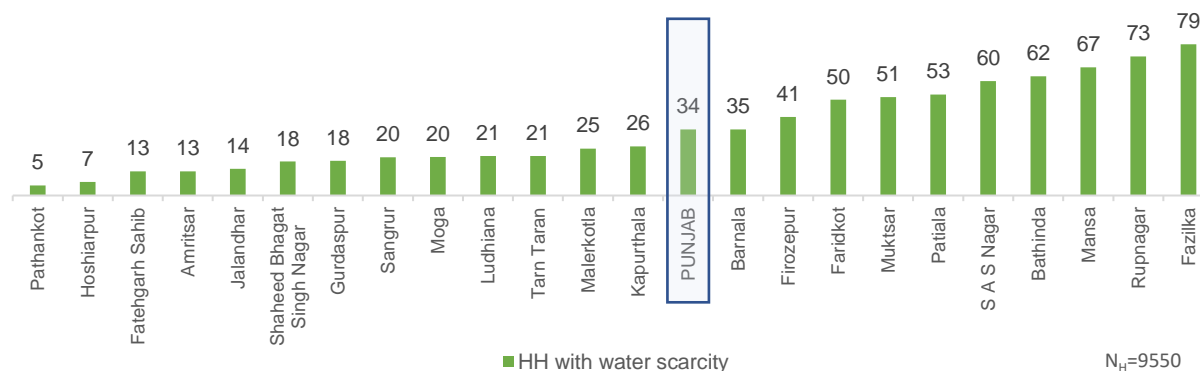
Figure 35: Households reported to use of booster pumps



E. Households who faced shortage of water

In the state, **31% HHs** faced shortage of water during any time of the year.

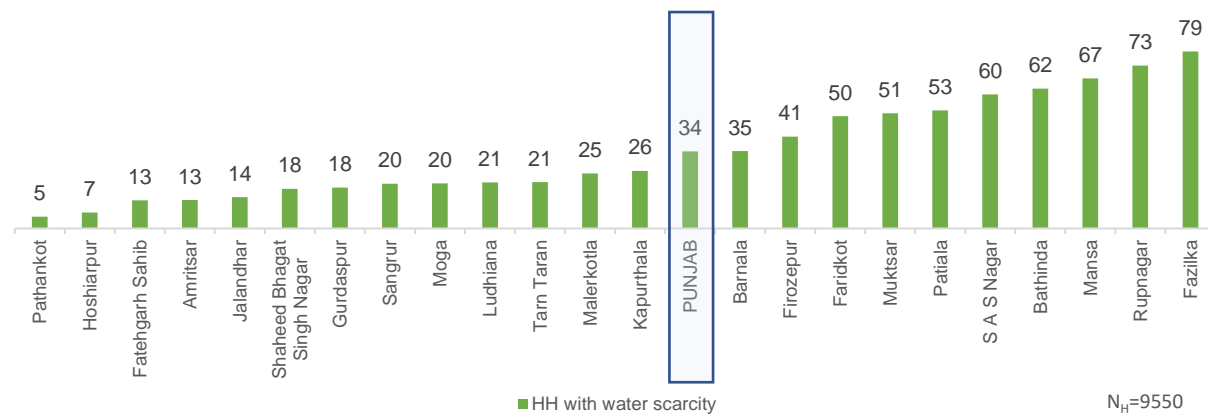
Figure 36: Households who faced water scarcity



F. Households with a mechanism to scope water shortage

In the state, **34% HHs** faced shortage of water during any time of the year, while **32% HHs** reported having some mechanism to cope with scarcity of water.

Figure 37: Households reported to have some mechanism to cope with scarcity of water

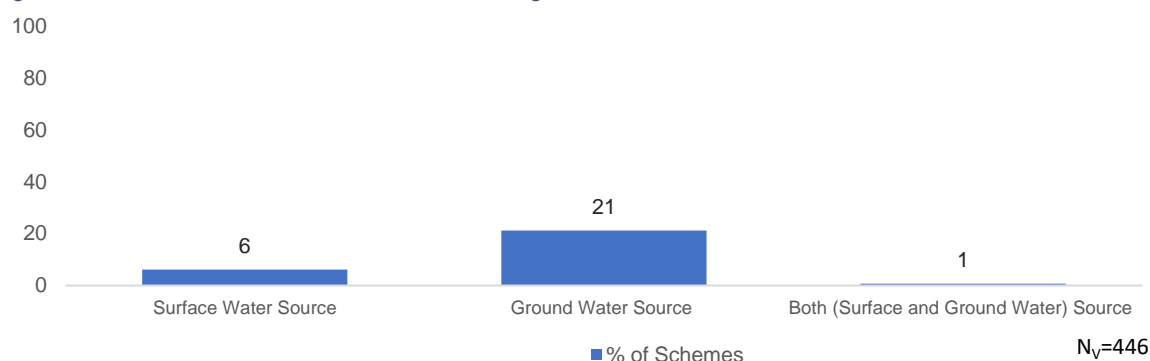


3.5 Source sustainability at the village level

Schemes based on surface and ground water

6% of schemes reported to be based on surface water source while **21% of schemes** reported to be based of ground water sources.

Figure 38: Schemes based on water source in village

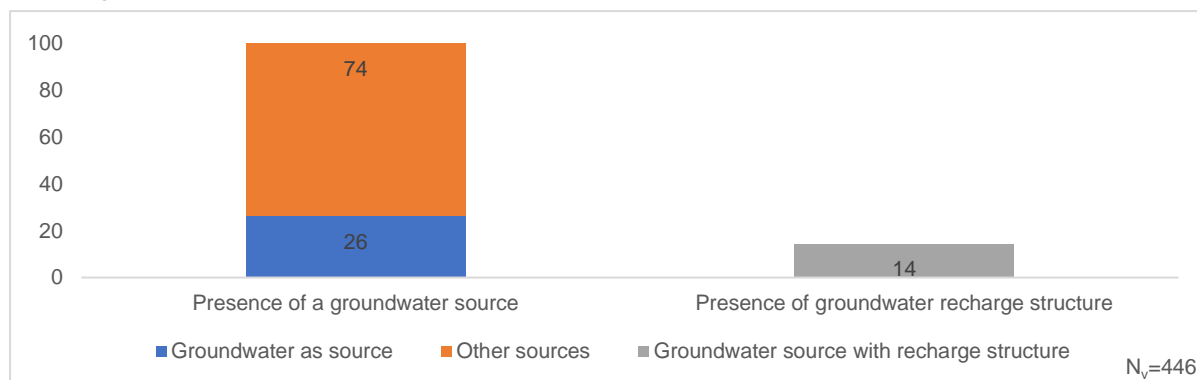


*'Surface Water Source' is Stream, Spring, Glacier, River, lake, pond etc. and Groundwater Source is open well, borewell, tube well, handpump, spring, etc.

Presence of a groundwater source and groundwater recharging structure

In the state, **26% villages** reported the presence of groundwater sources like improved dug wells and borewells. Out of which, 14 percent of villages reported (i.e., 64 villages) reported having a recharge structure.

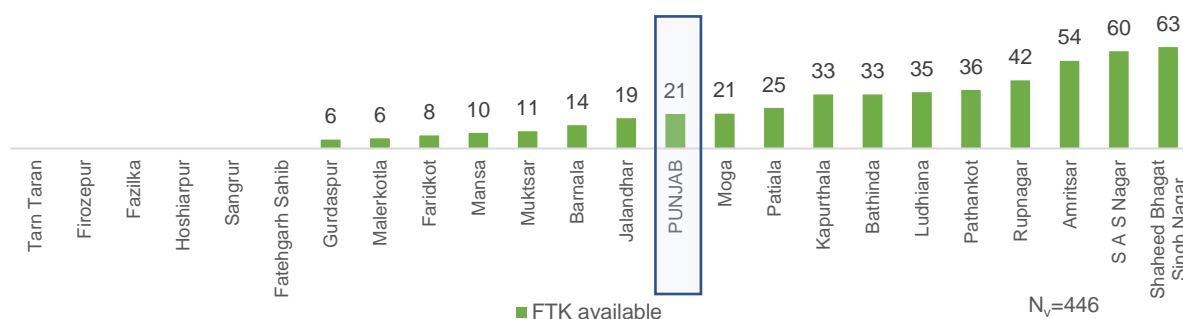
Figure 39: Villages reported the presence of groundwater sources and among those how many reported to have a recharge structure



3.6 Water quality monitoring and surveillance in the villages

A. Water quality management by VWSC: Availability of FTK with the Pani Samiti/ VWSC

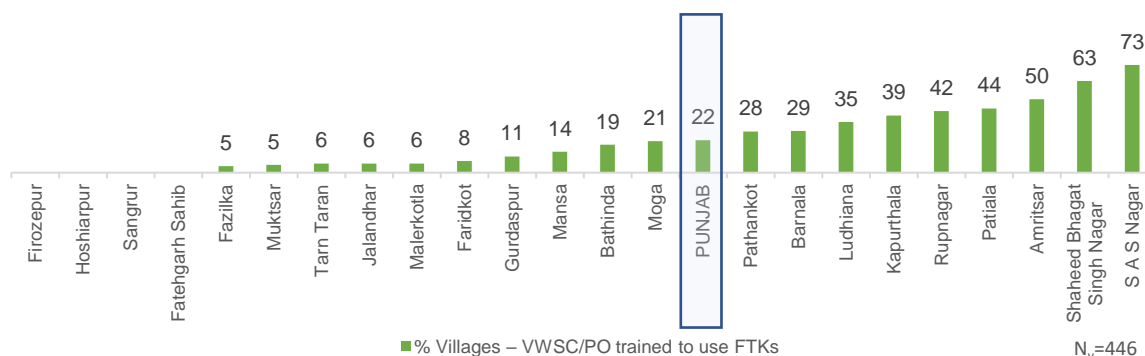
Figure 40: Availability of field test kits with VWSC/ Pani Samiti



With regards to water quality testing in the village by VWSC, 21% villages in the state reported having available field test kits. Shaheed Bhagat Singh Nagar and SAS Nagar reported more than two-third of villages having available field test kits for water quality testing, while Fatehgarh Sahib, Sangrur, Hoshiarpur, Fazilka, Firozepur and Tarn Taran reported less than 1%.

B. Persons trained to use field test kits

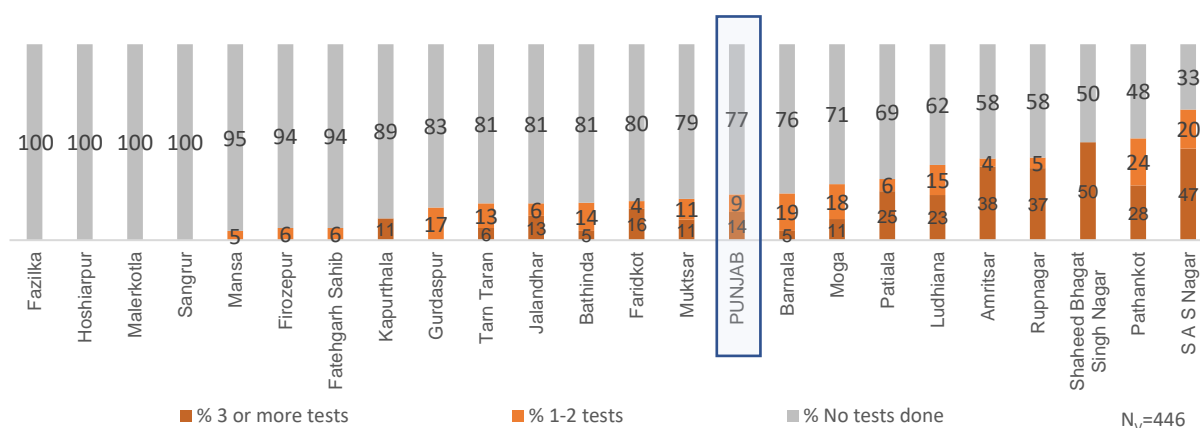
Figure 41: Persons trained to use field test kits



Overall, **22% of villages** in the state reported to have either VWSC/Pani Samiti or pump operator trained to use field test kits for testing the quality of water on-site. SAS Nagar reported more than 70% VWSC/Pani Samiti or pump operator trained to use field test kits while Ftehgarh Sahib, Sangrur, Hoshiarpur and Firozpur reported less than 1%.

C. Water quality management by VWSC: Frequency of testing using FTK

Figure 42: Frequency of testing using FTK in villages

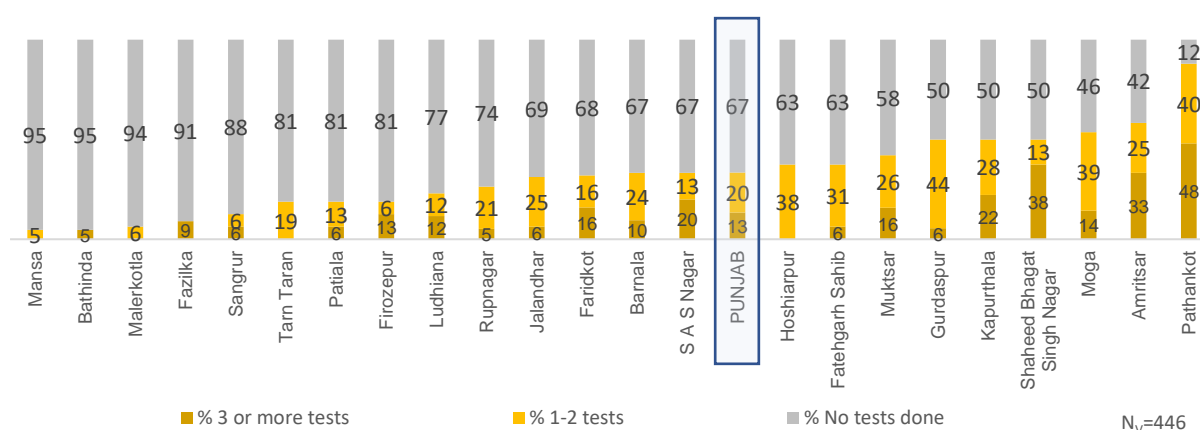


Across the state, more than one-tenth of the total sampled villages (14%) reported that the quality of water (at different points in the respective villages) was checked at least three times using FTKs in last one year. Among the districts, Shaheed Bhagat Singh Nagar had the highest proportion of such villages, wherein 50% of its villages reported using FTKs three or more times in last one year.

D. Water quality management by VWSC: Frequency of lab testing

Across the state, more than one-tenth of the total sampled villages (13%) reported that the quality of water (at different points in the respective villages) was checked at least three times through laboratories in last one year. Among the districts, Pathankot had the highest proportion of such villages, wherein 48% of its villages reported tests through laboratories - three or more times in last one year.

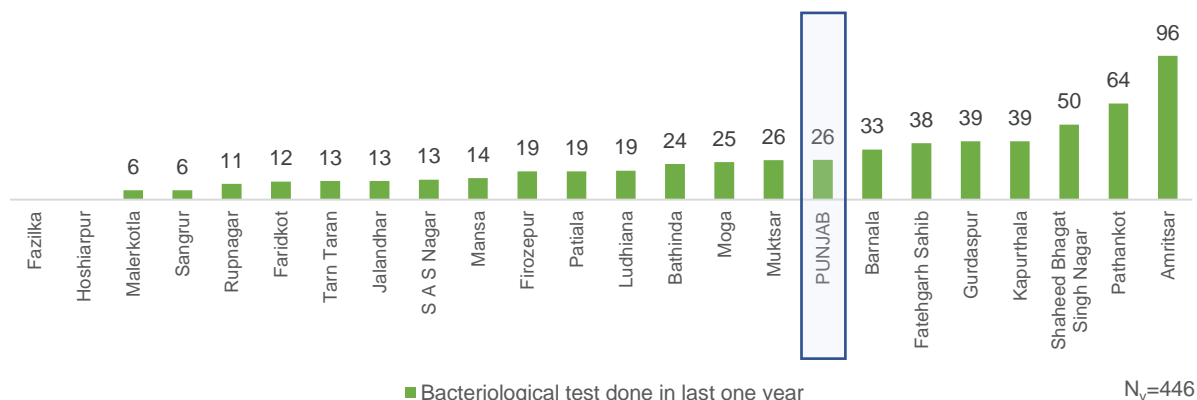
Figure 43: Frequency of lab testing



E. Water quality management by VWSC: Bacteriological test done in last one year

With regards to water quality testing in the village by VWSC, **26% villages** in the state reported having bacteriological test done in the last one year.

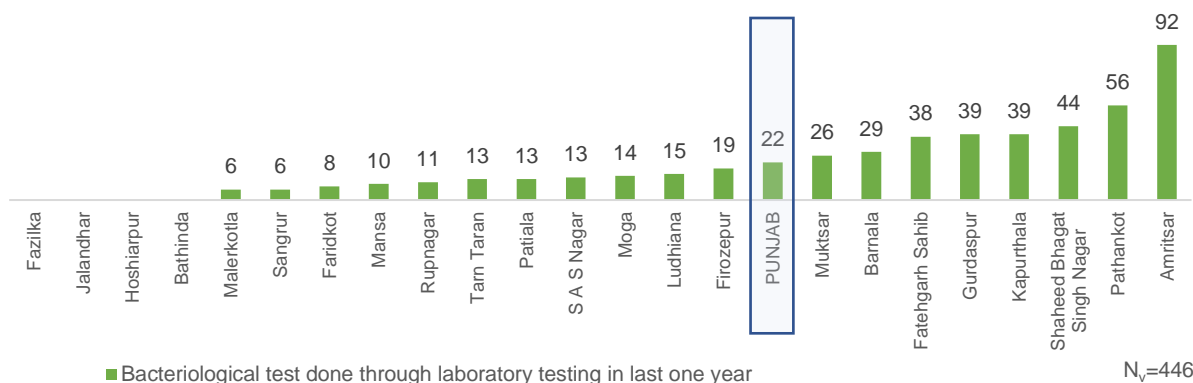
Figure 44: Percent villages in which Bacteriological test was done in the last one year



F. Water quality management by VWSC: Bacteriological test done through laboratory testing in the last one year

Laboratory based bacteriological tests, in last one year, was reported by 22% of sampled villages. More than 90 percent of villages from the district Amritsar reported to have had bacteriological tests done through laboratories in last one year.

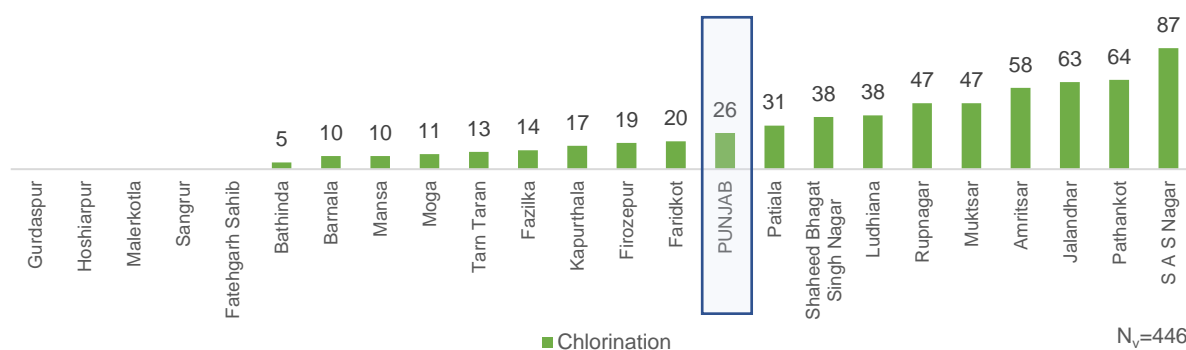
Figure 45: Bacteriological test done through laboratory testing in the last one year



G. Water quality management by villages: Availability of chlorination mechanism in the village

More than **26% villages** reported that there is availability of chlorination mechanism in the village.

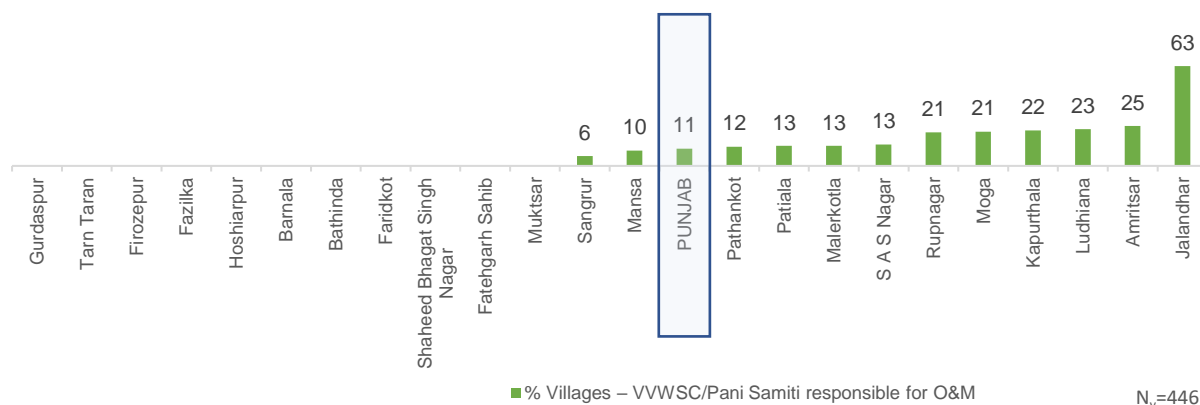
Figure 46: Villages having a mechanism for chlorination



3.7 Management of water service delivery at village level

A. VWSC/Pani Samiti responsibility for O&M of PWS schemes

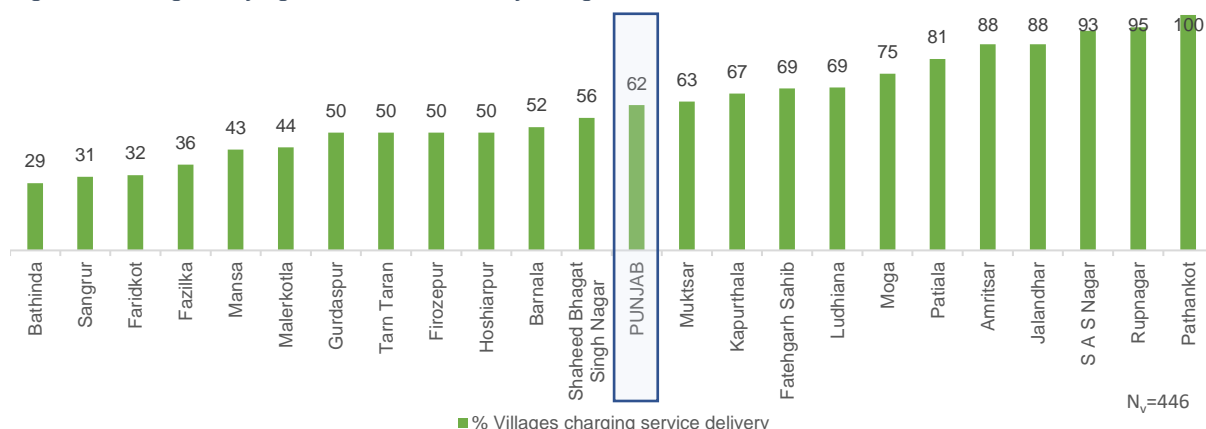
Figure 47: VWSC/Pani Samiti responsibility for O&M of PWS schemes



In the state, **11% villages** that have VWSC/Pani Samiti reported to be responsible for operation and maintenance of PWS, Jalandhar being the district with the highest percentage (63%).

B. Villages levying water service delivery charges from households

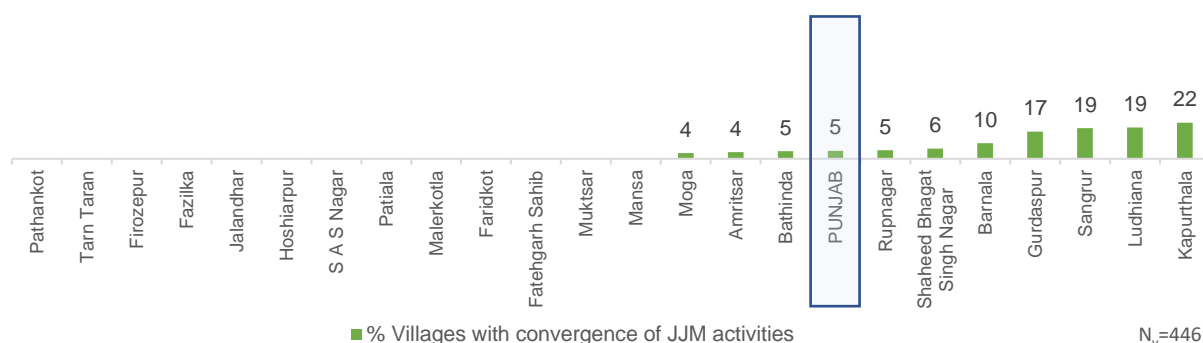
Figure 48: Villages levying water service delivery charges from households



Overall, **62% of villages** in the state levy charge for water service delivery to households whereas **76% HHs** reported paying water service delivery charges at the households.

C. Convergence of JJM activities with other schemes in villages

Figure 49: Village reported convergence of JJM activities with other schemes in the village

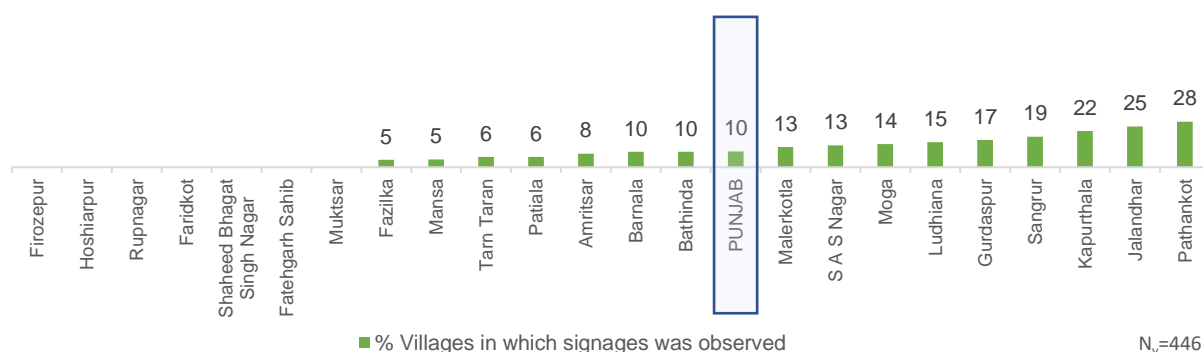


In the state, only **5% villages** in the state reported convergence of activities under JJM with other government programmes/ schemes on skill development, capacity building and training, and awareness generation.

D. Villages where signages were observed

Signages about JJM were observed in 10% of the sampled villages. District Pathankot had the highest proportion of villages where signages were observed (28%).

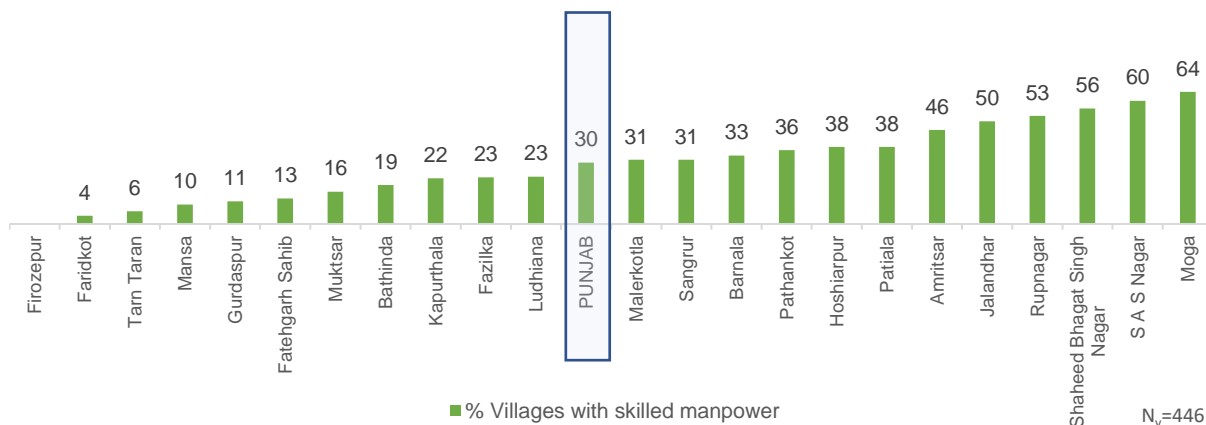
Figure 50: Villages in which signages about JJM was observed



3.8 Status of Operation & Maintenance

A. Villages with skilled manpower for operation and maintenance (O&M) of PWS schemes

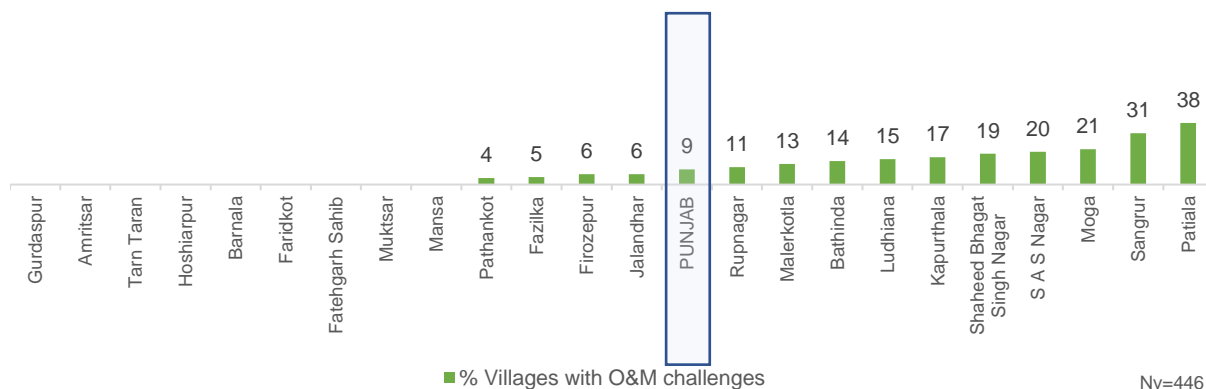
Figure 51: Villages reported having skilled manpower for O&M of PWS schemes



Across the state, **30% villages** in the reported having identified skilled manpower for O&M of PWS schemes, the most reported to be in Moga (64%).

B. Villages with O&M challenges

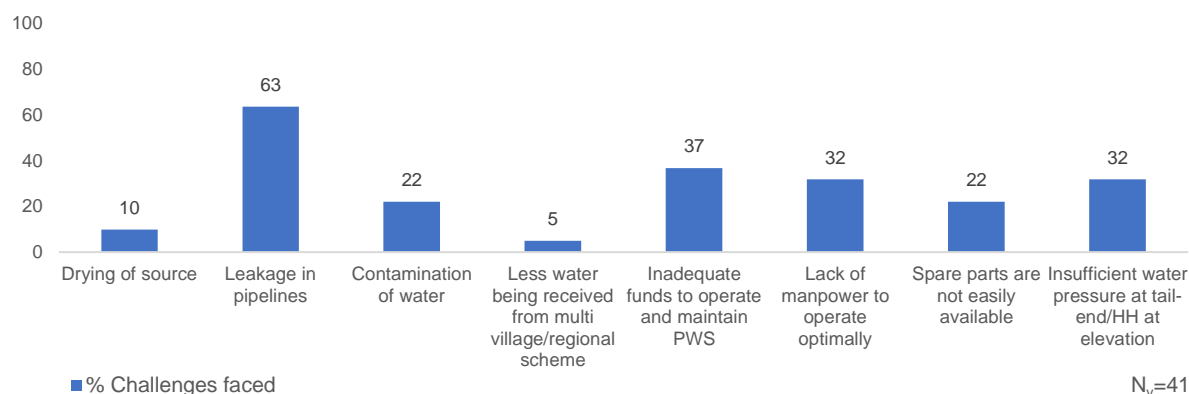
Figure 52: Villages reported having faced O&M challenge



In the state, **9% of villages** in the state reported to have faced challenges with respect to O&M of PWS schemes

C. Details of challenges faced

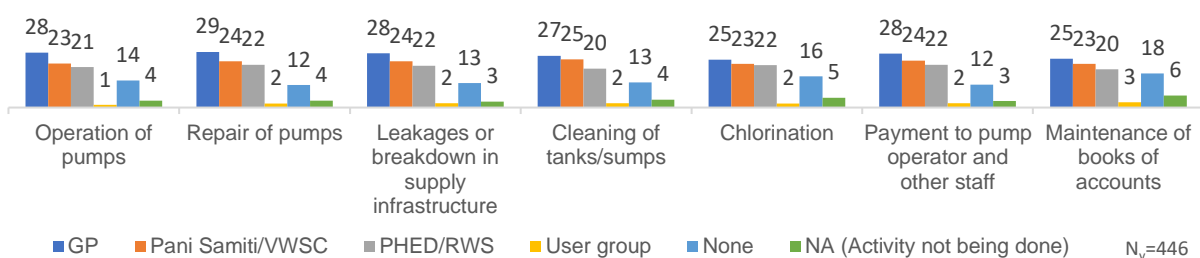
Figure 53: Details of O&M challenges faced by village



Out of the 9% of villages that had faced challenges with respect to O&M of PWS schemes (41 villages), 'leakage in pipelines' was attributed the most – at 63%.

D. Responsible for O&M

Figure 54: Different bodies responsible for O&M

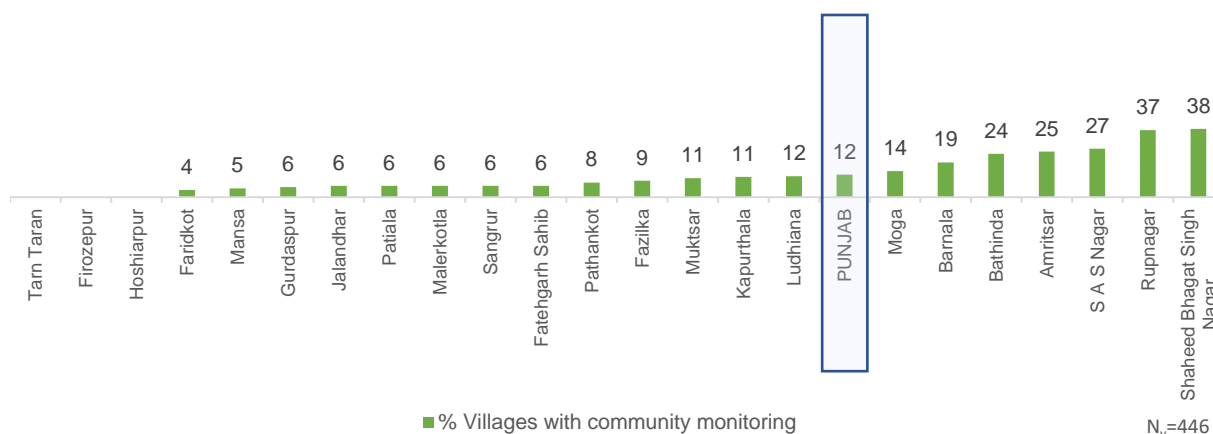


Across the state, villages reported 'GP' the most for being responsible for all essential aspects about operation and maintenance of PWS schemes.

E. Villages with community level monitoring of water wastage

12% of villages in the state reported to have community level monitoring of water wastage

Figure 55: Villages reported having community level monitoring of water wastage

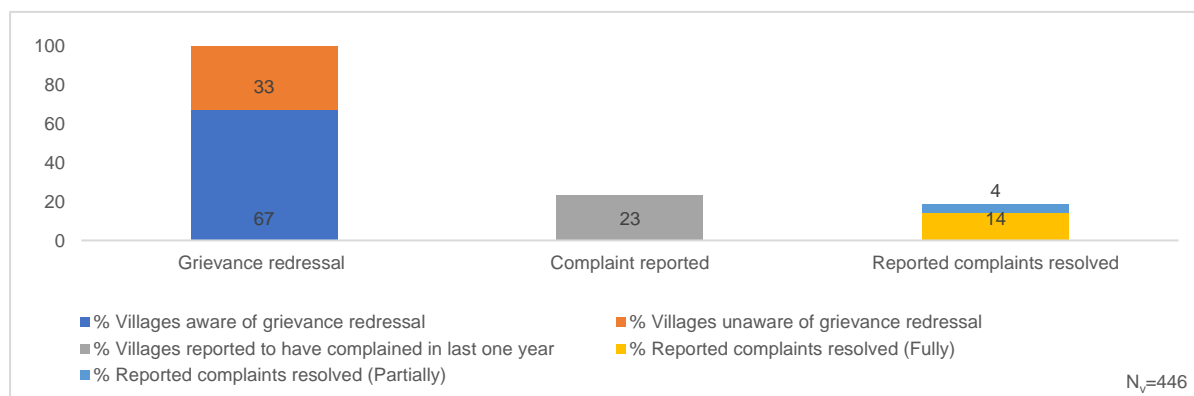


3.9 Status of service delivery related grievances and redressal

A. Village level

Grievance redressal at village

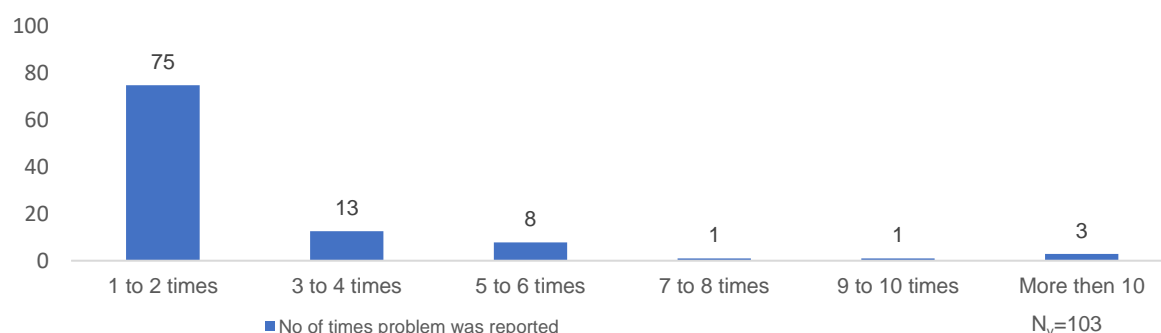
Figure 56: Reporting of grievance redressal at village level



In the state, **67% of villages** reported that they are aware of any grievance redressal mechanism, but only 23% HHs have reported a complaint in the last one year amongst which 14% reported that the complaints are fully resolved while 4% of complaints have been partially resolved.

Problem reported in last 1 year

Figure 57: Number of times villages have reported grievance in last 1 year

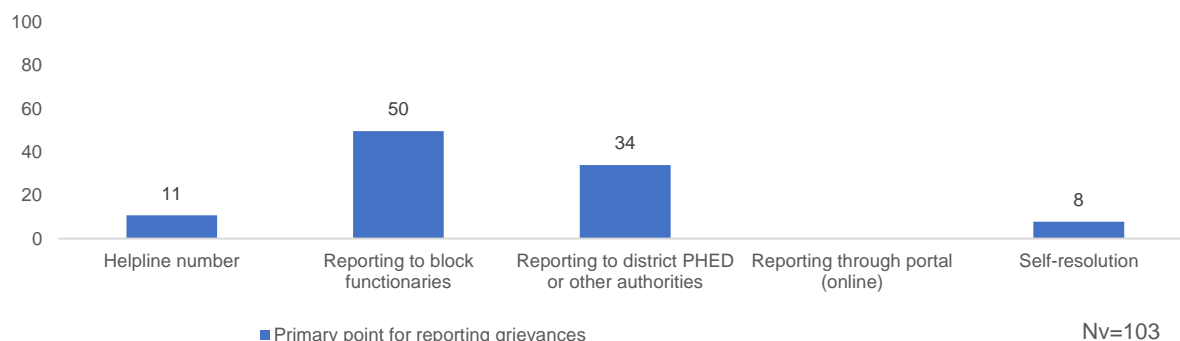


Among the villages who reported a complaint (i.e. 103 villages), 75% villages have reported a complaint once or twice in the last one year, while 13% reported a complaint at least thrice or four times.

Primary points for reporting grievances

Among those who reported complaint (i.e., 23% HHs, 103 villages), **50% of villages** reported that they report their grievances to **block functionaries** beside other reporting-points

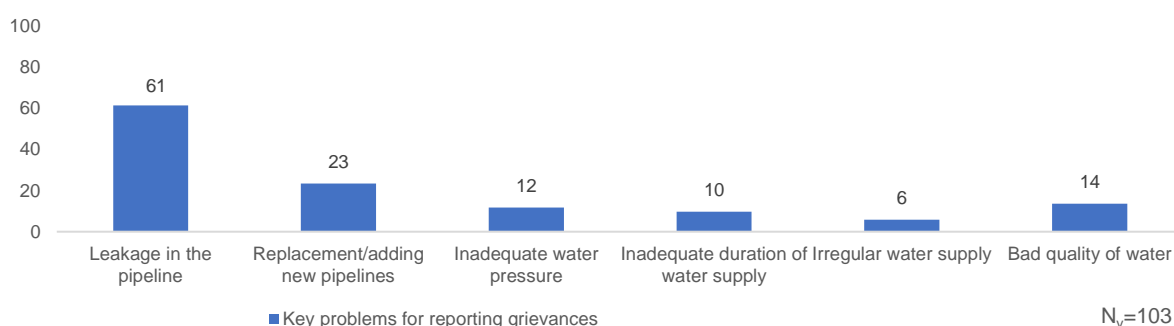
Figure 58: Primary points for reporting grievances by village



Key problems for reporting grievances

Overall, among those who reported complaint (i.e., 23% HHs, 103 villages) **61% of villages** reported that **leakage in the pipeline** is their most encountered problem for reporting grievances

Figure 59: Key problems reported by village

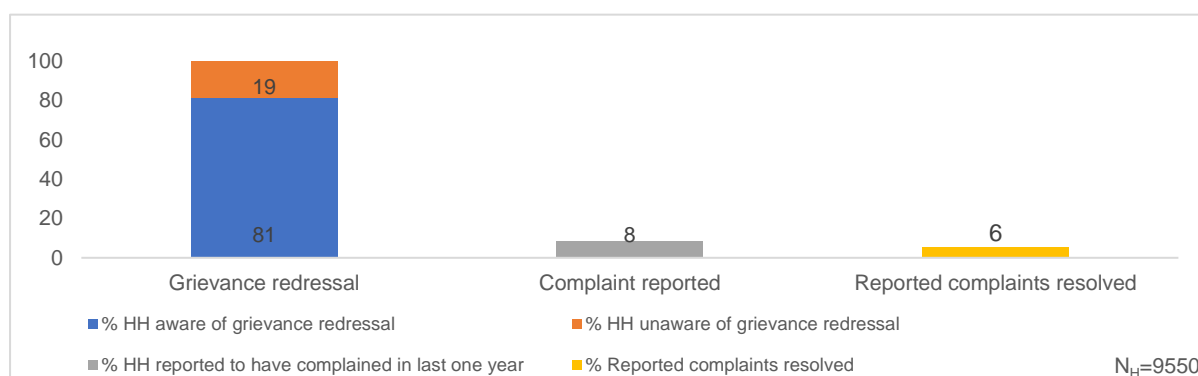


B. Household level

Awareness of grievance redressal at household

In the state, **81% of HHs** reported that they are aware of any grievance redressal mechanism w.r.t. HH tap water through PWS, but only 8% HHs have reported a complaint in the last one year and only 6% of complaints have been resolved.

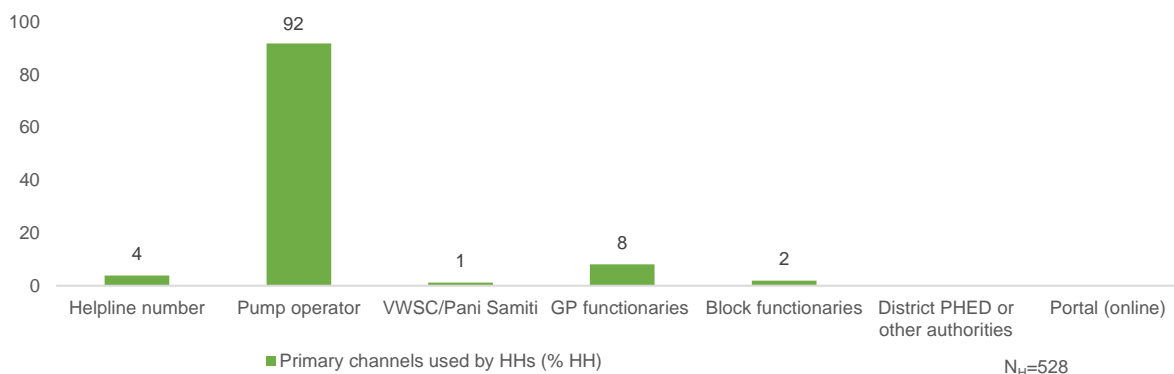
Figure 60: Reporting of grievance redressal at household level



Primary channels for reporting grievances by households

Among those who reported complaint as shown in the above graph (i.e., 8% HHs, 528 HHs), **92%** of the HHs reported their complaints to the **pump operators** beside other reporting-channels.

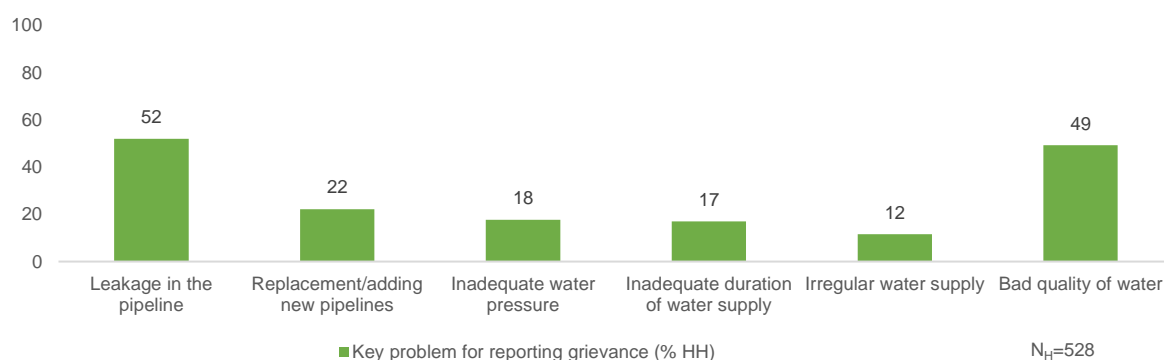
Figure 61: Primary channels for reporting grievances by households



Key problems for reporting grievances

Overall, among those who reported complaint (i.e., 8% HHs, 528 HHs) **52%** of the HHs that reported problems was of **leakage in the pipeline** beside other problems.

Figure 62: Key problems reported by households

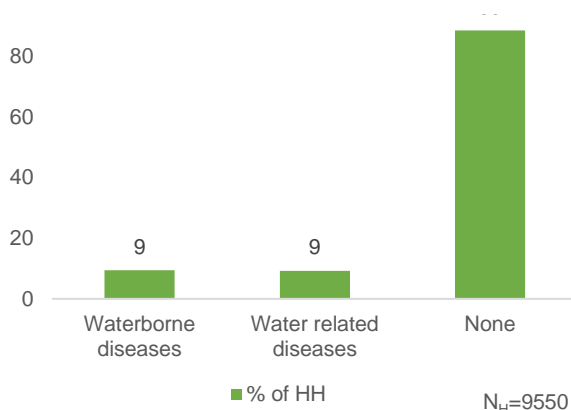


3.10 Perception of HHs on Outcome Indicators

A. Incidence of water borne diseases at HH level in last one year

Across the state only 9% HHs reported having an incidence(s) of water borne diseases and 9% having water related diseases in your household in last one year. The cases recorded were of Dysentery, Diarrhea, Cholera and Typhoid

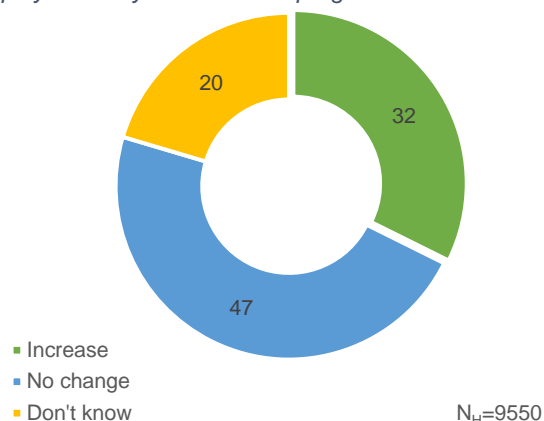
Figure 64: Household reported incidence of water borne diseases in last one year



B. Change in employment days since FHTC programmes/schemes

Since having a functional HH tap connection, 32% HHs across the state has reported that there has been a change in the no. of employment days of the adult HH members while 47% HHs reported no change

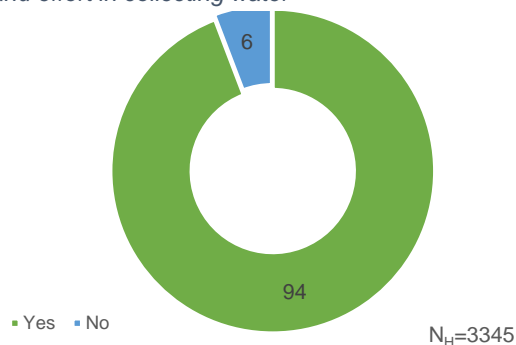
Figure 63: Household reported a change in employment days since FHTC programmes /schemes



C. Reduction in time and effort in collecting water

Out of the HHs reported (i.e. 3345) that female members used to fetch water before HH tap connection, 94% reported that post installation of HH tap connection it helped reduction of time and effort in collection of water

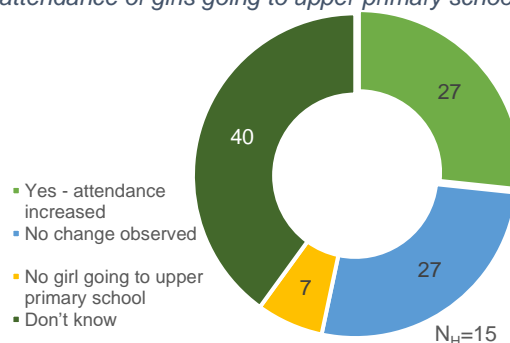
Figure 65: Households reported reduction in time and effort in collecting water



D. Impact on attendance of the girls going to upper primary

Across the state, 27% HHs reported that since having a functional HH tap connection the attendance of the girls going to schools increased, while 27% HHs reported no change in attendance which could possibly be an impact of shutting down of schools due to COVID-19 related lockdown during the survey

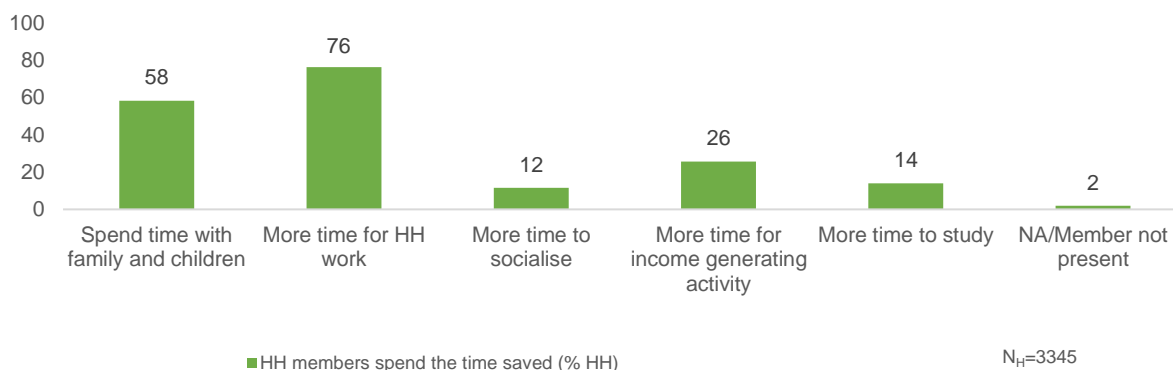
Figure 66: Households reported increase of attendance of girls going to upper primary school



E. HHs are using time saved due to provision of tap connection

Time saved by female HH members against collecting water, post installation of HH tap connections, was reportedly most utilized for other HH work (76%).

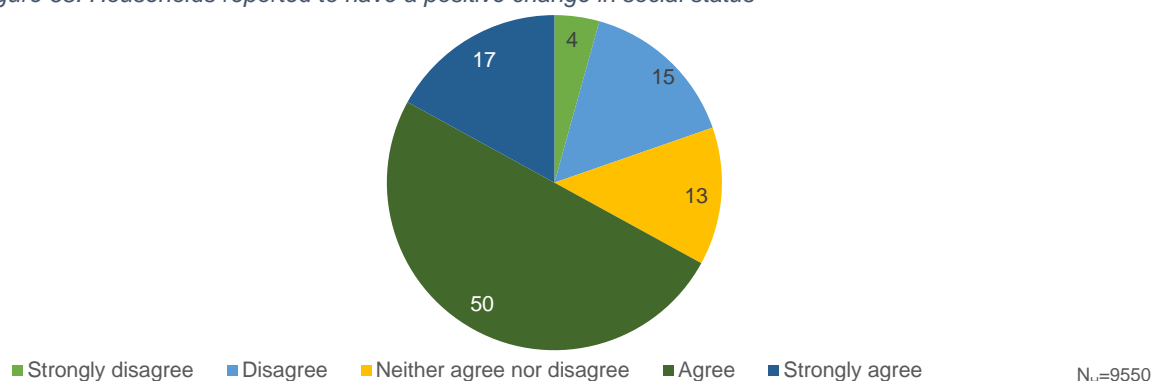
Figure 67: Utilization of time saved by households post installation of HH tap connection



F. Change in social status

Sense of pride and positive change in social status was reportedly realized by 50% of HHs post the installation of HH tap connections.

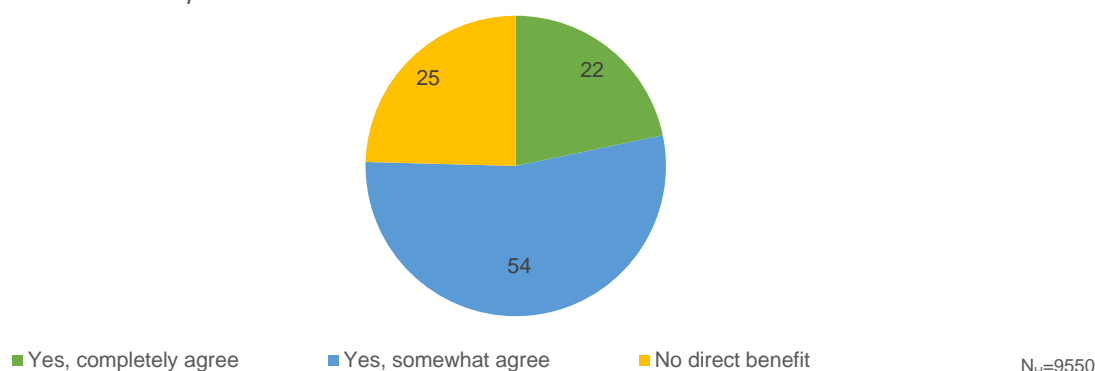
Figure 68: Households reported to have a positive change in social status








G. Direct benefits in terms of income due to FHTC

Across the state, 22% of sampled HHs reported being in complete agreement that there had been direct benefits on their HH income since the installation of HH tap connection, while 54% HHs reported being in partial agreement against the same.

Figure 69: Households reported to have received direct benefits in terms of income due to FHTC



3.11 User satisfaction

Table No. 7: User satisfaction - more than 75% happy with FHTC services			
S. No.	Parameter (N _h =9549)		In %
1	Regularity		89.3
2	Overall quality		88.2
3	Colour		88.6
4	Taste		87.9
5	Odour		84.1

Note:

Base (N_v)=446 means all villages sampled and covered in Punjab state

Base (N_H)=9550 means all households sampled and covered across the 446 villages in Punjab state

Base (N_H)=9060 means all households sampled where water sample be collected across the 446 villages in Punjab state

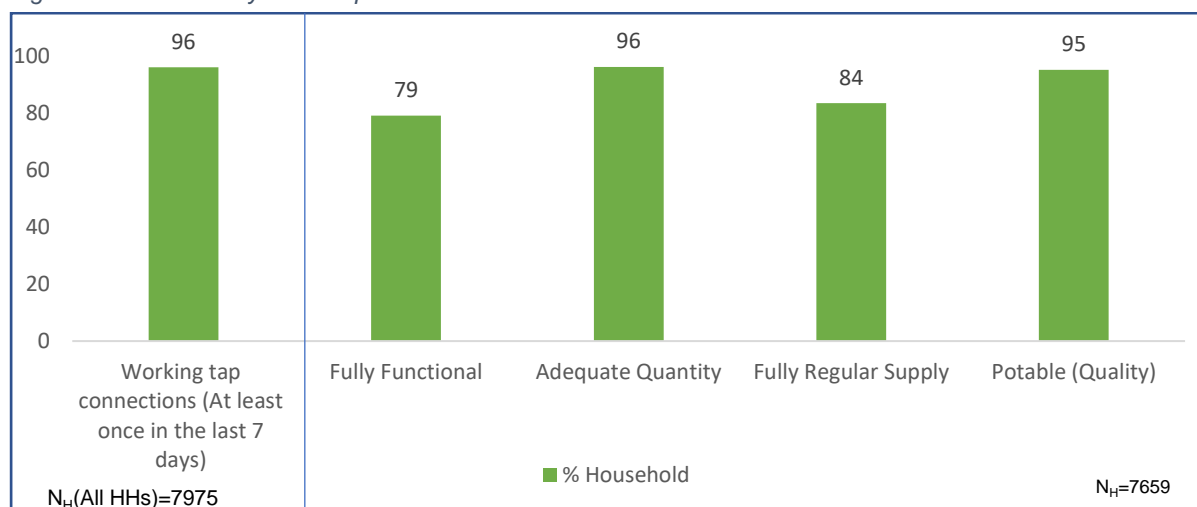
Base (N_H)=3345 means all households sampled where female members used to fetch water before HH tap connection

Base (N_H)=15 means all households sampled that had adolescent girls as one of HH members

4. Functionality status of FHTC at household level for Har-Ghar-Jal villages

4.1. Overall Functionality (in %)

Figure 70: Functionality of HH tap connection for Har Ghar Jal districts



* Fully Functional has been computed as = Adequate Quantity \cap Fully Regular Supply \cap Potable (Quality)

Please note: For Har Ghar Jal district, N_H=7659 implies all HHs where water was found on the day of the survey.

It has been found that 96 percent of the sampled HHs (N=7975) had working tap connections. 79 percent HHs in the state were found to have fully functional HH tap water connection. Moreover, almost all the households (96 percent) received adequate quantity (≥ 55 LPCD) of water supply and more than 4 out of 5 received regular supply (84 percent) of water. The on-site testing and lab test results of the water indicates that more than 9 out of 10 (95%) sampled households in the state receive potable water.

S. No.	District	Working tap connections (HHs which received water through FHTC at least once in the last 7 days) (% HH)	Fully functional (% HH)	Adequate Quantity (% HH)	Full Regular Supply (% HH)	Potable (Quality) (% HH)
1.	Amritsar	100	52	99	97	55
2.	Tarn Taran	100	91	91	91	100
3.	Ludhiana	100	86	99	87	100
4.	Jalandhar	100	94	100	95	98
5.	Kapurthala	100	94	100	95	100
6.	Hoshiarpur	100	92	100	93	99
7.	Rupnagar	100	98	100	98	100
8.	S A S Nagar	100	82	98	88	90
9.	Patiala	100	67	99	74	83
10.	Barnala	100	97	100	98	99
11.	Faridkot	100	70	93	72	100
12.	Muktsar	100	56	87	61	97
13.	Mansa	99	36	81	42	100
14.	PUNJAB	96	79	96	84	95
15.	Malerkotla	95	83	99	85	98
16.	Bathinda	95	43	88	49	84
17.	Firozepur	94	82	98	83	100

Table No. 8: Quantity, Regularity, and Quality of FHTC for aspirational districts (%HH)						
S. No.	District	Working tap connections (HHs which received water through FHTC at least once in the last 7 days) (% HH)	Fully functional (% HH)	Adequate Quantity (% HH)	Full Regular Supply (% HH)	Potable (Quality) (% HH)
18.	Fazilka	94	39	69	42	100
19.	Shaheed Bhagat Singh Nagar	94	86	99	93	93
20.	Pathankot	91	92	100	99	92
21.	Fatehgarh Sahib	91	91	100	91	100
22.	Moga	91	86	99	88	99
23.	Gurdaspur	86	92	100	92	100
24.	Sangrur	79	95	100	97	98

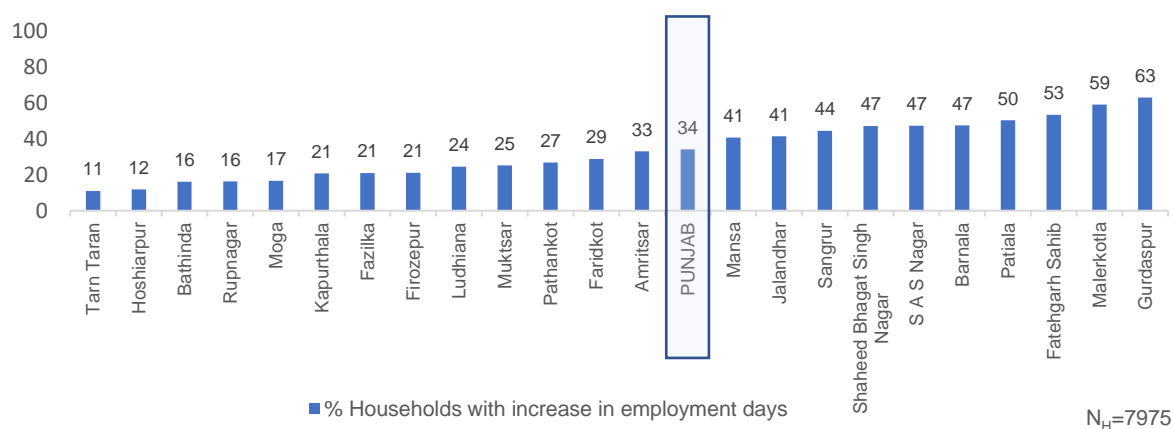
Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical, and bacteriological as given in Table 5 parameters (within acceptable/ permissible range) and onsite testing of pH. The details of laboratory test are mentioned in the table given above in the glossary.

4.2. Perception of HHs from Har-Ghar-Jal villages on Outcome Indicators

A. Change in employment days since FHTC programmes/ schemes

Across the state, 34% of the sampled households reported that employment days increased since the installation of FHTC.

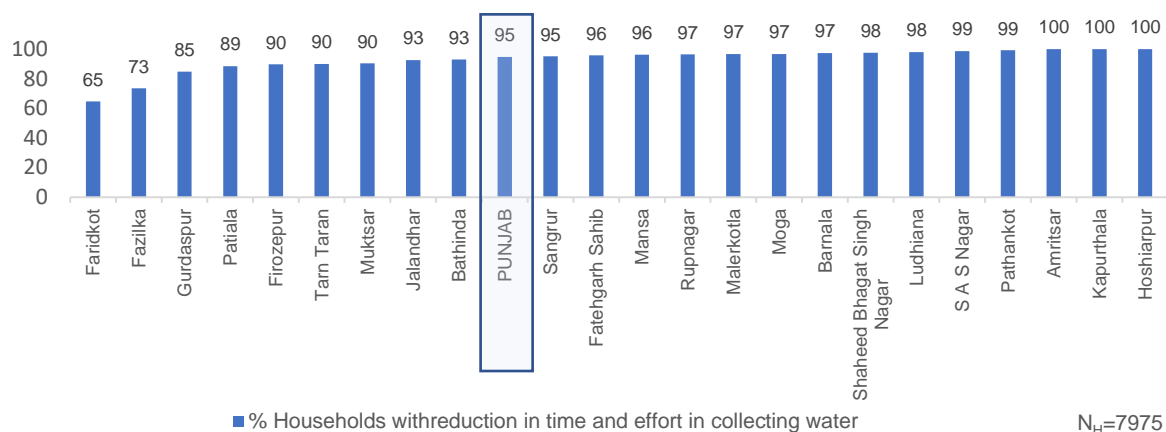
Figure 71: Household reported a change in employment days since FHTC programmes /schemes in Har Ghar Jal districts



B. Reduction in time and effort in collecting water

Similarly, about 95% of the sampled households also reported that the effort and time in collecting water reduced after installation of FHTC.

Figure 72: Households reported reduction in time and effort in collecting water in Har Ghar Jal districts

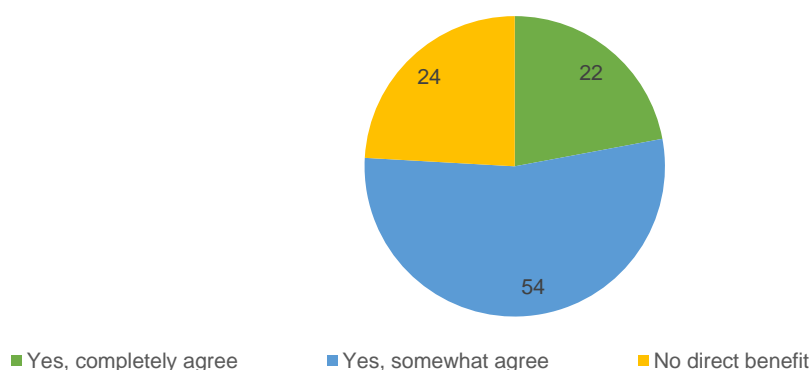


N_H=7975

4.3. Direct benefits in terms of income due to FHTC

Across the nation, 22% of sampled HHs from HGJ villages reported being in complete agreement that there had been direct benefits on their HH income since the installation of HH tap connection, while 54% reported being in partial agreement against the same.

Figure 73: Households reported to have received direct benefits in terms of income due to FHTC in Har Ghar Jal districts

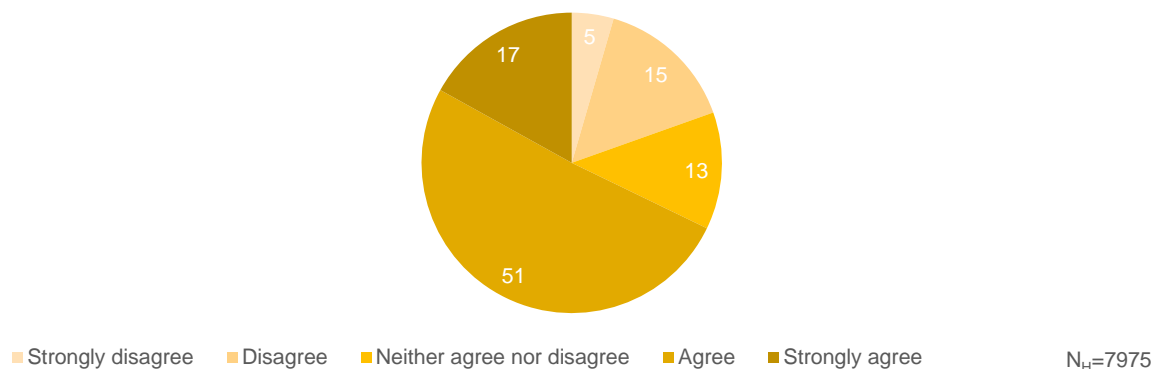


N_H=7975

4.4. Change in social status

More than two-third of the households felt HH tap connection earned them more respect, feeling of pride and brought a positive change in their social status.

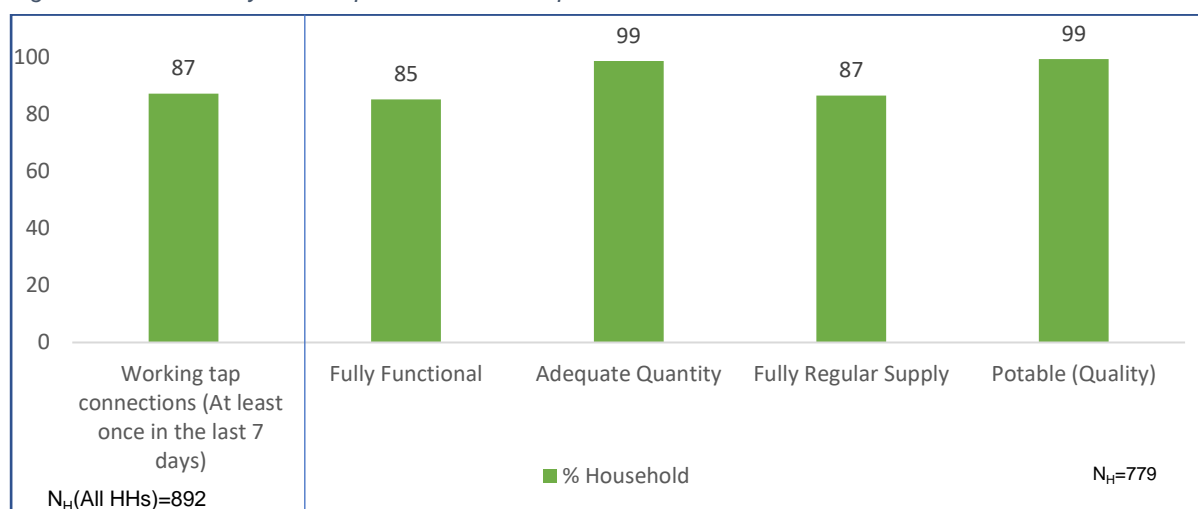
Figure 74: Households reported to have a positive change in social status in Har Ghar Jal districts



5. Functionality status of FHTC at household level for aspirational districts

5.1. Overall Functionality (in %)

Figure 75: Functionality of HH tap connection for aspirational districts



* Fully Functional has been computed as = Adequate Quantity \cap Fully Regular Supply \cap Potable (Quality)

Please note: For aspirational district, N_H=779 implies all HHs where water was found on the day of the survey.

It has been found that 87 percent of the sampled HHs (N=892) had working tap connections. 85 percent HHs in the state were found to have fully functional HH tap water connection. Moreover, almost all the households (99 percent) received adequate quantity (≥ 55 LPCD) of water supply and more than 4 out of 5 received regular supply (87 percent) of water. The on-site testing and lab test results of the water indicates that more than 9 out of 10 (99%) sampled households in the state receive potable water.

Table No. 9: Quantity, Regularity, and Quality of FHTC for aspirational districts (%HH)

S. No.	District	Working tap connections (HHs which received water through FHTC at least once in the last 7 days) (% HH)	Fully functional (% HH)	Adequate Quantity (% HH)	Full Regular Supply (% HH)	Potable (Quality) (% HH)
1.	Moga	92	87	99	89	99
2.	PUNJAB	87	85	99	87	99
3.	Firozpur	82	83	99	83	100

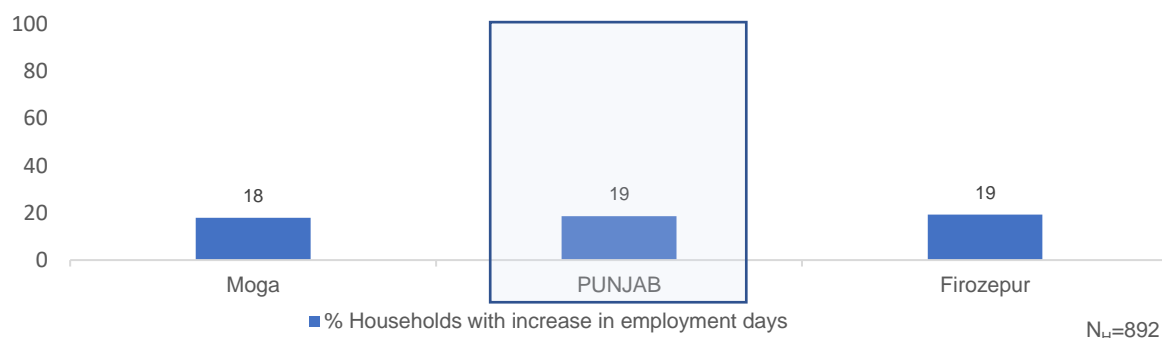
Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical, and bacteriological as given in Table 5 parameters (within acceptable/ permissible range) and onsite testing of pH. The details of laboratory test are mentioned in the table given above in the glossary.

5.2. Perception of HHs from aspirational districts on Outcome Indicators

A. Change in employment days since FHTC programmes/ schemes

Only around 19 percent of the households in aspirational districts reported increase in employment days since installation of FHTC.

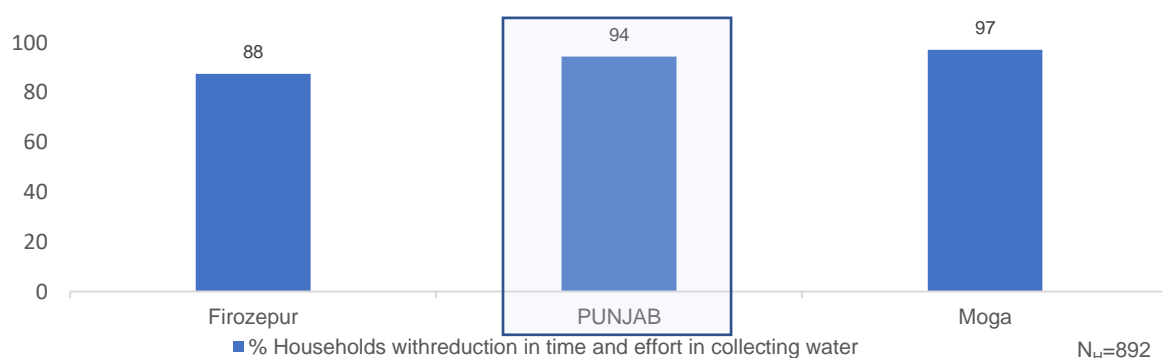
Figure 76: Household reported a change in employment days since FHTC programmes /schemes in Aspirational districts



B. Reduction in time and effort in collecting water

Only around 94 percent of the households in aspirational districts reported reduction in time and effort in collecting water.

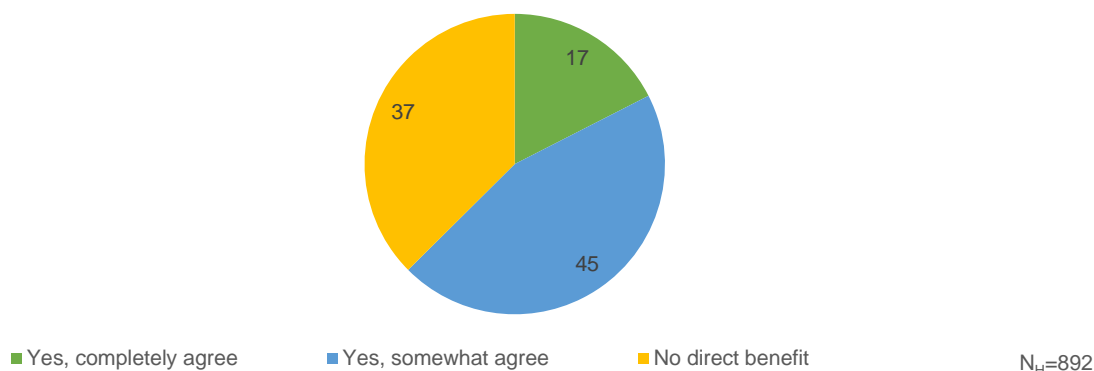
Figure 77: Households reported reduction in time and effort in collecting water in Aspirational districts



5.3. Direct benefits in terms of income due to FHTC

Across the state, 17% of sampled HHs from aspirational districts reported being in complete agreement that there had been direct benefits on their HH income since the installation of HH tap connection, while 45% reported being in partial agreement against the same.

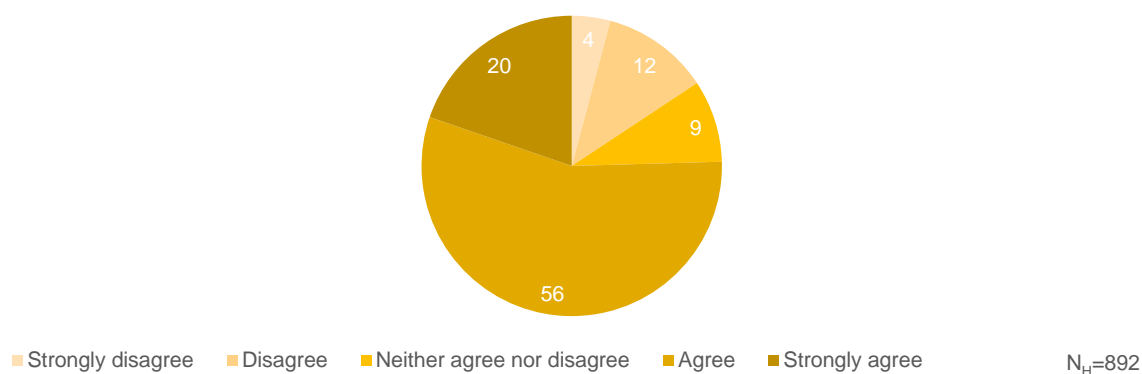
Figure 78: Households reported to have received direct benefits in terms of income due to FHTC in Aspirational districts



5.4. Change in social status

About three-fourth of the households in aspirational districts felt HH tap connection earned them more respect, feeling of pride and brought a positive change in their social status.

Figure 79: Households reported to have a positive change in social status in Aspirational districts



6. Annexure

Table No. 10: List of replaced villages				
S. No.	District Name	Village Name	Status Of The Scheme (No Scheme/Replaced & Defunct)	Remarks
1	Gurdaspur	Kotli Phassi	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Japuwal. Scheme found to be functional in replacement village
2	Tarn Taran	Brahampura	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Mamanke. Scheme found to be functional in replacement village
3	Tarn Taran	Naushehra Pannuan	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Fatehbad. Scheme found to be functional in replacement village
4	Firozpur	Chandher	No Scheme / Defunct Scheme	No Scheme present in the sampled village, hence replaced with Village-Mahalam. Scheme found to be defunct in replacement village
5	Firozpur	Mannu Machhi	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Bhadru. Scheme found to be functional in replacement village
6	Ludhiana	Bhamian Kalan	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Jandiali. Scheme found to be functional in replacement village
7	Ludhiana	Bassian	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Bhama Khurd. Scheme found to be functional in replacement village
8	Kapurthala	Dhandal	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Bir Dhandoli. Scheme found to be functional in replacement village
9	Kapurthala	Rawal	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Dhak Khalwara. Scheme found to be functional in replacement village
10	Rupnagar	Dadi	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Panjoli. Scheme found to be functional in replacement village
11	Rupnagar	Salempur	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Makrauna Khurd. Scheme found to be functional in replacement village
12	Patiala	Chaprahar	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Nain Kalan. Scheme found to be functional in replacement village
13	Sangrur	Khokhar	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Taranji Khera. Scheme found to be functional in replacement village
14	Faridkot	Pakhi Kalan	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Machaki Kalan. Scheme found to be functional in replacement village
15	Faridkot	Rupianwala	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Dhilwan Khurd. Scheme found to be functional in replacement village
16	Faridkot	Dhab Sher Singhwala	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Ghuduwala. Scheme found to be functional in replacement village
17	Faridkot	Kamiana	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Chambeli. Scheme found to be functional in replacement village
18	Faridkot	Dhilwan Kalan	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Phide Kalan. Scheme found to be functional in replacement village

Table No. 10: List of replaced villages				
S. No.	District Name	Village Name	Status Of The Scheme (No Scheme/Replaced & Defunct)	Remarks
19	Faridkot	Panjgrain Kalan	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Dod. Scheme found to be functional in replacement village
20	Faridkot	Jaitu Rural	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Dhab Guru Ki. Scheme found to be functional in replacement village
21	Fatehgarh Sahib	Jiwanpur	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Badeenpur. Scheme found to be functional in replacement village
22	Moga	Phulewala	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Sukha Nand. Scheme found to be functional in replacement village
23	Kapurthala	Khanpur 111	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Talwara. Scheme found to be functional in replacement village
24	Ludhiana	Namdev Colony	No Scheme	No Scheme present in the sampled village, hence replaced with Village-Bholapur. Scheme found to be functional in replacement village