



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



STATE REPORT: MAHARASHTRA
SURVEY DURATION: FEBRUARY TO MAY 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 Maharashtra lies in the western part of India and has a population of 11,23,74,333 (Census 2011). It has 34 districts and 40596 villages, and 35736 villages have PWS schemes. The state is yet to achieve the Har Ghar Jal status. A total of 1206 villages, across all districts, and 14458 households were randomly sampled for the survey, and additionally, water samples from 1835 public institutions were tested.

In the assessment among sampled villages, 72% of villages have only one scheme, 19% of villages have 2-3 schemes, 9% have 4 and more schemes. Mostly all schemes across the state were found functional.

At the state level, 84% of the HHs were satisfied with the regularity of the supply, 85% with the quality of the water supplied, 87% with the colour of the water supplied, and 87% with the taste of the supplied tap water.

Overall functionality status of Maharashtra

At the state level, 93% of HHs received water on the day of the survey. While 43% of the HHs were found to have fully functional tap water connections within the premises. Out of which 68% received an adequate quantity of water, 75% reported receiving a fully regular supply of water, and 81% HHs received potable water.

It was found that 46% of households received water all 7 days a week, 26% of the households received water 3 or 4 days a week, and 15% 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 Maharashtra, 15% of the villages have reported that water is directly supplied to the households and the remaining 85% 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 Maharashtra, 16633 samples of water were submitted, and 13426 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 37% of the HHs. The percentage was relatively higher in HFIs (more than 2047 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 14465 HHs sampled for the FHTC assessment, a water quality test was carried out in 13406 HHs. pH was found within the acceptable limit in 97% of households. Among the public institution, pH was found in the acceptable limit of more than 97% in AWCs, HFIs and schools.

33% of villages in the state reported having available field test kits. And 44% 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 40% of villages in the state reported having a VWSC or a Pani Samiti out of which 61% of the VWSC/Pani Samitis reported to have more than 50% female members. In the state, 24% of the villages reported that VWSC/ Pani Samiti is responsible for the operation and maintenance of pipe water supply.

43% of villages reported having identified skilled manpower for O&M of PWS schemes. 6% of villages in the state reported having faced challenges with respect to O&M of PWS schemes.

73% of HHs reported that they are aware of any grievance redressal mechanism w.r.t. HH tap water through PWS, but only 3% HHs have reported a complaint in the last year and only 2% of complaints have been resolved. Among those who reported complaints (i.e., 3% HHs, 503 HHs), 69% of the HHs reported their complaints to pump operators besides other reporting channels.

Overall, 76% of villages in the state levy charge for water service delivery to households whereas 84% HHs reported paying water service delivery charges at the households.

91% of HHs reported that their daily requirement of water was being met by HH tap connections.

Overall, 88% 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, 25% HHs reported using booster pumps to maximize the water flow through their piped water connections.

It was found that 54% of the villages have schemes that are based on groundwater sources, while 13% on surface water sources.

Age-wise functionality of the schemes indicates an increase in 'always functional' schemes in the state since 2012. 4-% point increase in the fully functional scheme was recorded from 2012 to 2013-18. In 2019 and later the percentage of fully functional schemes increased by

6% and 78% of schemes have been reported to be always functional and 5% as partially functional (i.e., a total of 83% of schemes).

Impact of JJM

Across the state, about 1% of the HHs reported having an incidence(s) of water-borne diseases in the last year.

Since having a functional HH tap connection, 31% HHs across the state have reported that there has been a change in the no. of employment days of the adult HH members while 46% HHs reported no change.

Out of the HHs reported (i.e., 5641) that female members used to fetch water before HH tap connection, 83% reported that post-installation of HH tap connection helped reduce of time and effort in collection of water.

Across the state, 42% of the HHs reported that since having a functional HH tap connection the attendance of the girls going to schools has increased, and 33% 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, 93% of households received water on the day of the survey. While 43% of the households were found to have fully functional tap connections. Out of which 67% received an adequate quantity of water, three-fourth reported receiving a fully regular supply of water and 81% received potable water.

Since having a functional HH tap connection, 28% 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, 88% reported that post-installation of HH tap connection helped reduce time and effort in collecting water. Across the Har Ghar Jal district, 24% 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, 85% of households received water on the day of the survey. While 42% of the households were found to have fully functional tap connections. Out of which 68% received an adequate quantity of water, 56% reported receiving a fully regular supply of water and 93% received potable water.

Since having a functional HH tap connection, 27% 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, 71% 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	Maharashtra
Working tap connections- HHs which received water through tap connection at least once in last 7 days (%)	86	93
Quantity ¹ of water received by households		
Adequate quantity (>55 LPCD) (%)	85	68
Partially adequate quantity (> 40 LPCD - < 55 LPCD) (%)	5	11
Inadequate quantity (<40 LPCD) (%)	10	21
Regularity ² of water received by households		
Fully Regular Supply (as per schedule) (%)	80	75
Partially Regular Supply (not as per schedule) (%)	14	15
Irregular Supply (less than 9 months' supply) (%)	6	10
Potable ³ (Quality) water received by households (%)	87	81
Overall functionality ⁴ (%)	62	43

Service delivery parameters	India	Maharashtra
Overall user satisfaction on regularity at the household level (%)	83	84
Overall user satisfaction on quality at the household level (%)	82	85
Households receiving water supply daily-7 days a week (%)	74	46
Daily HH requirement of water being met by FHTC (%)	80	91
Households paying water service delivery charges (%)	35	84
Households aware of grievance redressal mechanism (%)	71	73
Households reported a reduction in time and effort in collecting water (%)	79	83
Average no. of times water is supplied in a day	1	1
Households reported incidence of water-borne diseases in the last year (%)	2	1
Households purifying water before drinking (%)	57	75
Residual Chlorine (RCL) detected with in permissible limits (%)	24	41
Villages with Field Test Kits (%)	30	33
Villages in which bacteriological test was done in last 1 year by VWSC/ Pani Samiti (%)	29	45
Villages reported to have a mechanism for chlorination (%)	21	31

Institutional arrangement	India	Maharashtra
Village reported having presence of VWSC/ Pani Samiti (%)	38	40
Villages in which VWSC/ Pani Samiti is responsible for Operation & Maintenance of PWS schemes (%)	14	24
Villages in which persons are trained to use Field Test Kits (%)	31	44
Villages levying water service delivery to households (%)	34	76
Villages having skilled manpower for Operation & Maintenance of PWS schemes (%)	31	43
Community monitoring of water wastage in villages (%)	19	32
Villages in which signages about JJM were observed (%)	15	4

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

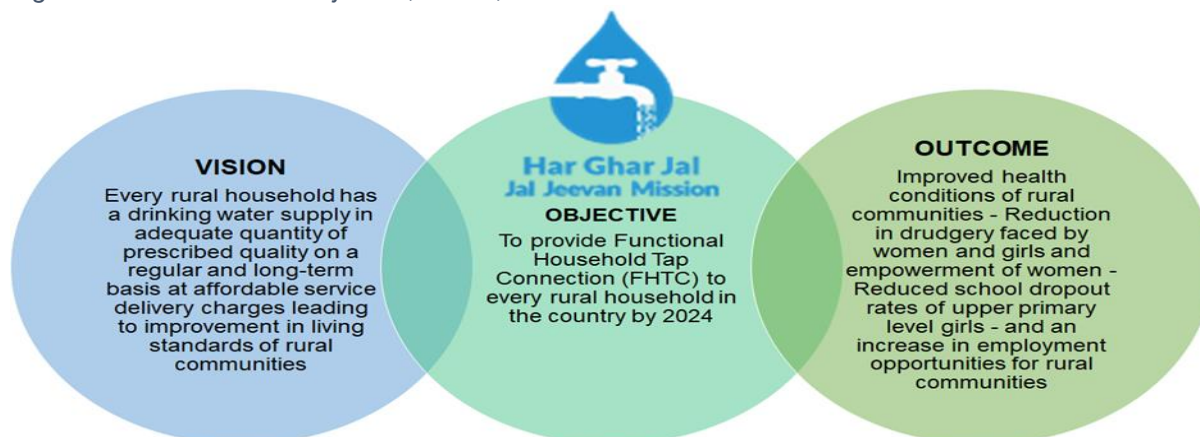
Functionality status of tap connection at households in Har Ghar Jal Districts	India	Maharashtra
Working tap connections- HHs which received water through tap connection at least once in last 7 days (%)	91	93
Quantity of water received by households		
Adequate quantity (>55 LPCD) (%)	88	67
Partially adequate quantity (> 40 LPCD - < 55 LPCD) (%)	4	12
Inadequate quantity (<40 LPCD) (%)	8	21
Regularity of water received by households		
Fully Regular Supply (as per schedule) (%)	84	75
Partially Regular Supply (not as per schedule) (%)	11	15
Irregular Supply (less than 9 months' supply) (%)	5	10
Potable (Quality) water received by households (%)	90	81
Overall functionality (%)	69	43

Functionality status of tap connection at households in Aspirational Districts	India	Maharashtra
Working tap connections- HHs which received water through tap connection at least once in last 7 days (%)	78	85
Quantity of water received by households		
Adequate quantity (>55 LPCD) (%)	85	68
Partially adequate quantity (> 40 LPCD - < 55 LPCD) (%)	5	10
Inadequate quantity (<40 LPCD) (%)	10	22
Regularity of water received by households		
Fully Regular Supply (as per schedule) (%)	77	56
Partially Regular Supply (not as per schedule) (%)	14	20
Irregular Supply (less than 9 months' supply) (%)	9	24
Potable (Quality) water received by households (%)	88	93
Overall functionality (%)	62	42

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: Maharashtra

The state of Maharashtra lies on the western part of India and has a population of 11,23,74,333 people. It has 34 districts and 40596 villages where 35736 villages have PWS schemes. The state lies on the West Coast Plains and Hills region, Western Plateau and Hills region, and Eastern Plateau and Hills region and receives an average annual rainfall of about 1146.5mm. Among the villages with PWS schemes, 33257 villages (81.92%) 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:

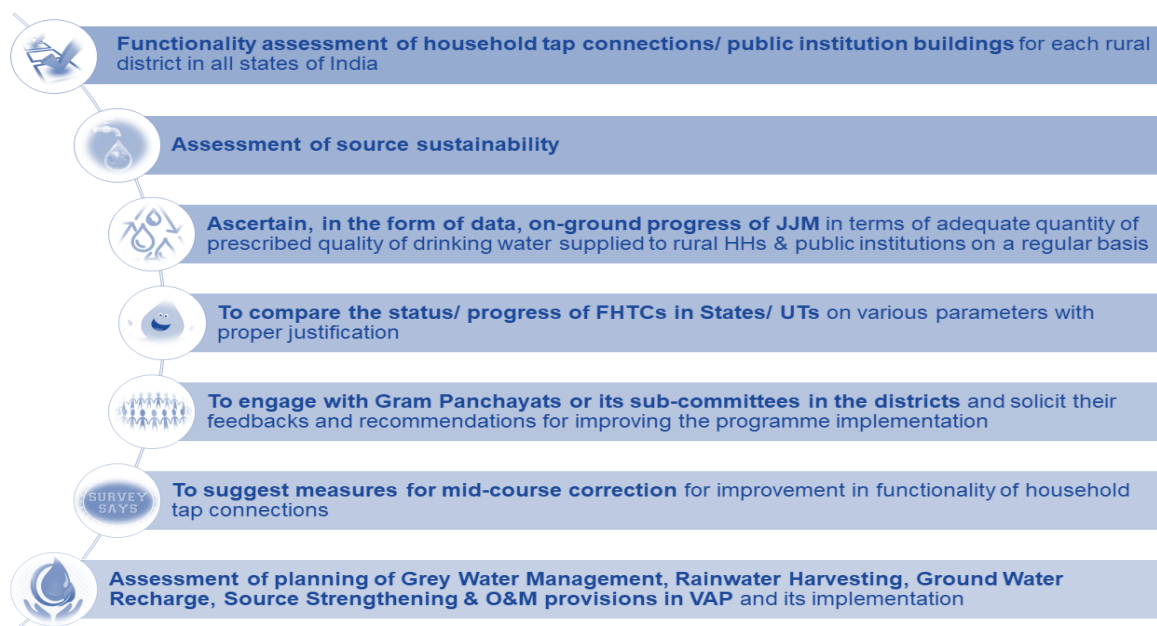
- Not a Har Ghar Jal state.
- 21 districts are Iron & 11 districts are Fluoride affected
- 33257 (81.92% of all) villages with PWS more than 20 FHTC
- 25.85% villages covered under HH tap connections under HGJ



2.2. FHTC Assessment Objectives

The overall objectives of the FHTC assessment are as presented:

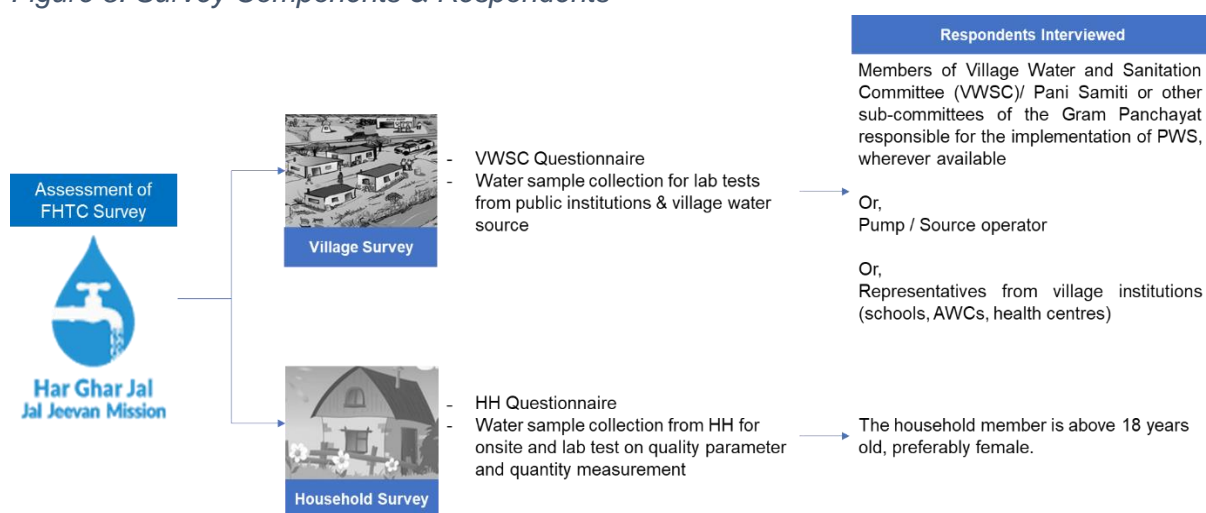
Figure 4: FHTC Assessment Objectives



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

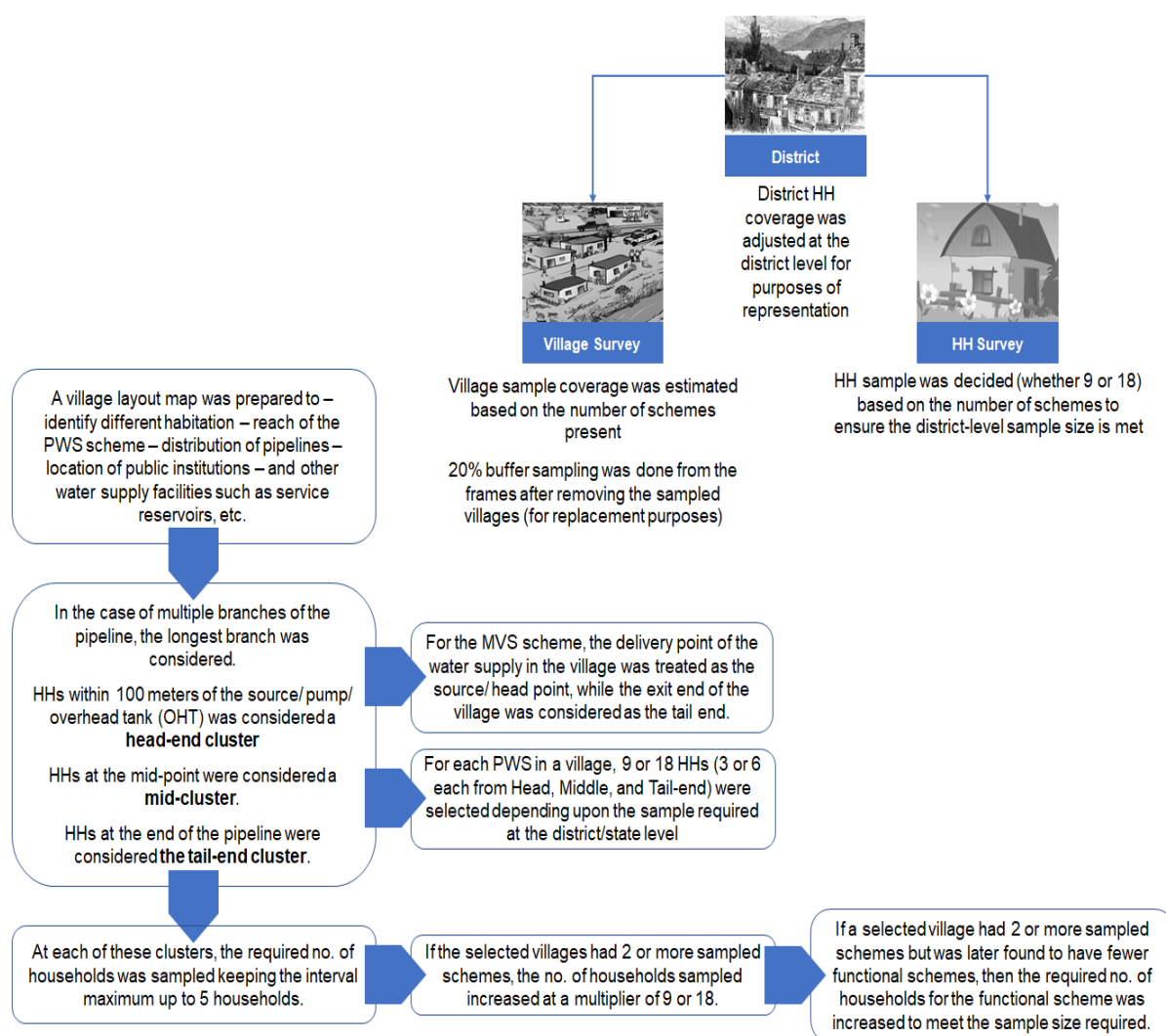
As per the design, all villages having a PWS scheme with 20 or more functional household tap connections were included in the sample frame. The probability proportionate to size (PPS) method was used for village selection in each district. The steps for random selection of villages using PPS are presented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

Figure 6: Steps for Random Sampling of Villages



Figure 7: Household Selection

The key considerations for the village and household sampling were:

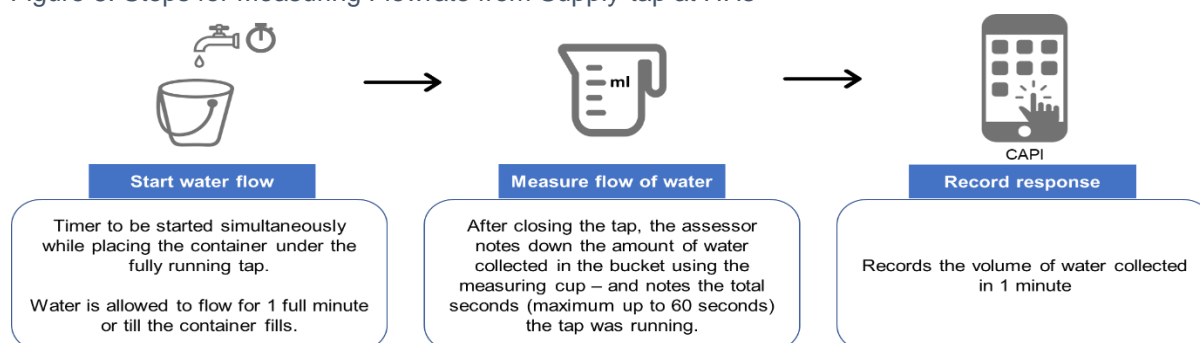


The record of all district-wise village replacements is maintained and reported as part of the annexure.

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:

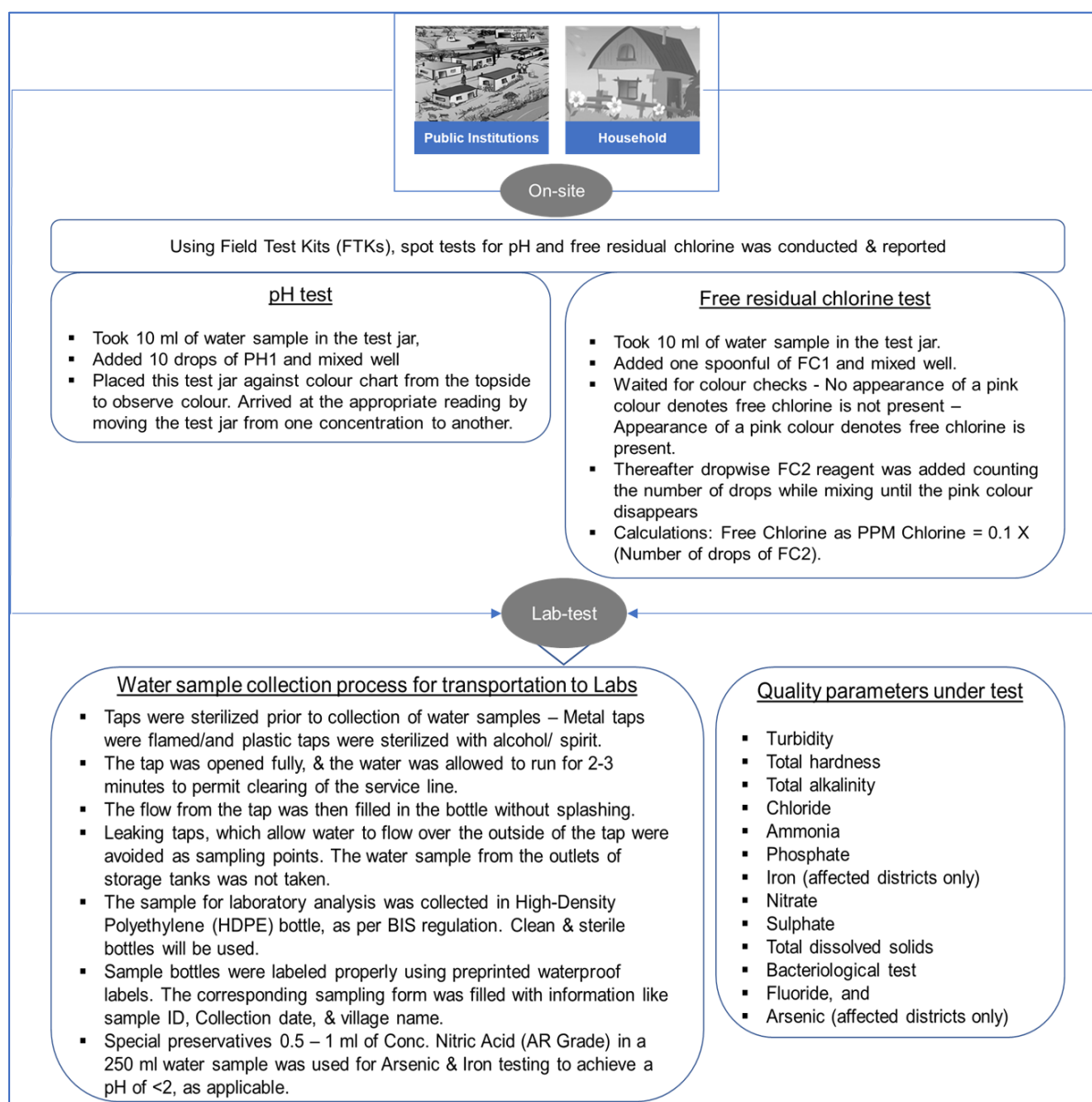
- Assessor first asked and recorded length, breadth, and height.
- Assessor dipped a 5 feet long rod, marked the level of the water table, and calculated the volume – length x breadth x-height of water.
- Next the assessor opened the valve of the connection and allowed the water to flow inside the storage 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

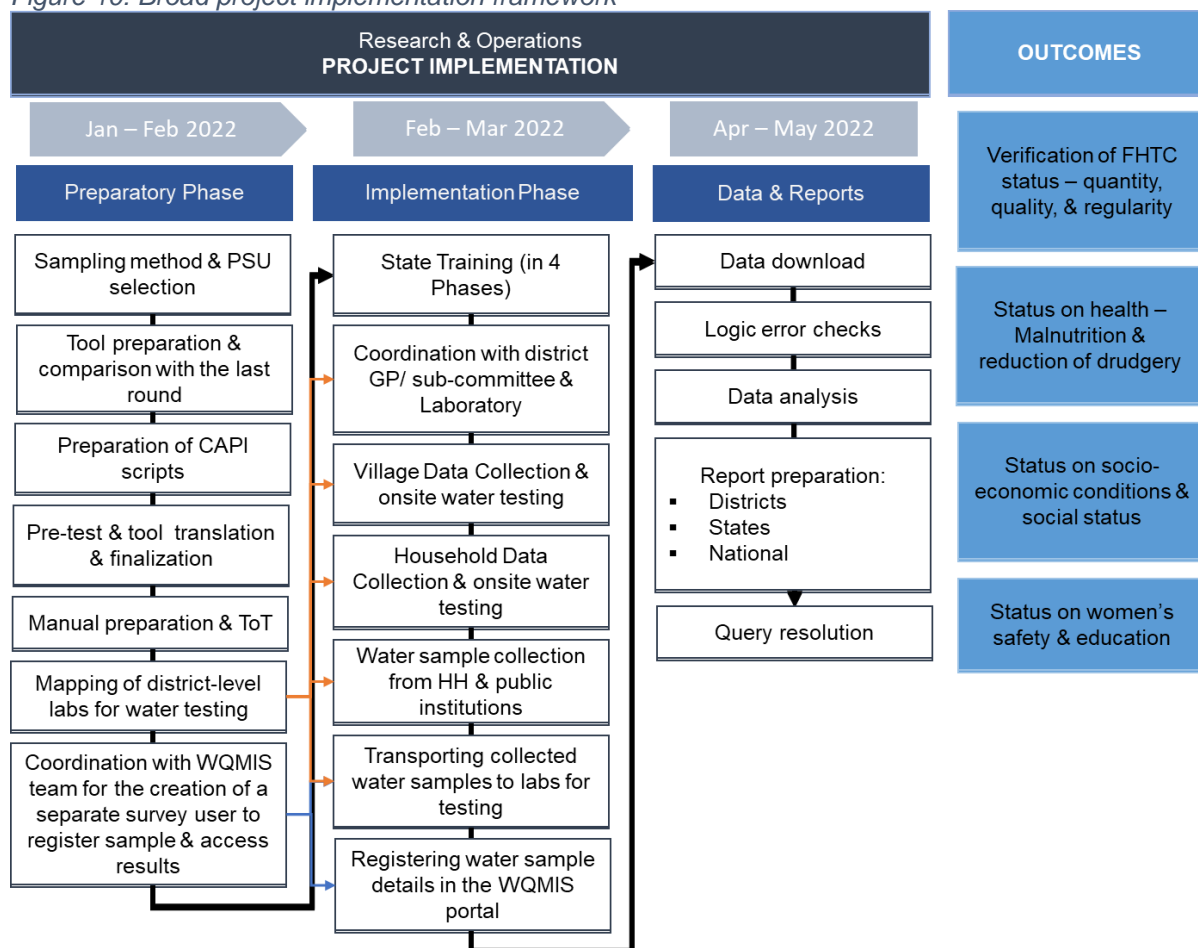


JJM, with the support of the BMI Division of ICMR, enabled a new interface on the WQMIS portal for “Functionality Assessment (FA) User” to enable seamless harmonization of water sample registration, and sample submission for testing, and sharing of results as per the applicable quality parameters.

2.8. Project Implementation

An overview of the project implementation is as presented:

Figure 10: Broad project implementation framework



A total of 10 teams (comprising 10 supervisors, 60 assessors, and 10 water collection assistants) were recruited, trained, and deployed to complete the survey across the states of Maharashtra. 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
Maharashtra	10 Teams	17 th February	31 st March	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
Maharashtra	34	490	13,176	34	1,206	14,458	1,835

2.10. Sampled village and household profile

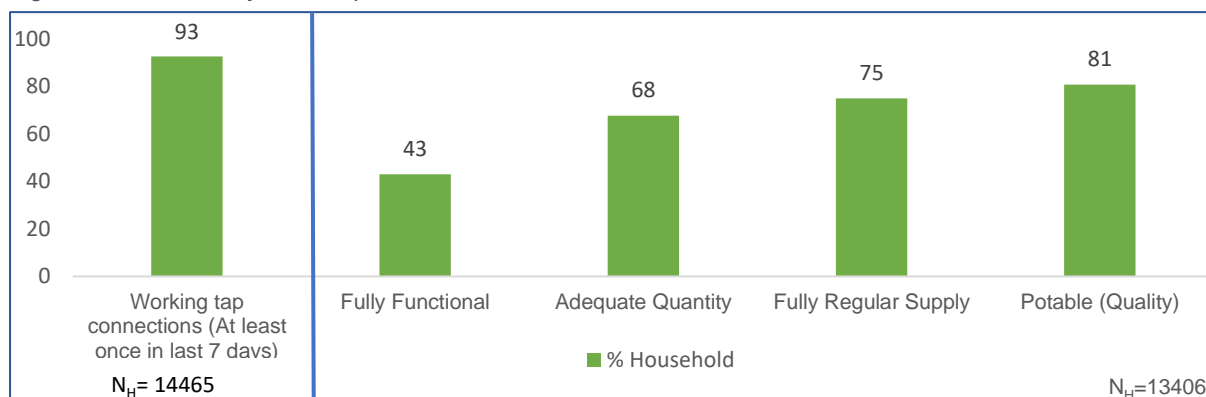
SAMPLED VILLAGES	SAMPLED HOUSEHOLDS
<ul style="list-style-type: none"> Total no. of villages covered in the state – 500 Percentage of SC dominated villages covered in the State is 7.8% (while at national level the average is 12.6%) Percentage of ST dominated villages covered in the State is 12.7% (while at national level the average is 20.2%) Higher proportion of pump operator interviewed at the village level 3.4% 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 – 13332 (Respondents: Male 6920, Female 6412) Proportion of General – 25.3%, SC 21.5%, ST 7.5%, OBC 45.7% households 48.1% of the FHTC connections are under the name of a female member Average household size – 6.3 100% 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=13406 implies all HHs where water was found on the day of the survey.

It has been found that 93 percent of the sampled HHs (N=14465) had working tap connections. Moreover, more than 2 out of 3 households (68 percent) received adequate (≥ 55 LPCD) water supply and 3 out of 4 received regular supply (75 percent) of water. The on-site testing for pH and residual chlorine in the water indicates that more than a third (81%) of the sampled households in the state receive potable water.

Out of the 14458 HHs sampled for the FHTC assessment, water quantity and quality test was carried out in 13406 due to non-availability of water in 7 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.	Palghar	100	84	79	99
2.	Raigad	100	74	88	76
3.	Ratnagiri	100	89	76	77
4.	Sindhudurg	100	92	99	3
5.	Nashik	100	64	87	99
6.	Dhule	100	93	90	100
7.	Jalgaon	100	48	60	87
8.	Ahmednagar	100	43	52	80
9.	Pune	100	43	57	75
10.	Satara	100	79	100	89
11.	Sangli	100	33	66	98
12.	Solapur	100	86	94	33
13.	Osmanabad	100	74	19	88
14.	Kolhapur	100	76	89	100
15.	Aurangabad-Mh	100	33	29	76
16.	Jalna	100	65	77	60
17.	Parbhani	100	83	96	73
18.	Beed	100	62	64	100
19.	Nanded	100	67	69	58
20.	Latur	100	49	70	76

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)
21.	Yavatmal	100	98	96	74
22.	Wardha	100	72	90	99
23.	Bhandara	100	80	81	68
24.	Nandurbar	100	81	95	89
25.	Hingoli	100	57	92	71
26.	Thane	98	57	86	96
27.	Nagpur	98	75	80	83
28.	Chandrapur	94	91	97	63
29.	MAHARASHTRA	93	68	75	81
30.	Amravati	91	74	23	95
31.	Gadchiroli	81	75	89	99
32.	Akola	72	38	79	99
33.	Washim	58	26	4	97
34.	Gondia	54	59	95	98
35.	Buldana	14	45	2	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.					
JE-AES Affected		Aspirational Districts	Aspirational & JE-AES Affected		

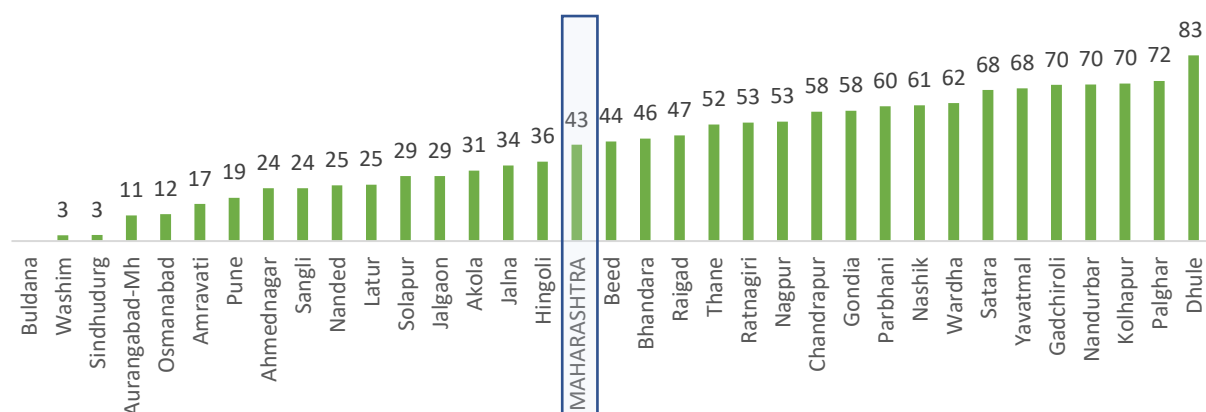
District level comparison across the districts indicate that Buldana, Akola, Amravati, Chandrapur, Gadchiroli, Washim and Gondia reported functionality less than the state average. The districts of Sindhudurg, Dhule, Chandrapur, and Yavatmal FHTC provide more than 55 LPCD of water in more than 90 percent HHs.

More than 90 percent HHs in the districts of Chandrapur, Yavatmal, Parbhani, Satara, and Sindhudurg reported to regularly receive water through FHTC. Regular supply of water is less than 50 percent in the districts of Washim, Amravati, Buldana, Aurangabad, and Osmanabad.

Potability of water was found to be 100 percent in the districts of Dhule, Kolhapur, and Beed. Whereas in the districts of Sindhudurg and Solapur the potability of water was found less than 30 percent.

B. District wise functionality status

Figure 12: District wise Functionality of HH tap connection



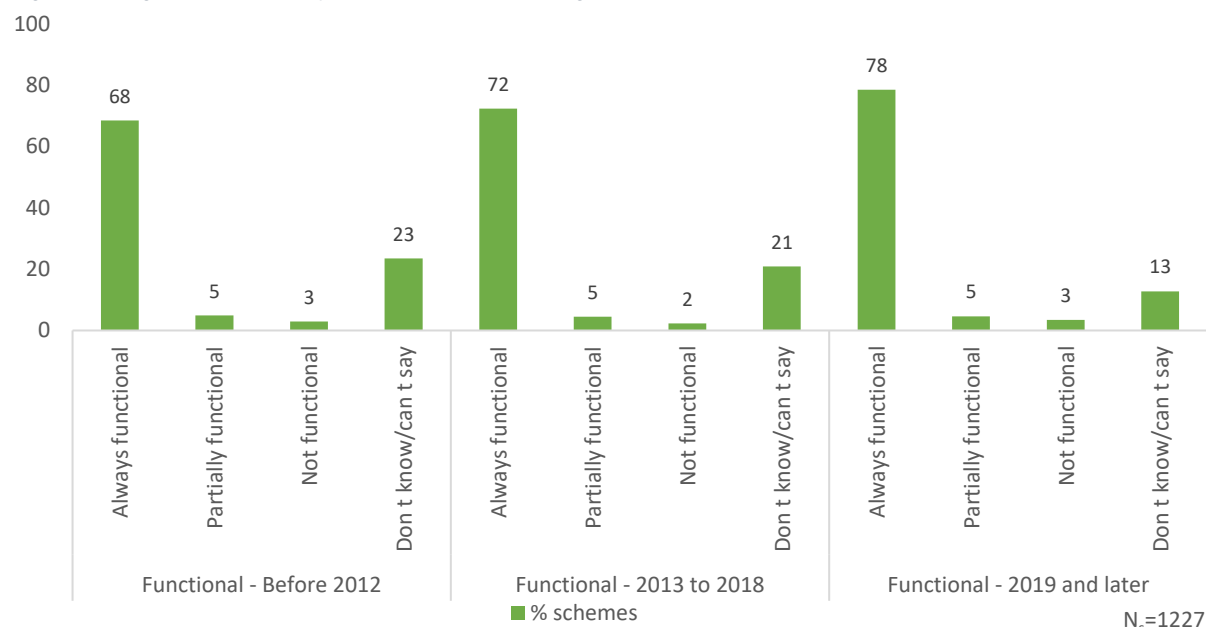
N_H=13406

* '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., 13406 HHs.

43 percent HHs in the state were found to have functional HH tap water connection. Yavatmal district reported 94 percent functional households in the state, followed by Sindhudurg with more than 90 percent functionality. In the districts of Buldana, less than one percent 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 2 out of 3 schemes are functional since 2012 which reflects a 4-point increase in till 2018 and 6-point increase in 2019 and later.

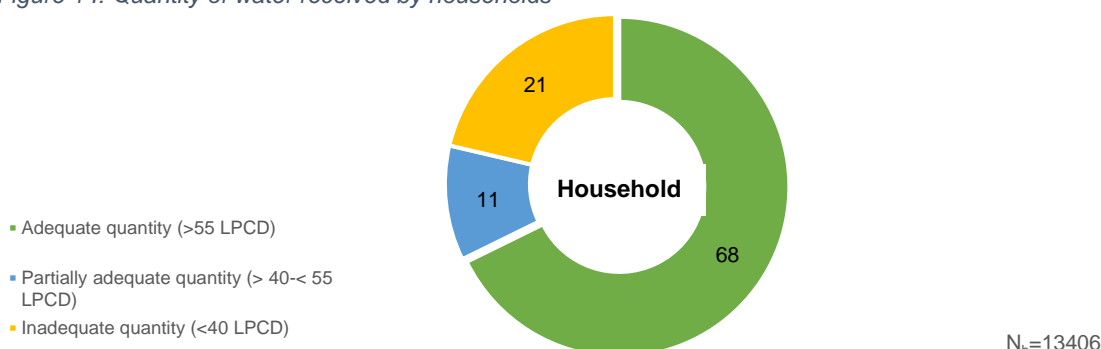
3.2. Quantity, Regularity, and Quality of Water

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)

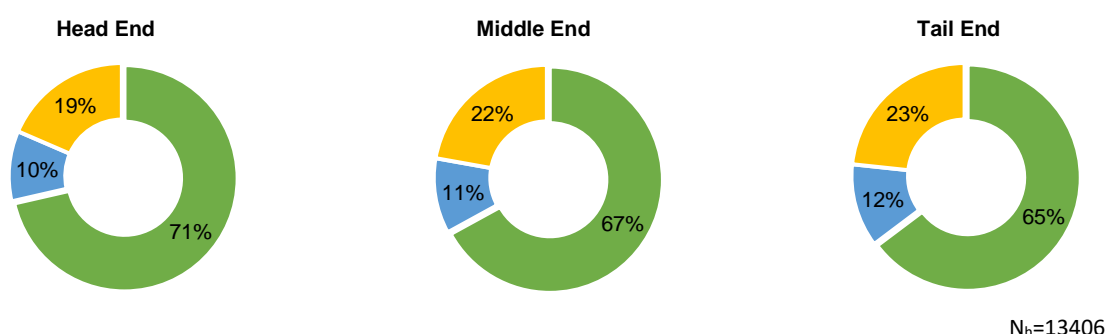
68% HHs reported receiving more than 55 LPCD of water

Figure 14: Quantity of water received by households



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

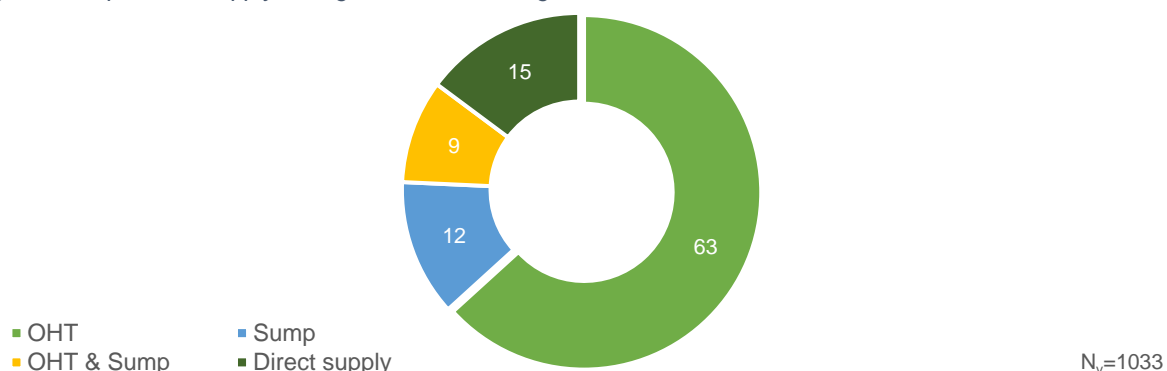
Figure 15: Quantity of water received across head, middle and tail end households



The quantity of water received across the middle, and the tail end was observed to have declined, and more than two-third (68%) of the sampled households received water in adequate quantity, i.e., greater than or equal to 55 LPCD.

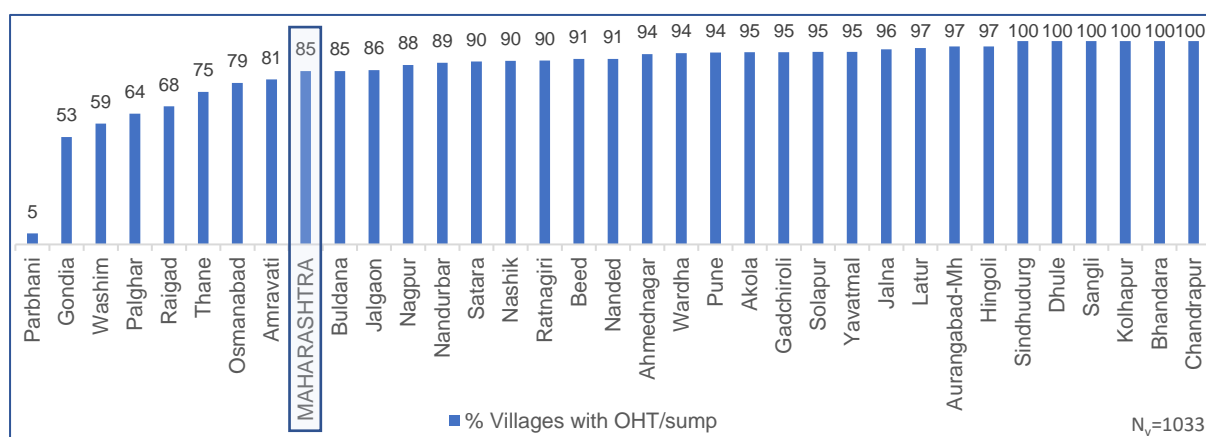
Types of water storage arrangements (in %)

Figure 16: Pipe water supply storage available in village



Less than one out of five respondents in the state reported water being directly supplied. And in 85 percent reported water being stored in sump and overhead tanks.

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

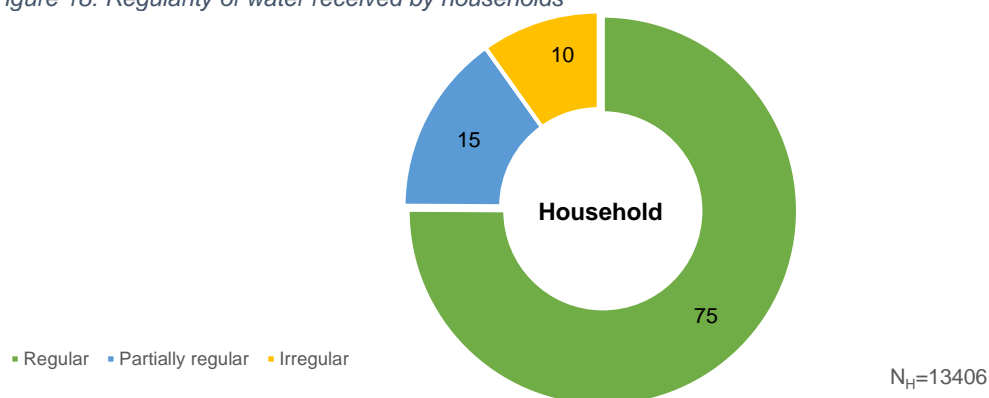


85 percent villages in the state have either an OHT or a sump for storing water for supplying to the households. Chandrapur, Bhandara, Kolhapur, Sangli, Dhule, and Sindhudurg are the districts where all the villages have either an OHT or a sump.

B. Regularity of water supply to villages and households

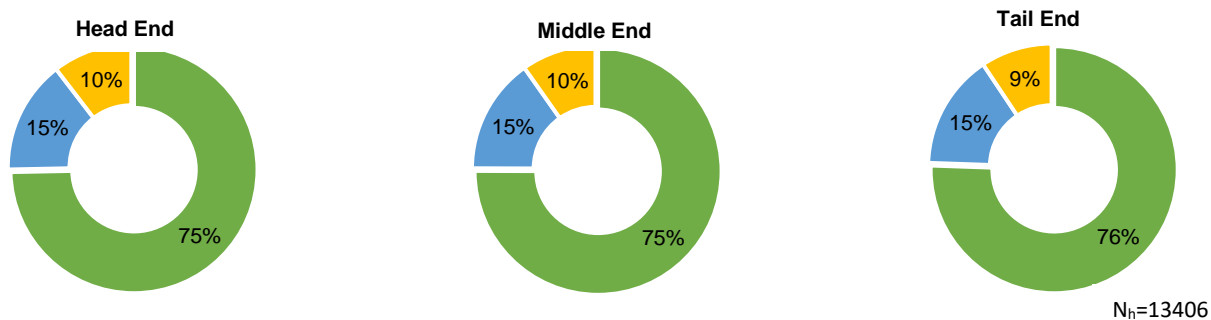
75% HHs receive a regular supply of water (as per agreed schedule).

Figure 18: Regularity of water received by households



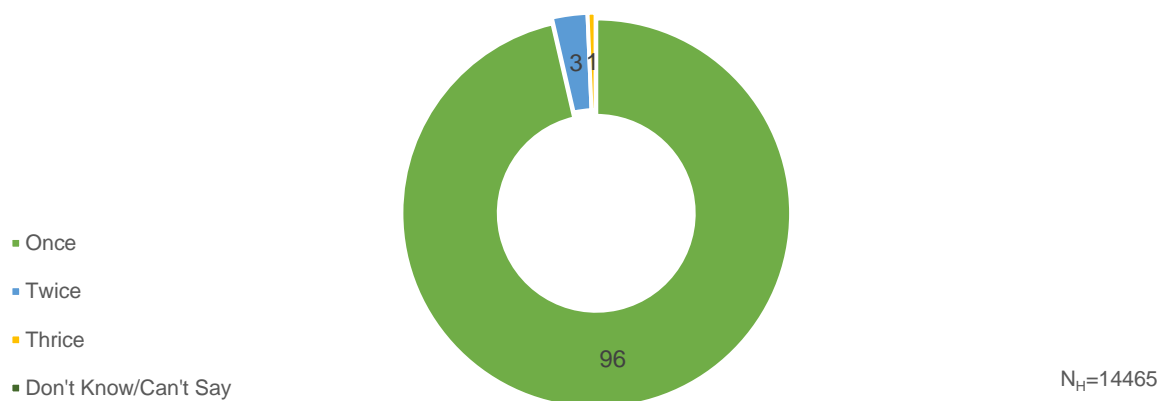
Regularity of water received across head, mid, and tail end

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



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

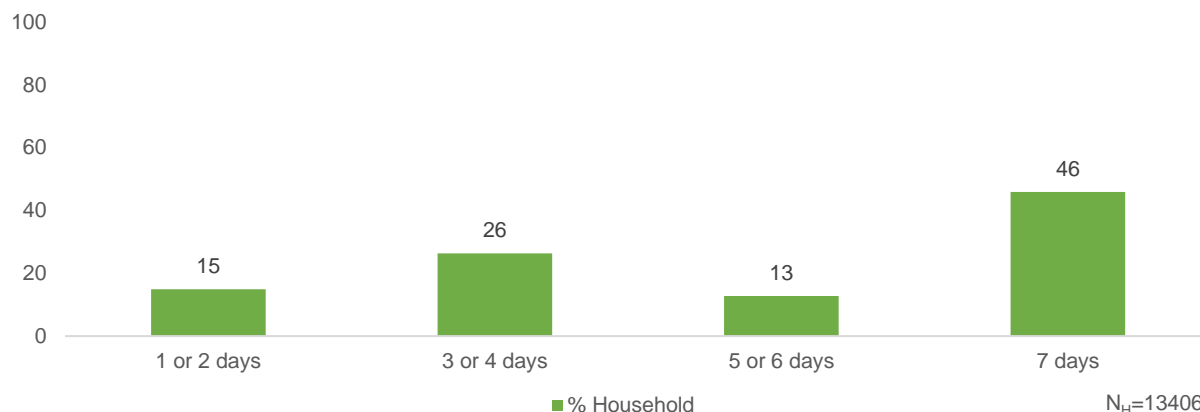
Figure 20: Average no. of times water is supplied in a day



HHs in **91% of districts** receive water once a day. The average duration of water supply across the state was reported to be **2 hours per day**.

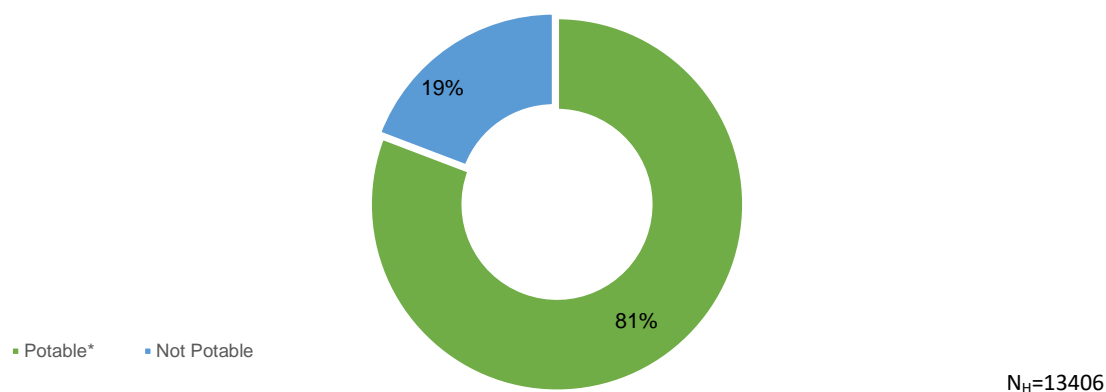
Average water supply days in a week to households

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



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 Maharashtra where water was found on the day of the survey, the potability of water was found to be 81%.

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

Quality Parameters (N _v =1033)	Water Samples Tested from Public Institutes			
	Anganwadi Centre	Health Facility	Schools	Others
pH (on-site)	97	97	97	91
Turbidity	99	100	100	99
Total Hardness	98	99	98	99
Total Alkalinity	100	100	100	100
Chloride	100	100	100	100
Ammonia	Not Tested			
Iron	100	99	99	98
Nitrate	93	94	94	98
Sulphate	100	100	100	100
Total Dissolved Solids	99	99	99	99
Bacteriological Test (Absence)	83	83	81	78
Fluoride	100	99	99	100
Arsenic	No History			

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=13406). 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)	13406	97
Turbidity	11213	99
Total Hardness	10710	99
Total Alkalinity	11159	100
Chloride	10401	100
Ammonia	Not Tested	
Iron	6065	99
Nitrate	10428	95
Sulphate	9498	100
Total Dissolved Solids	8712	100
Bacteriological Test (Absence)	9609	81
Fluoride	3566	99
Arsenic	No History	

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

The Residual Chlorine (RC) in the state of Maharashtra was found in 37% samples. Also, 21% samples were having RC outside range whereas 42% samples had no RC. 81% of water samples passed the bacteriological contamination test. While in 19% samples bacteriological contamination is found, out of which 6% samples had chlorine in permissible range while in 12% samples there was no chlorination.

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 10 water quality parameters. 16633 water samples were submitted, and 13426 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	Palghar	Yes	451	681	396	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, regents etc
2	Thane	Yes	412	504	466	The labs did not have capacity to test more than 20 number of samples and had issues of human resource, regents and even another sample has been dispatched in other district labs etc
3	Raigad	Yes	442	510	476	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, regents etc
4	Ratnagiri	Yes	378	435	401	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, regents etc
5	Sindhudurg	Yes	397	486	471	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, regents etc
6	Nashik	Yes	427	543	375	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, regents etc

Table No. 6: Performance of Labs						
Sl. No	District	Lab available	HH surveyed	Samples submitted	Report received	Overall lab experience
7	Dhule	Yes	405	488	326	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
8	Jalgaon	Yes	522	572	402	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
9	Ahmednagar	Yes	450	572	540	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
10	Pune	Yes	387	453	231	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
11	Satara	Yes	379	395	376	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
12	Sangli	Yes	441	534	452	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
13	Solapur	Yes	448	516	498	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
14	Osmanabad	Yes	398	626	464	The labs did not have capacity to test more than 40 number of samples and had issues of human resource, reagents etc
15	Kolhapur	Yes	405	471	402	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
16	Aurangabad	Yes	402	786	492	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
17	Jalna	Yes	406	669	420	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
18	Parbhani	Yes	431	451	413	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
19	Beed	Yes	452	605	512	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
20	Nanded	Yes	417	508	463	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc

Table No. 6: Performance of Labs						
Sl. No	District	Lab available	HH surveyed	Samples submitted	Report received	Overall lab experience
21	Latur	Yes	381	473	384	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
22	Buldana	Yes	437	74	73	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
23	Akola	Yes	475	357	291	The labs did not have capacity to test more than 20 number of samples and had issues of human resource, reagents and even another sample has been dispatched in other district labs etc
24	Amravati	Yes	444	502	374	The labs did not have capacity to test more than 20 number of samples and had issues of human resource, reagents and even another sample has been dispatched in other district labs etc
25	Yavatmal	Yes	406	477	390	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
26	Wardha	Yes	437	542	533	The labs did not have capacity to test more than 20 number of samples and had issues of human resource, reagents etc
27	Nagpur	Yes	458	496	462	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
28	Bhandara	Yes	443	515	376	The labs did not have capacity to test more than 20-25 number of samples and had issues of human resource, reagents etc
29	Chandrapur	Yes	420	449	333	The labs did not have capacity to test more than 20 number of samples and had issues of human resource, reagents and even another sample has been dispatched in other district labs etc
30	Gadchiroli	Yes	443	397	272	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
31	Nandurbar	Yes	387	493	477	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
32	Washim	Yes	389	292	268	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc

Table No. 6: Performance of Labs						
Sl. No	District	Lab available	HH surveyed	Samples submitted	Report received	Overall lab experience
33	Gondia	Yes	481	263	196	The labs did not have capacity to test more than 30 number of samples and had issues of human resource, reagents etc
34	Hingoli	Yes	414	498	421	The labs did not have capacity to test more than 20 number of samples and had issues of human resource, reagents etc

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

23% of HHs reported that their HH tap-water was collected and tested in the last one year.

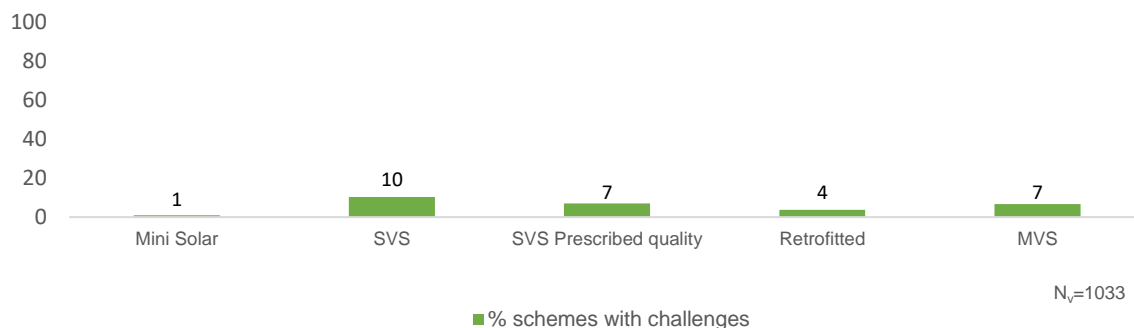
Figure 23: HHs where water was collected and tested in last 1 year



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

The **SVS scheme** faced the most challenges (10%) in comparison to the other schemes in the state.

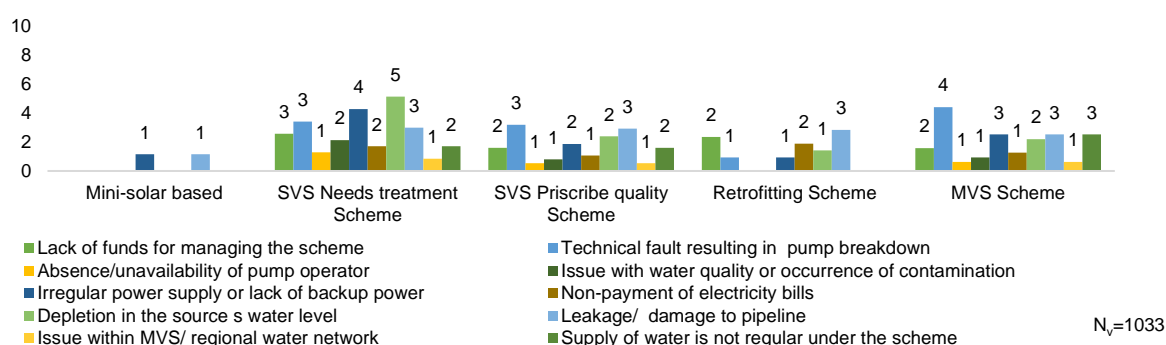
Figure 24: Schemes reported to have faced challenge in village



Type of challenge faced by the schemes

The most faced problem varied from one scheme to another. However, 'leakage/damage to pipeline' and 'Irregular power supply or lack of backup power' is a problem that was found unanimously in all the schemes.

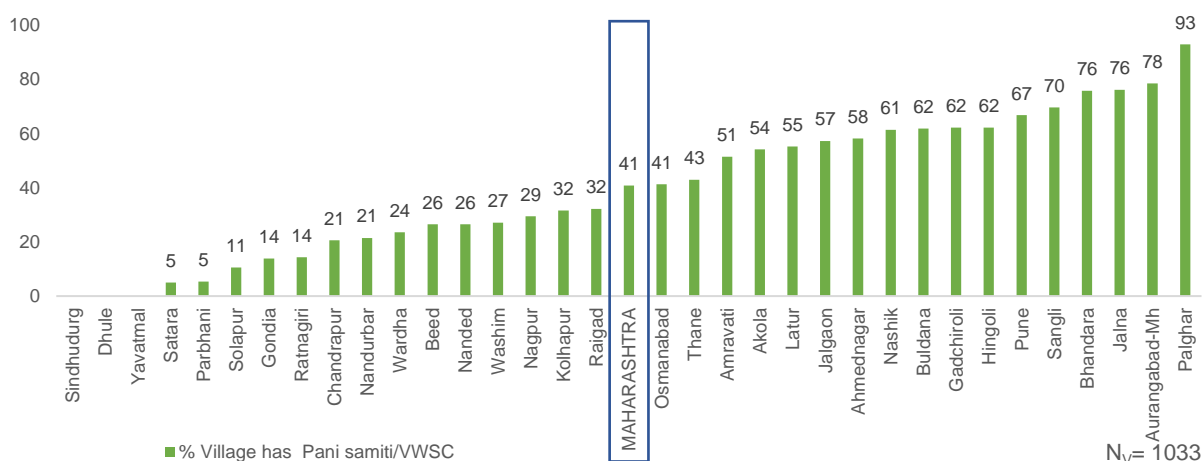
Figure 25: Type of challenge faced by the schemes



A. Presence of VWSC/Pani Samiti

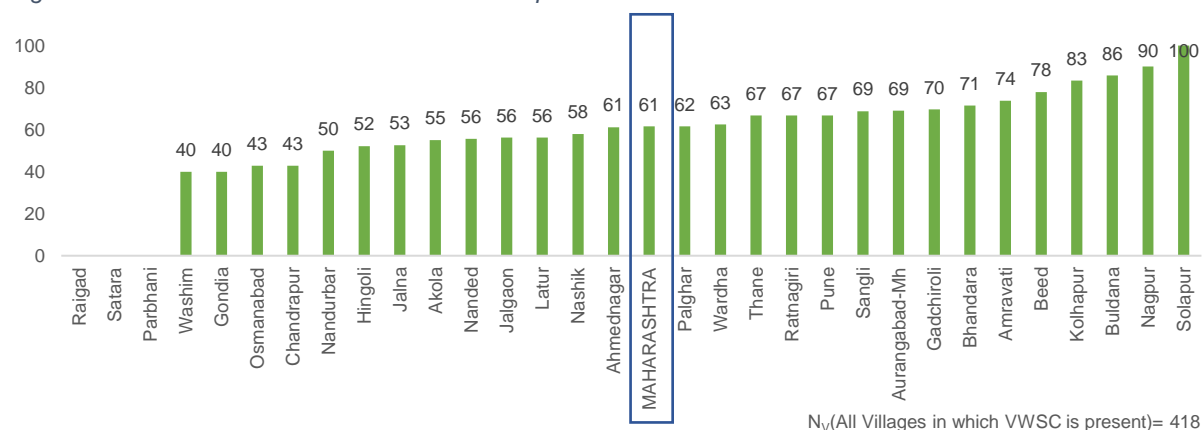
41% of villages in the state reported to have a VWSC or a Pani Samiti.

Figure 26: Villages where VWSC/ Pani Samiti is present



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

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

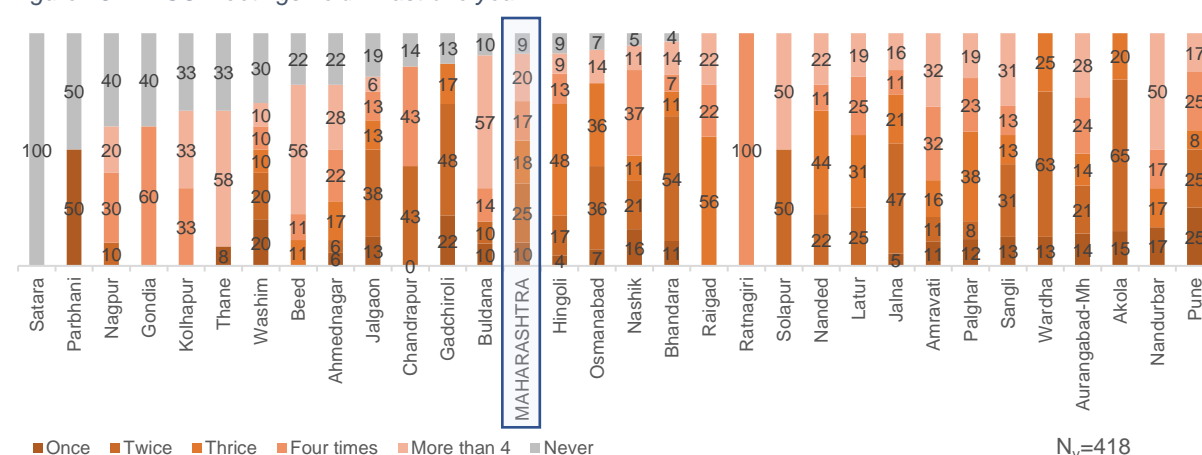


N_V(All Villages in which VWSC is present)= 418

61% villages reported that VWSC/Pani Samiti comprised more than 50% members as females.

C. VWSC Meetings in last one year

Figure 28: VWSC meetings held in last one year



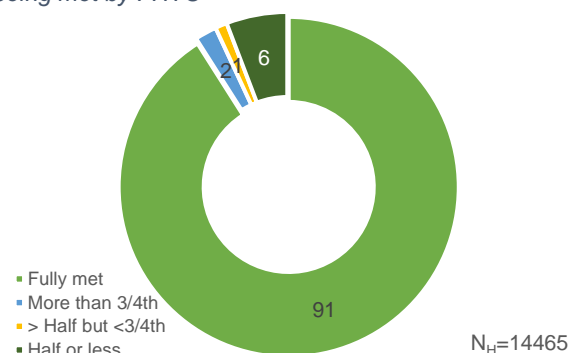
N_V=418

Across the villages in the state, that reported to have VWSC/Pani Samitis (418 villages), 2 meetings in last one year was reported the most (25%)

3.4. Utilization of water at HHs for drinking and other activities

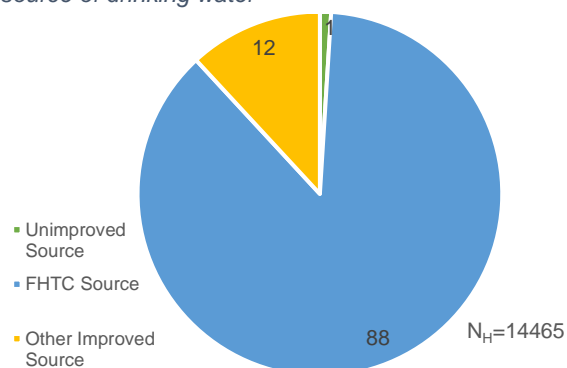
91% of HHs reported that their daily requirement of water was being met by HH tap connections

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



88% HHs reported HH tap connections as their primary source of drinking water

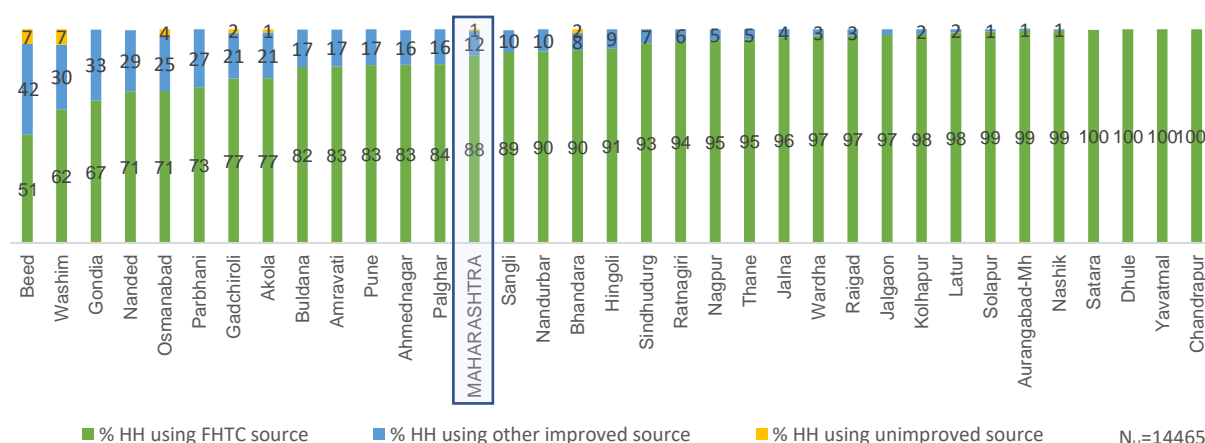
Figure 29: Households reported FHTC as primary source of drinking water



More than 9 out of 10 (91%) HHs reported their daily requirement of water being fully met by the HH tap connections. And 88 percent HHs reported used household tap connection for drinking water (primary source). About 12 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.

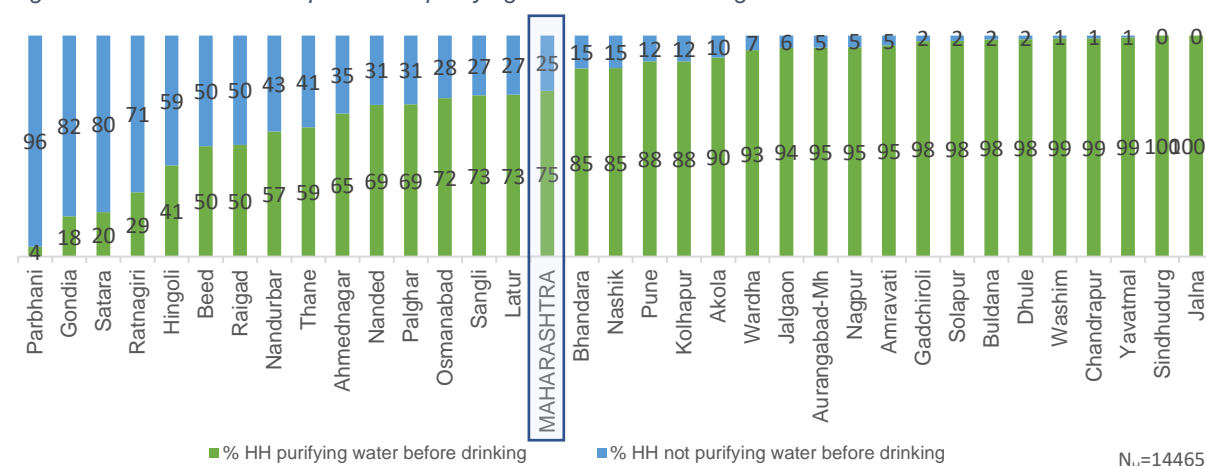
Overall, **100% of HHs** reported using improved primary source of drinking water, out of which **88% of HHs** reported HH tap water as their primary source.

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



A. Households who practice purifying of water before drinking

Figure 32: Households who practice of purifying water before drinking

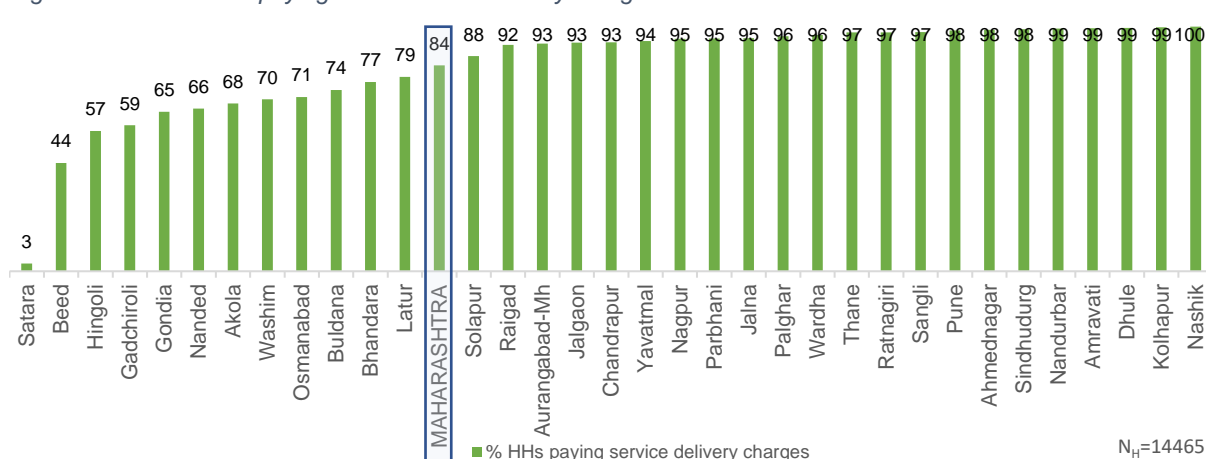


Practice of purifying water before drinking was reported the most in Jalna and Sindhudurg (100%) where 96% and 93%, respectively, HHs reported using HH tap water as primary drinking water source, while the least was reported in Parbhani (4%) where 63% HHs reported using HH tap water as a primary drinking water source.

B. Households paying water service delivery charges

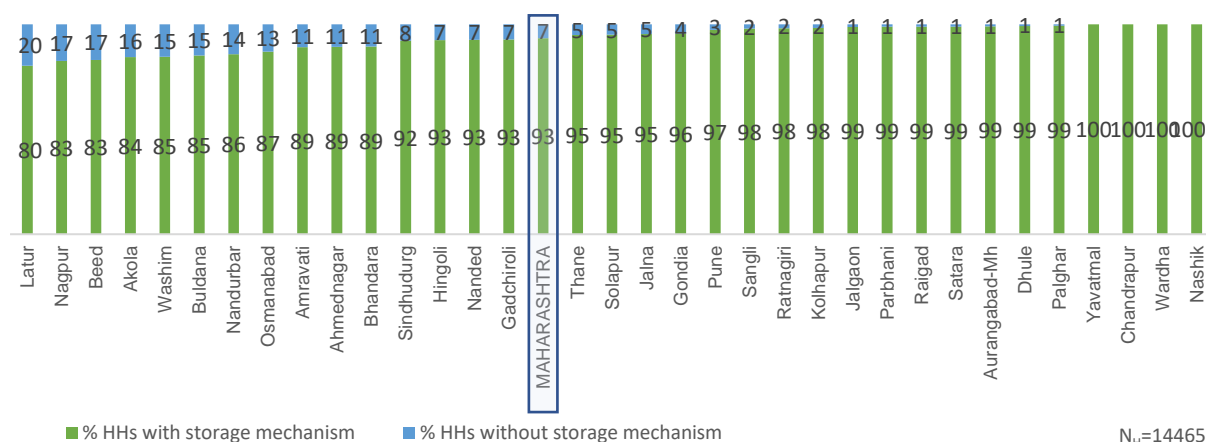
In Maharashtra, around 84% of the sampled households were found to be paying service delivery charges, Nashik being the district with the highest percentage of such households (100%) and Satara being the districts in which only 3% households reported paying any water service delivery charges.

Figure 33: Households paying water service delivery charges



C. Storage mechanism used by households

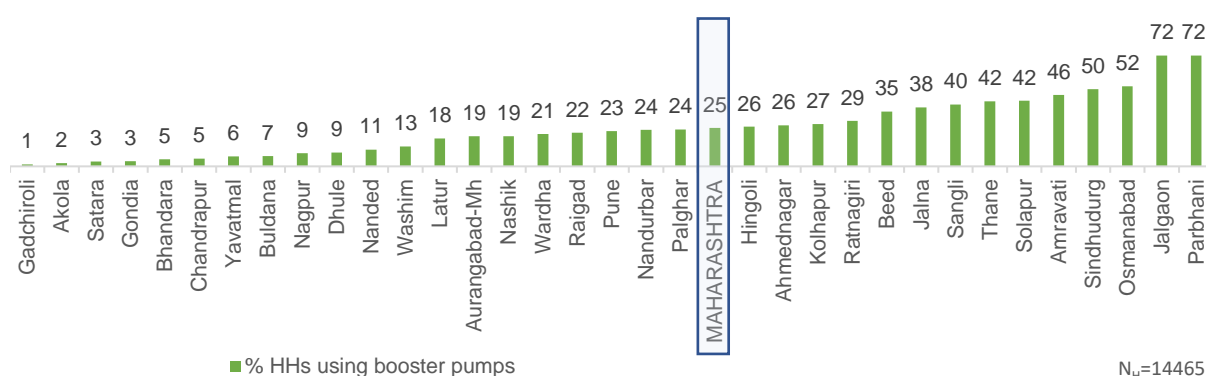
Figure 34: Households reported using some storage mechanism



D. Households using booster pumps

Overall, **25% HHs** reported using booster pumps to maximize the water flow through their piped water connections. Parbhani and Jalgaon reported 72% of HHs using booster pump in the state while Gadchiroli reported only 1%.

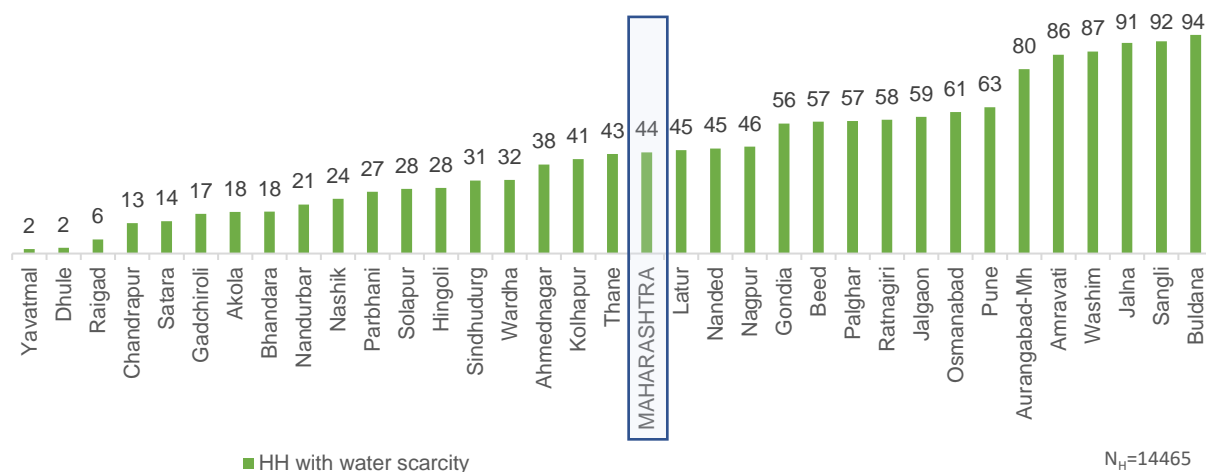
Figure 35: Households reported to use of booster pumps



E. Households with coping mechanism during scarcity of water

In the state, **44% HHs** faced shortage of water during any time of the year, while **41% HHs** reported having some mechanism to cope with scarcity of water.

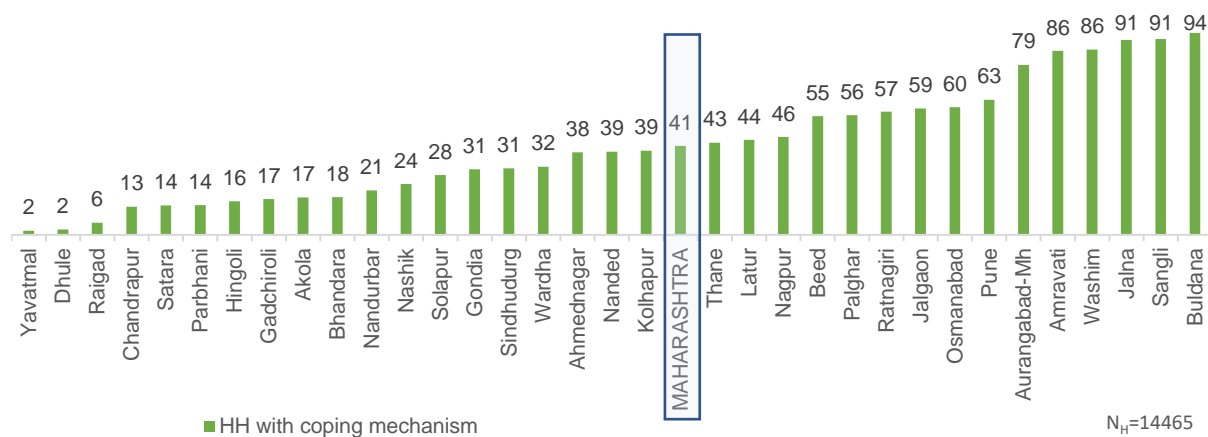
Figure 36: Households who faced water scarcity



F. Household with a mechanism to cope water shortage

41% 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

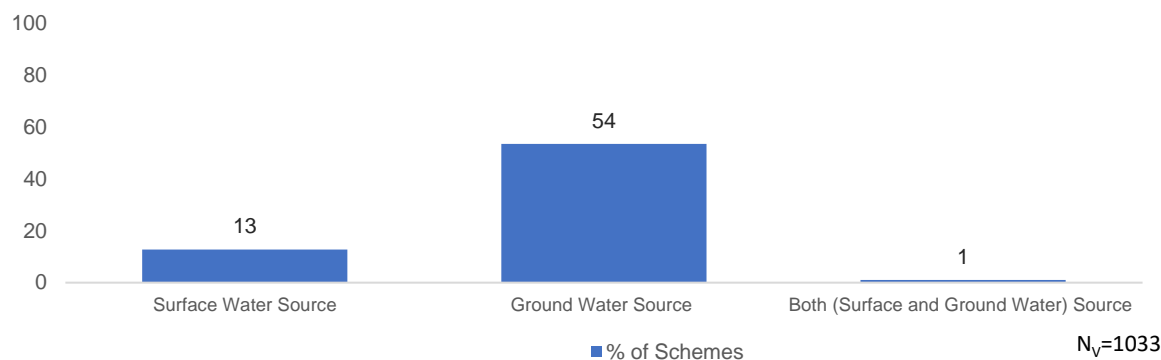


3.5. Source sustainability at the village level

Schemes based on surface and ground water

13% of schemes reported to be based on surface water source while 54% of schemes reported to be based on ground water sources

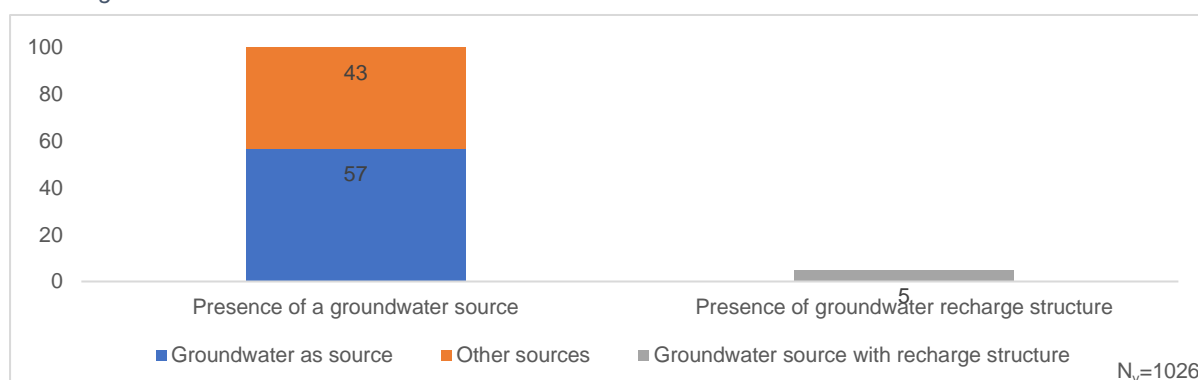
Figure 38: Schemes based on water source in village



*'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

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

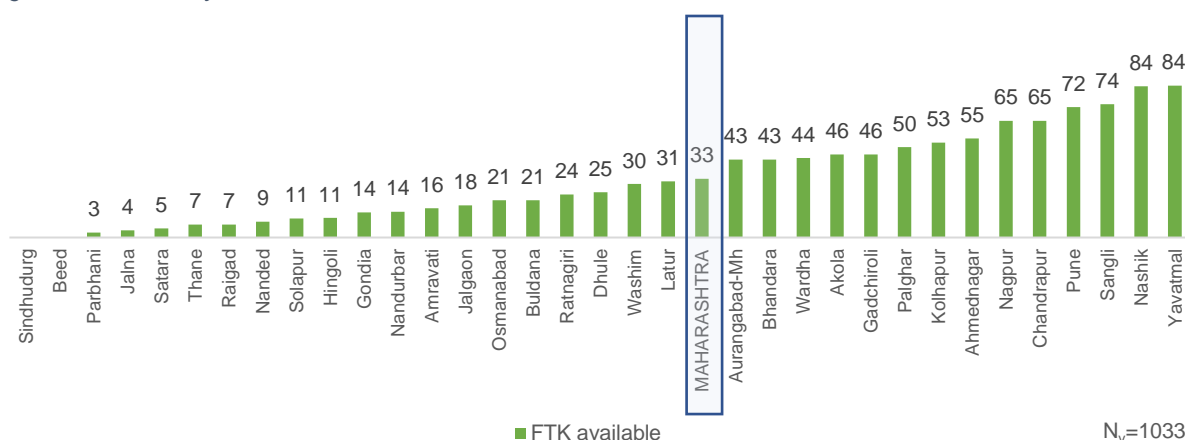


In the state, **57% villages** reported the presence of groundwater sources like improved dug wells and borewells. Out of which, 5 percent of villages reported (i.e., 117 villages) reported having a recharge structure.

3.6. Water quality monitoring and surveillance in the villages

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

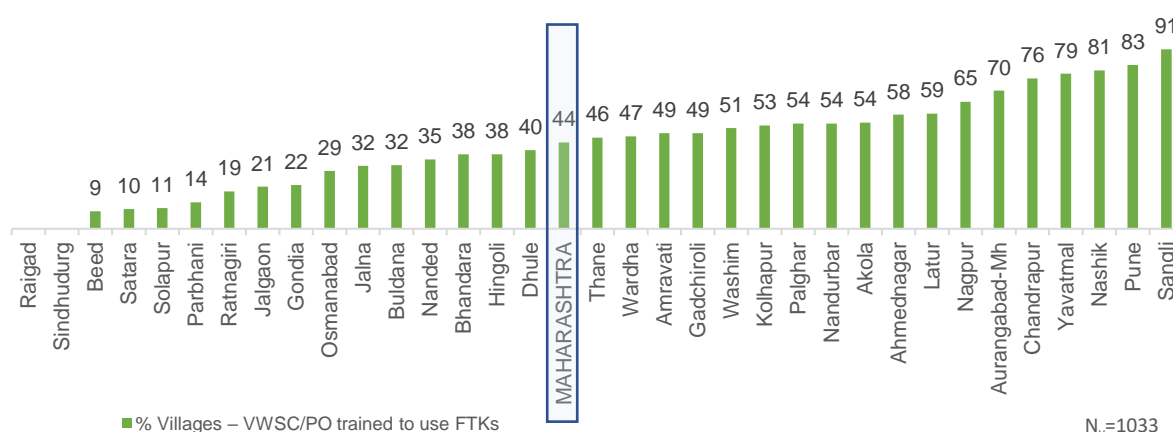
Figure 40: Availability of field test kits with VWSC/ Pani Samiti



With regards to water quality testing in the village by VWSC, 33% villages in the state reported having available field test kits. Yavatmal and Nashik reported 84% villages having available field test kits for water quality testing, while Sindhudurg and Beed reported none.

B. VWSC/Pani Samiti trained to use field test kits

Figure 41: Persons trained to use field test kits

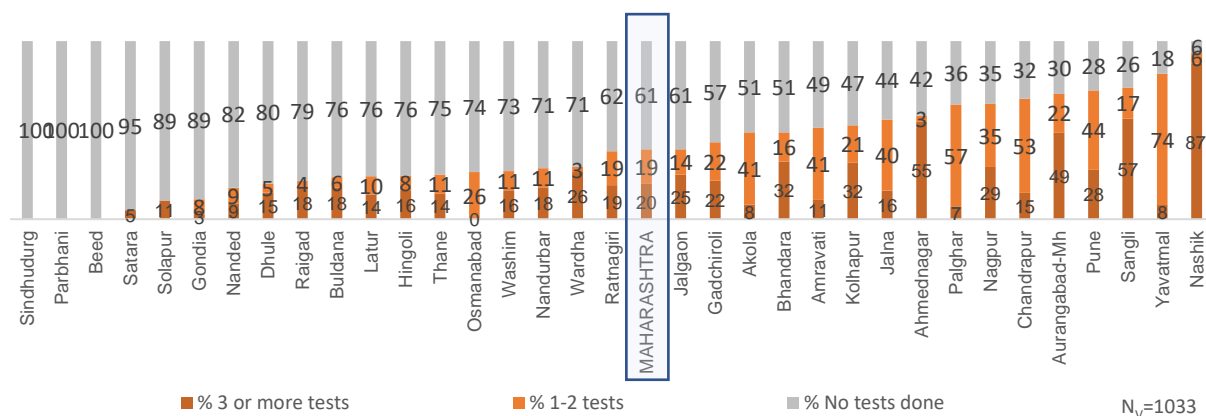


Overall, **44% of villages** in the state reported to have either VWSC/Pani Samiti or pump operator trained to use field test kits for testing the quality of water on-site. Sangli reported 91% VWSC/Pani Samiti or pump operator trained to use field test kits while Raigad and Sindhudurg reported none.

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

Across the state, about one-fifth of the total sampled villages (20%) 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, Nashik had the highest proportion of such villages, wherein 87% of its villages reported using field test kits three or more times in last one year.

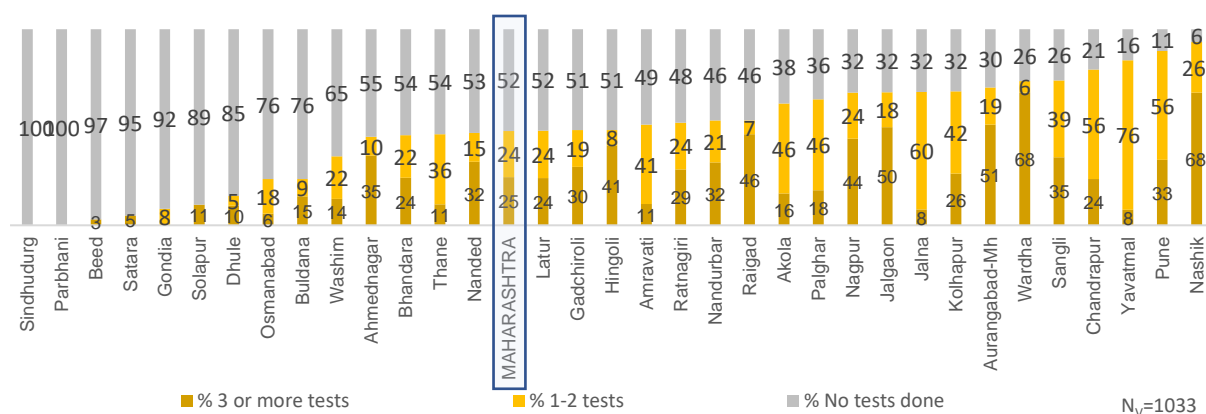
Figure 42: Frequency of testing using FTK in villages



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

Across the state, one-fourth of the total sampled villages (25%) 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, Nashik had the highest proportion of such villages, wherein 68% of its villages reported tests through laboratories - three or more times in last one year.

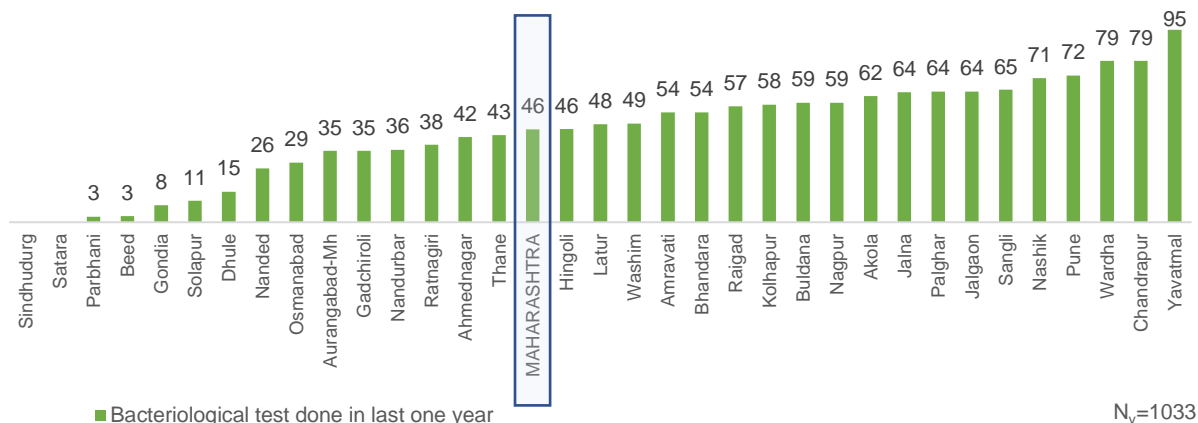
Figure 43: Frequency of lab testing



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

With regards to water quality testing in the village by VWSC, **46% villages** in the state reported having bacteriological test done in the last one year.

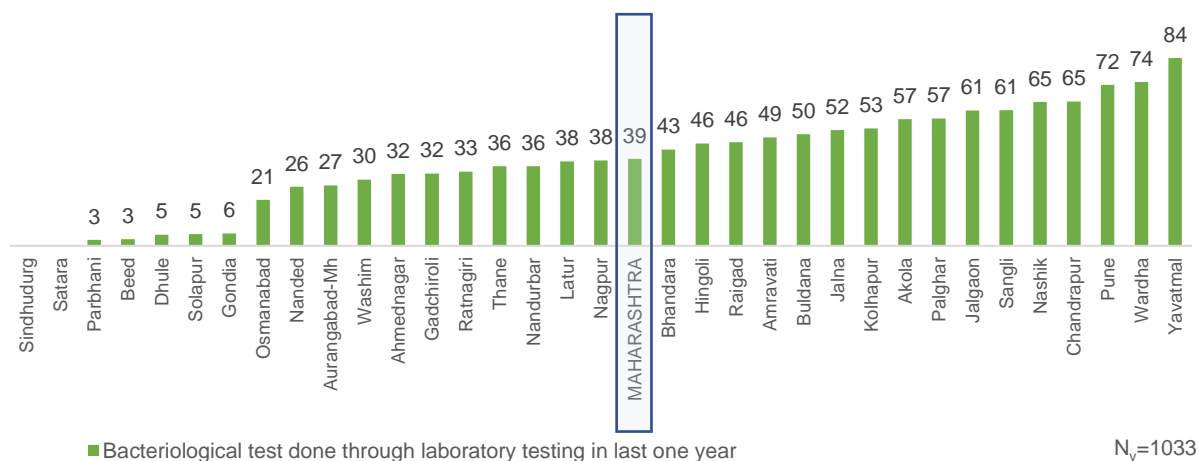
Figure 44: Percent villages in which Bacteriological test was done in the last one year



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 39% of sampled villages. 84 percent of the sampled villages from the district Yavatmal reported to have had bacteriological tests done through laboratories in last one year.

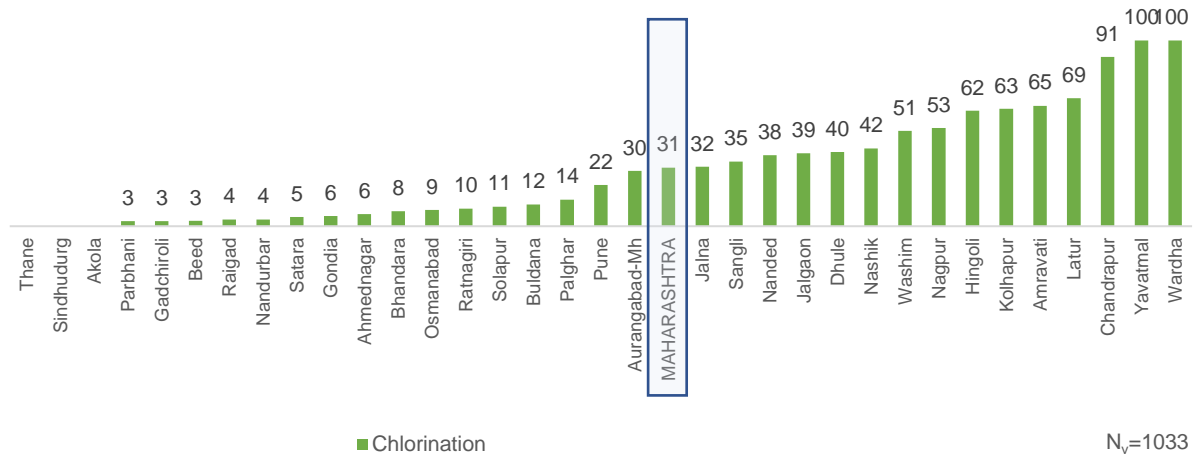
Figure 45: Bacteriological test done through laboratory testing in the last one year



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

More than **31% villages** reported that there is availability of chlorination mechanism in the village but during onsite testing of water at household level only 24% households tested to have for presence of chlorine.

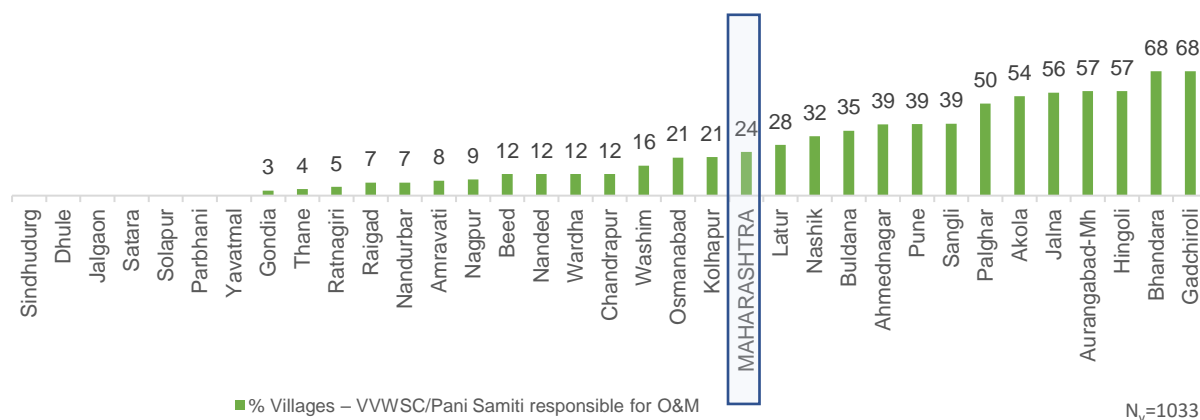
Figure 46: Villages having a mechanism for chlorination



3.7. Management of water service delivery at village level

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

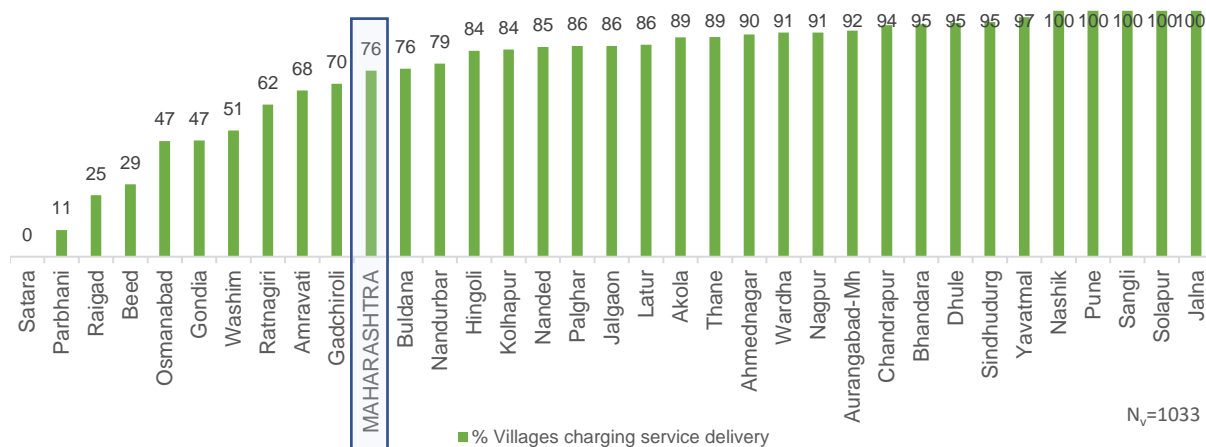
Figure 47: VWSC/Pani Samiti responsibility for O&M of PWS schemes



In the state, **24% villages** that have VWSC/Pani Samiti reported to be responsible for operation and maintenance of PWS. Sindhudurg, Dhule, Jalgaon, Satara, Solapur, Parbhani and Yavatmal districts reported that VWSC/Pani Samiti are not responsible for operation and maintenance of PWS.

B. Villages levying water service delivery charges from households

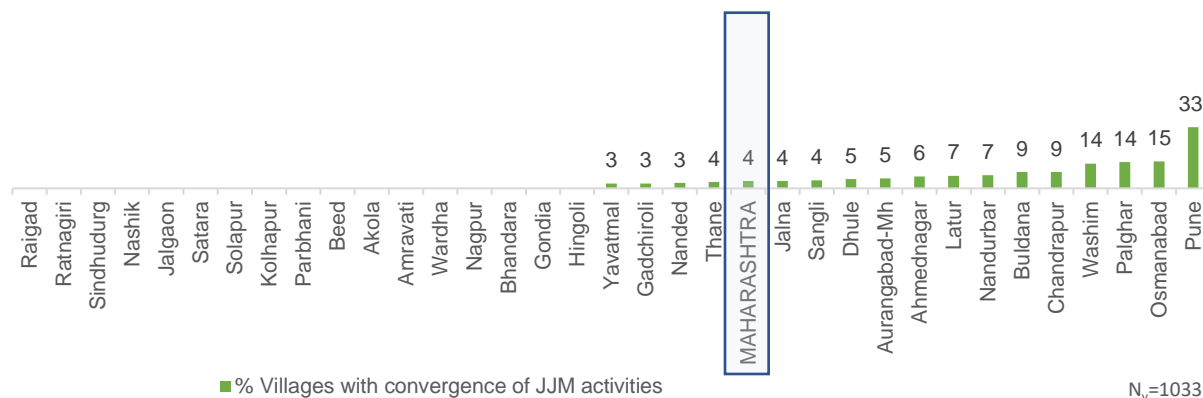
Figure 48: Villages levying water service delivery charges from households



Overall, **76% of villages** in the state levy charge for water service delivery to households whereas **84% 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

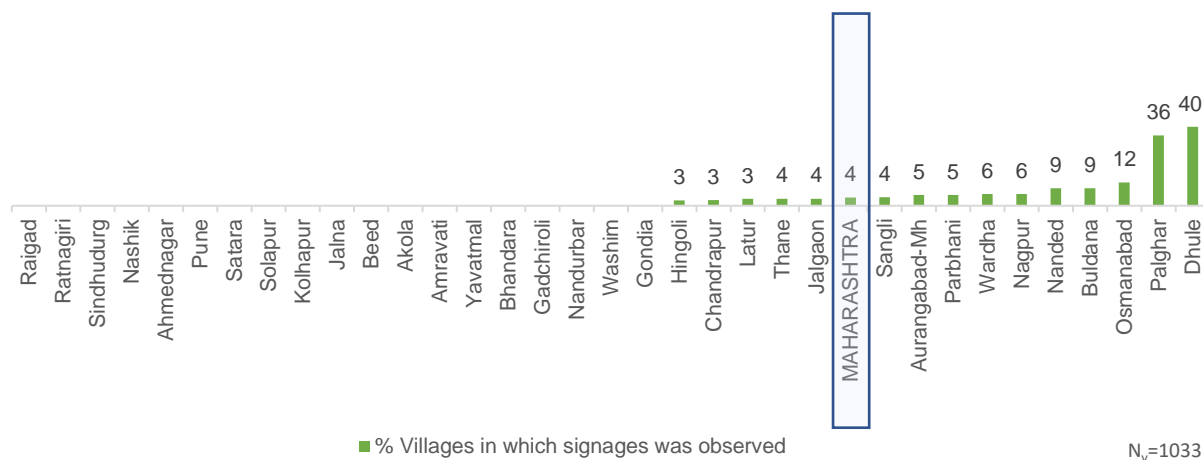


In the state, only **4% villages** in the state reported convergence of activities under JJM with other government programmes/ schemes on skill development, capacity building and training, and awareness generation.

D. Villages where signages were observed

Signages about JJM were observed in 4% of the sampled villages. District Dhule had the highest proportion of villages where signages were observed (40%).

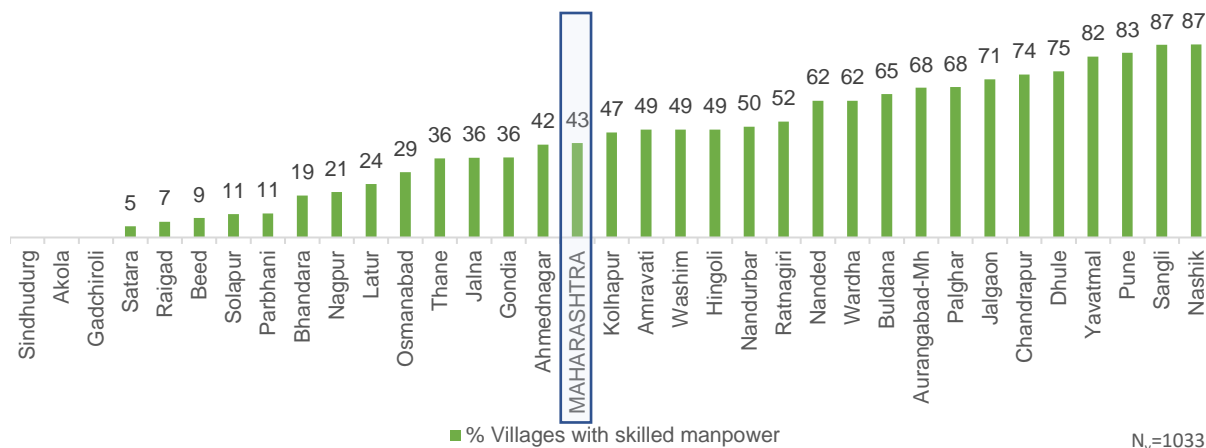
Figure 50: Villages in which signages about JJM was observed



3.8. Status of Operation & Maintenance

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

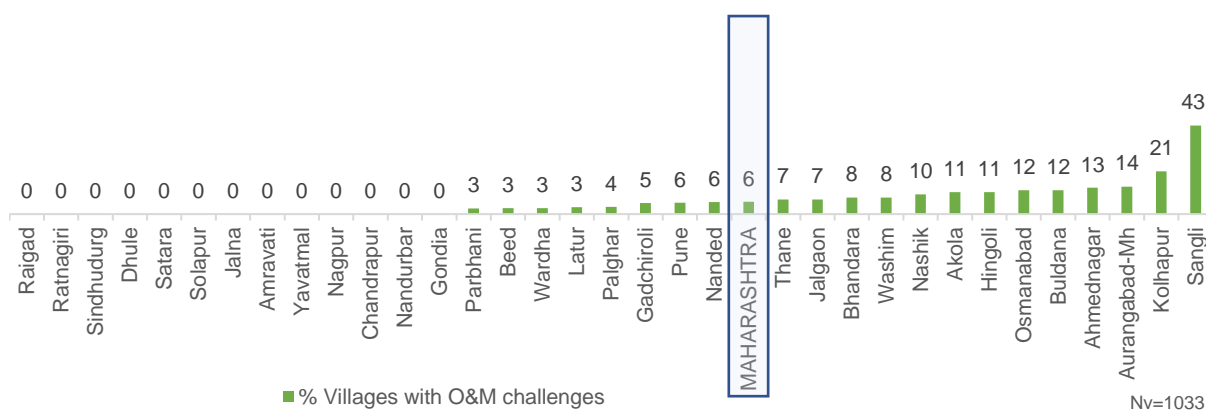
Figure 51: Villages reported having skilled manpower for O&M of PWS schemes



Across the state, **43% villages** in the reported having identified skilled manpower for O&M of PWS schemes, the most reported to be in Sangli and Nashik (87% each) and none in Sindhudurg, Akola, and Gadchiroli.

B. Villages with O&M challenges

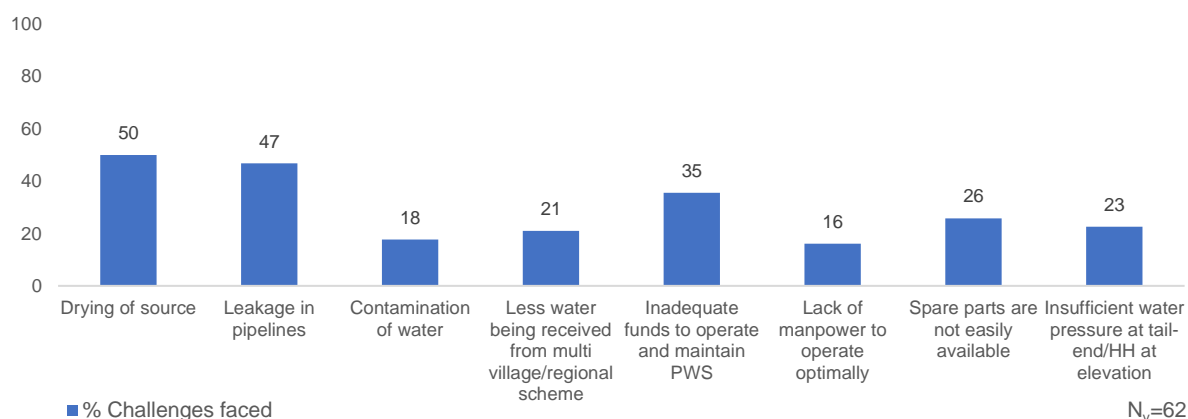
Figure 52: Villages reported having faced O&M challenge



In the state, **6% of villages** in the state reported to have faced challenges with respect to O&M of PWS schemes

C. Details of challenges faced

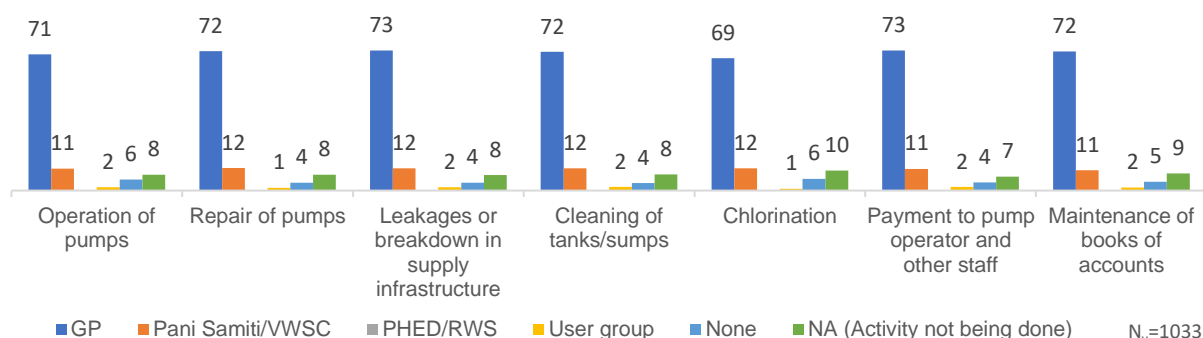
Figure 53: Details of O&M challenges faced by village



Out of the 6% of villages that had faced challenges with respect to O&M of PWS schemes (62 villages), 'drying of source' was attributed the most – at 50%.

D. Responsible for O&M

Figure 54: Different bodies responsible for O&M

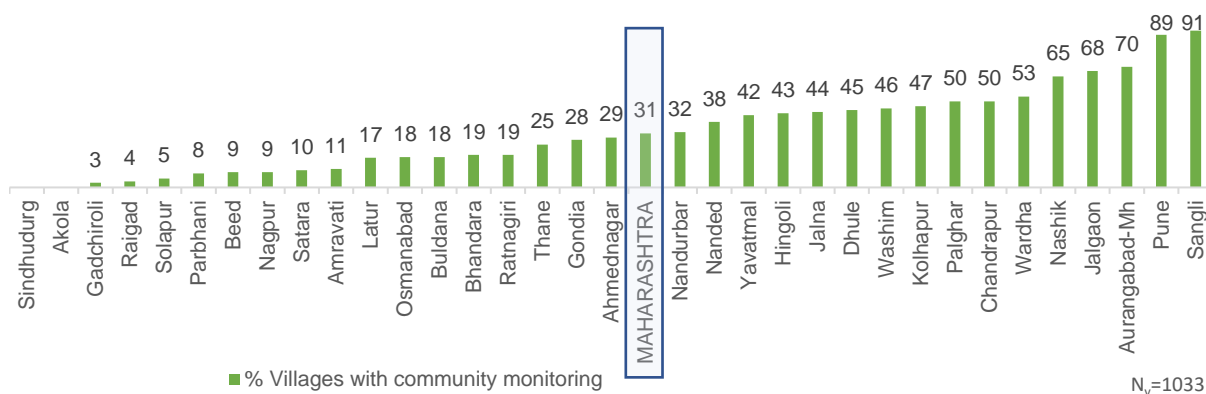


Across the state, villages reported 'GP' the most for being responsible for all essential aspects about operation and maintenance of PWS schemes.

E. Villages with community level monitoring of water wastage

31% 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

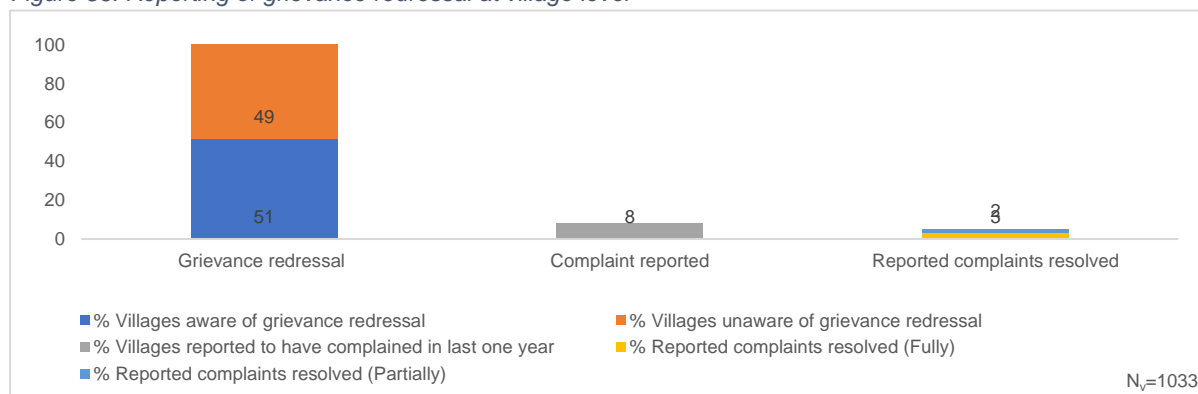


3.9. Status of service delivery related grievances and redressal

A. Village level

Grievance redressal at village

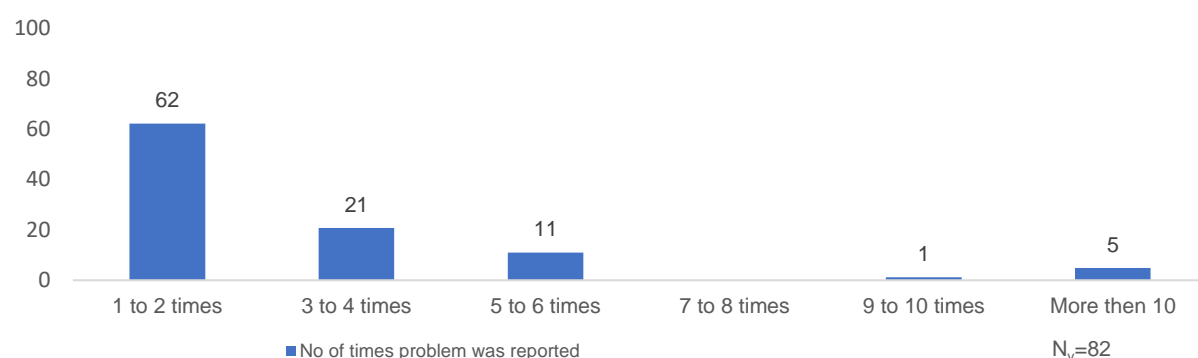
Figure 56: Reporting of grievance redressal at village level



In the state, **51% of villages** reported that they are aware of any grievance redressal mechanism, but only 8% HHs have reported a complaint in the last one year amongst which 3% reported that the complaints are fully resolved while 2% 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

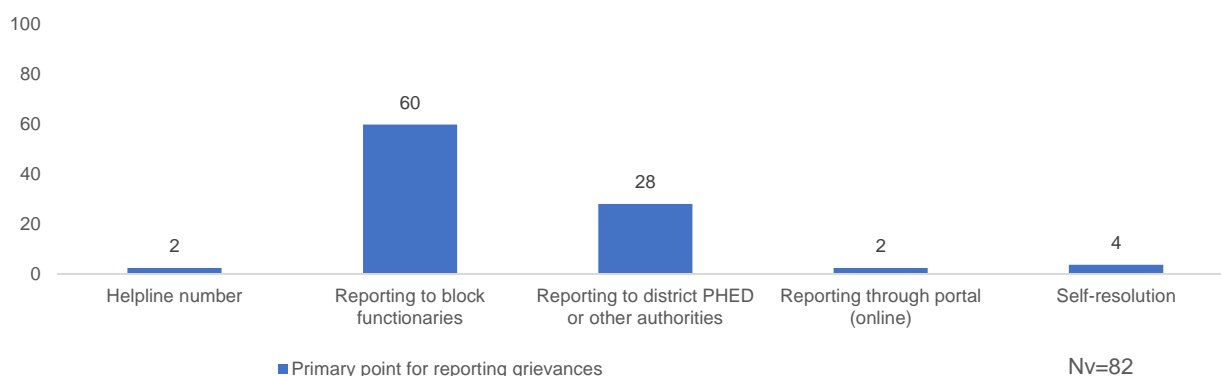


Among the villages who reported a complaint (i.e. 82 villages), 5% villages have reported a complaint more than 10 times in the last one year, while 62% reported a complaint at least once or twice.

Primary points for reporting grievances

Among those who reported complaint (i.e., 8% villages, 82 villages), **60% of villages** reported that they report their grievances to **block functionaries** beside other reporting-points

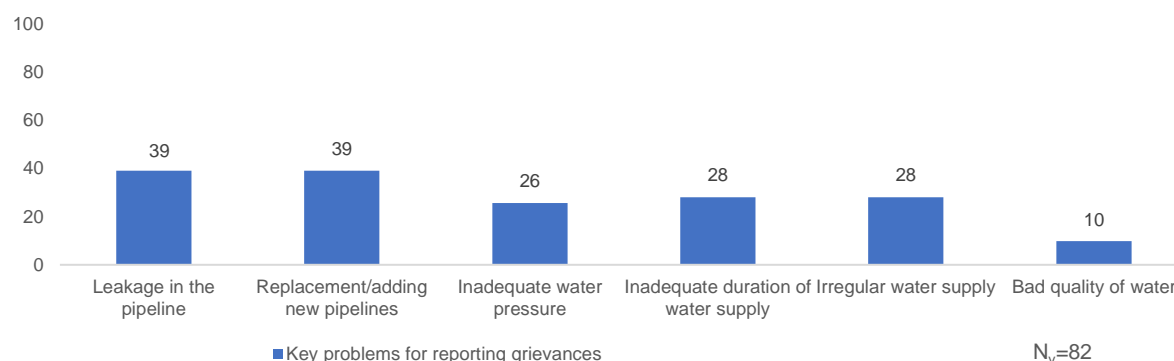
Figure 58: Primary points for reporting grievances by village



Key problems for reporting grievances

Overall, among those who reported complaint (i.e., 8% villages, 82 villages) **39% of villages** reported that **leakage in the pipeline** and **replacement/adding new pipelines** is their most encountered problem for reporting grievances

Figure 59: Key problems reported by village

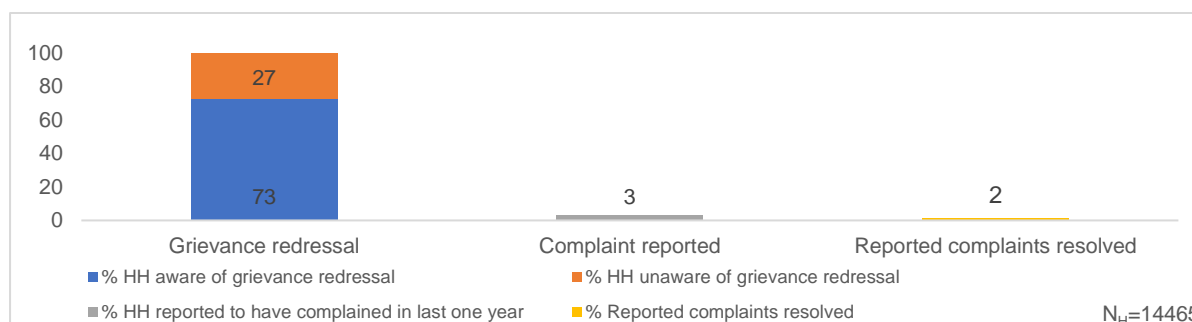


B. Household level

Awareness of grievance redressal at household

In the state, **73% of HHs** reported that they are aware of any grievance redressal mechanism w.r.t. HH tap water through PWS, but only 3% HHs have reported a complaint in the last one year and only 2% of complaints have been resolved.

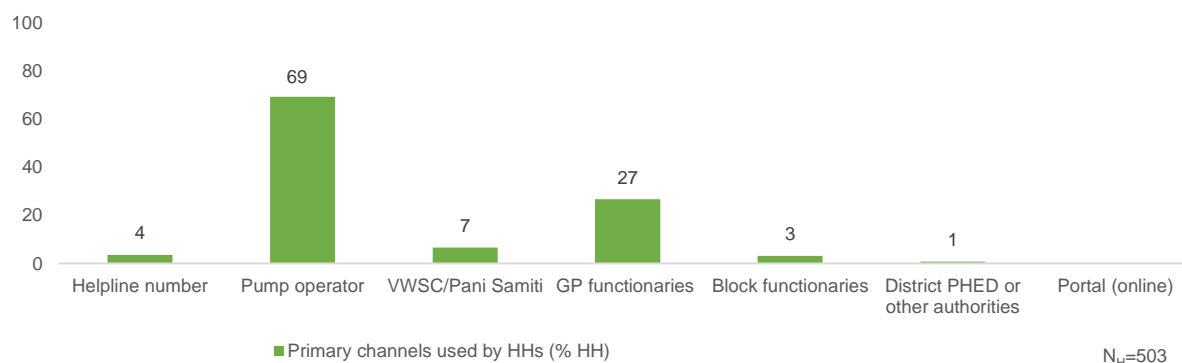
Figure 60: Reporting of grievance redressal at household level



Primary channels for reporting grievances by households

Among those who reported complaint as shown in the above graph (i.e., 3% HHs, 503 HHs), **69%** of the HHs reported their complaints to the **pump operators** beside other reporting-channels

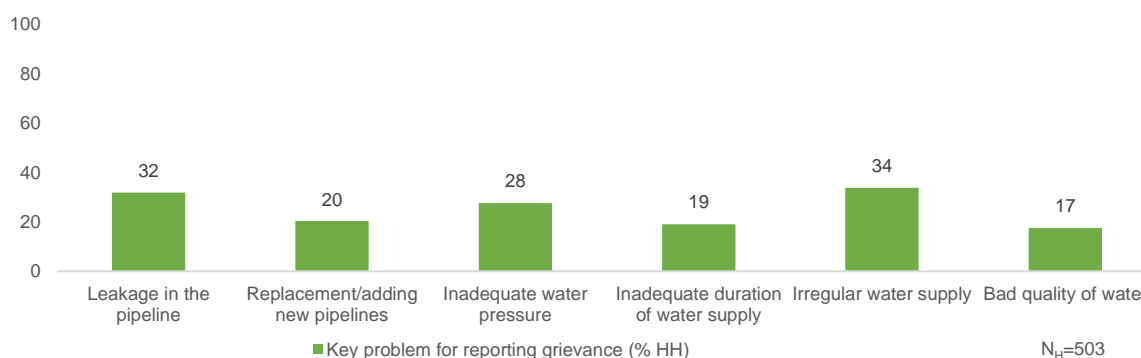
Figure 61: Primary channels for reporting grievances by households



Key problems for reporting grievances

Overall, among those who reported complaint (i.e., 3% HHs, 503 HHs) **34%** of the HHs that reported problems was of **irregular water supply** beside other problems

Figure 62: Key problems reported by households

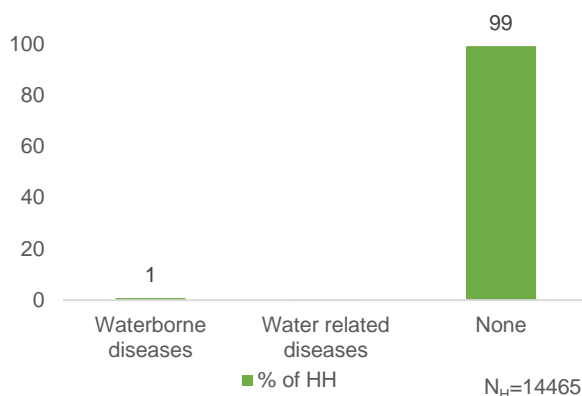


3.10. Perception of HHs on Outcome Indicators

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

Across the state only 1% HHs reported having an incidence(s) of water borne diseases in your household in last one year. The cases recorded were of Dysentery, Diarrhoea, Cholera and Typhoid

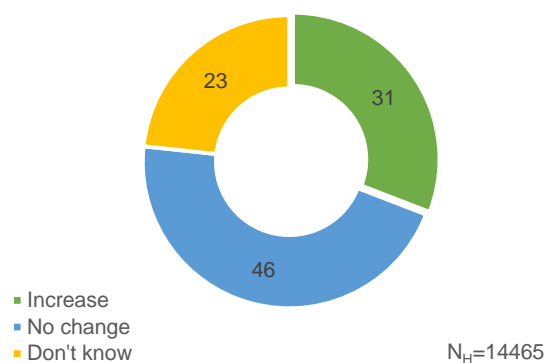
Figure 64: Household reported incidence of water borne diseases in last one year



B. Change in employment days since FHTC programmes/schemes

Since having a functional HH tap connection, 31% HHs across the state has reported that there has been a change in the no. of employment days of the adult HH members while 46% HHs reported no change

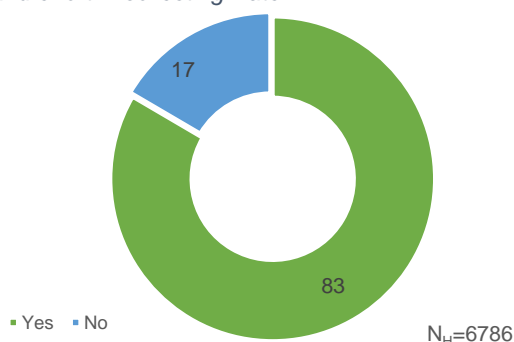
Figure 63: Household reported a change in employment days since FHTC programmes /schemes



C. Reduction in time and effort in collecting water

Out of the HHs reported (i.e. 5641) that female members used to fetch water before HH tap connection, 83% reported that post installation of HH tap connection it helped reduction of time and effort in collection of water

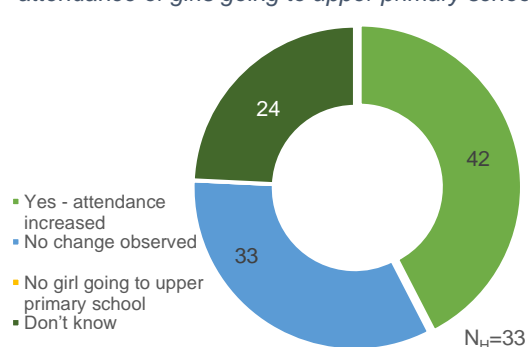
Figure 65: Households reported reduction in time and effort in collecting water



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

Across the state, 42% HHs reported that since having a functional HH tap connection the attendance of the girls going to schools increased, while 33% 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

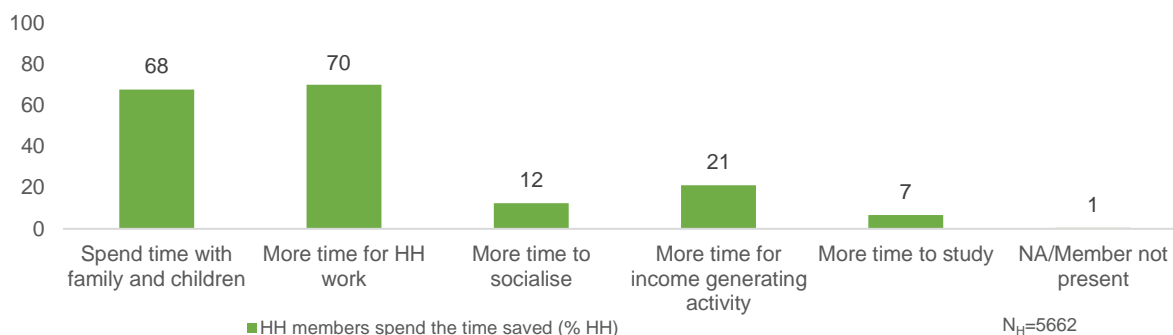
Figure 66: Households reported increase of attendance of girls going to upper primary school



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 (70%).

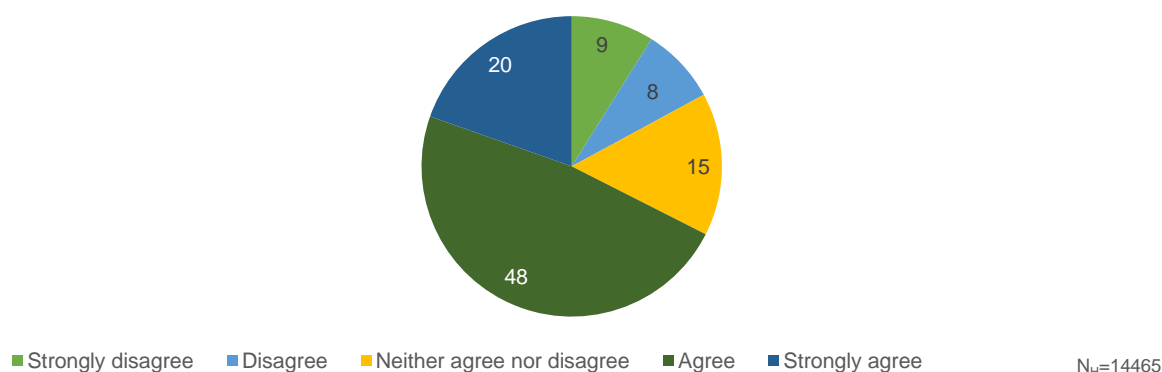
Figure 67: Utilization of time saved by households post installation of HH tap connection



F. Change in social status

Sense of pride and positive change in social status was reportedly realized by 68% of HHs post the installation of HH tap connections.

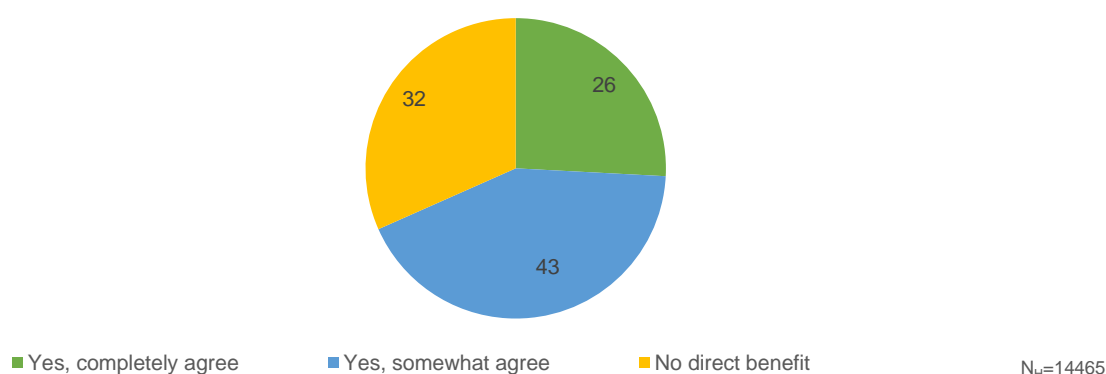
Figure 68: Households reported to have a positive change in social status








G. Direct benefits in terms of income due to FHTC

Across the state, 26% 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 43% 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 =14465)		In %
1	Regularity		83.7
2	Overall quality		85.0
3	Colour		86.6
4	Taste		86.5
5	Odour		86.7

Note:

Base (N_v)=1033 means all villages sampled and covered in Maharashtra state

Base (N_H)=14465 means all households sampled and covered across the 1033 villages in Maharashtra state

Base (N_H)=13406 means all households sampled where water sample be collected across the 1033 villages in Maharashtra state

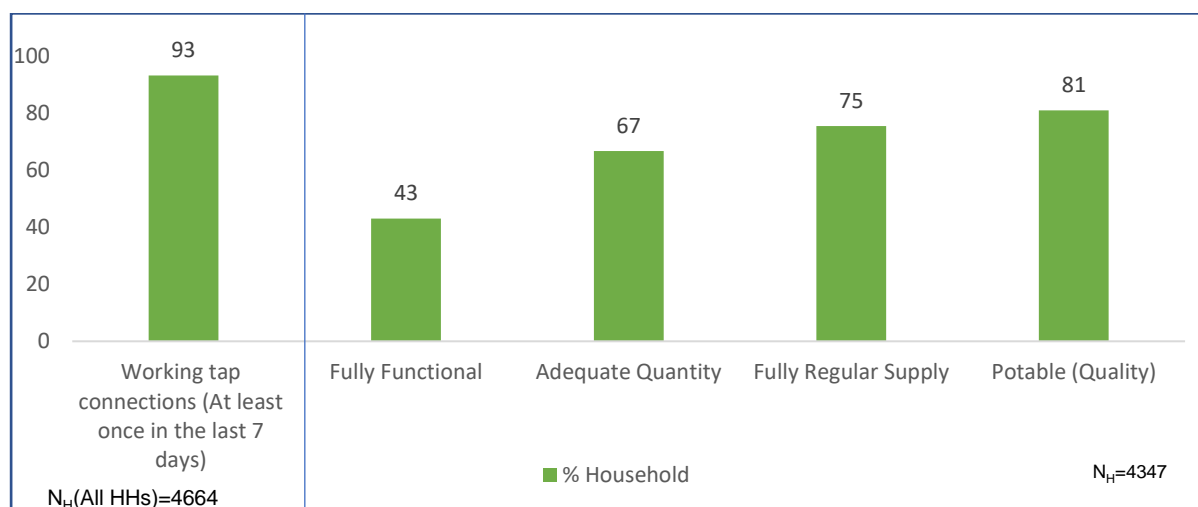
Base (N_H)=5641 means all households sampled where female members used to fetch water before HH tap connection

Base (N_H)=231 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 HGJ district, N_H=4347 implies all HHs where water was found on the day of the survey.

It has been found that 93 percent of the sampled HHs (N=4664) had working tap connections. 43 percent HHs in the state were found to have fully functional HH tap water connection. Moreover, more than two-third of the households (67 percent) received adequate quantity (≥ 55 LPCD) of water supply and three-fourth received regular supply (75 percent) of water. The on-site testing and lab test results of the water indicates that more than 4 out of 5 (81%) 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.	Palghar	100	86	96	90	100
2.	Raigad	100	57	76	83	85
3.	Ratnagiri	100	25	75	78	50
4.	Sindhudurg	100	3	100	100	3
5.	Nashik	100	54	54	86	100
6.	Dhule	100	82	91	91	100
7.	Jalgaon	100	30	48	60	90
8.	Ahmednagar	100	15	42	31	83
9.	Pune	100	8	34	43	80
10.	Satara	100	69	70	100	99
11.	Sangli	100	13	25	65	98
12.	Solapur	100	26	86	91	29
13.	Osmanabad	100	19	66	34	80
14.	Kolhapur	100	72	73	91	99
15.	Aurangabad-Mh	100	8	34	29	72
16.	Jalna	100	34	65	77	61

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)
17.	Parbhani	100	55	82	98	67
18.	Beed	100	71	86	82	99
19.	Nanded	100	39	93	60	53
20.	Latur	100	19	47	61	82
21.	Akola	100	36	42	84	100
22.	Yavatmal	100	100	100	100	100
23.	Wardha	100	66	71	98	98
24.	Bhandara	100	47	83	75	75
25.	Chandrapur	100	83	100	98	84
26.	Nandurbar	100	65	76	100	87
27.	Hingoli	100	37	50	88	87
28.	Nagpur	97	65	80	87	92
29.	Thane	93	75	76	90	99
30.	MAHARASHTRA	93	43	67	75	81
31.	Amravati	91	16	72	25	99
32.	Gadchiroli	71	67	71	84	100
33.	Washim	51	4	40	4	100
34.	Gondia	38	50	50	89	100
35.	Buldana	5	0	67	0	100

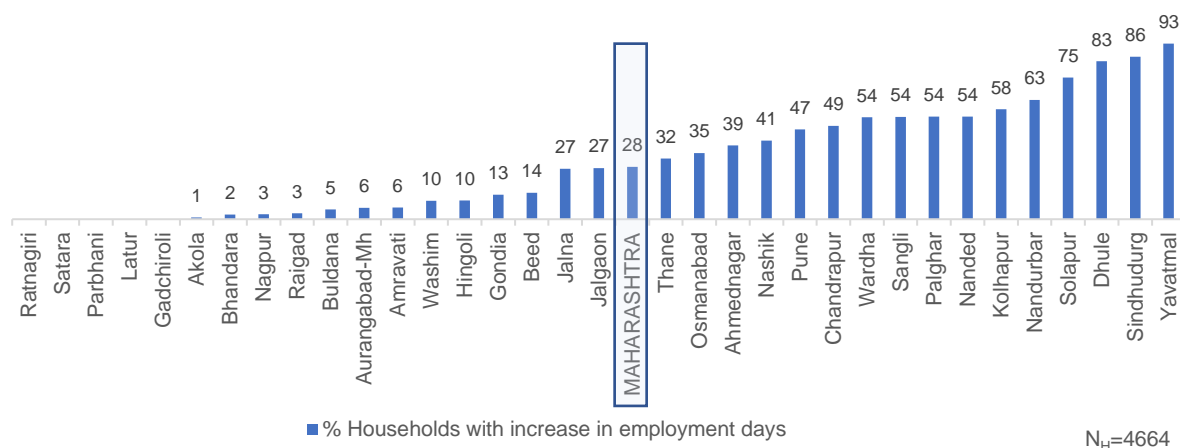
Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical, and bacteriological as given in Table 5 parameters (within acceptable/ permissible range) and onsite testing of pH. The details of laboratory test are mentioned in the table given above in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

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, more than one-fourth (28 percent) of the sampled households reported that employment days increased since the installation of FHTC.

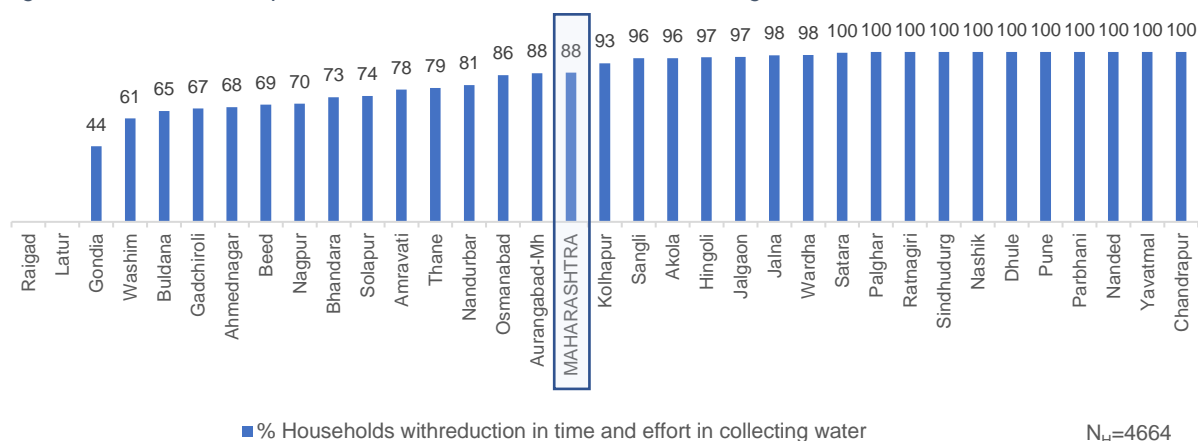
Figure 71: Household reported a change in employment days since FHTC programmes /schemes in Har Ghar Jal districts



B. Reduction in time and effort in collecting water

Similarly, about 88 percent of the sampled households also reported that the effort and time in collecting water reduced after installation of FHTC.

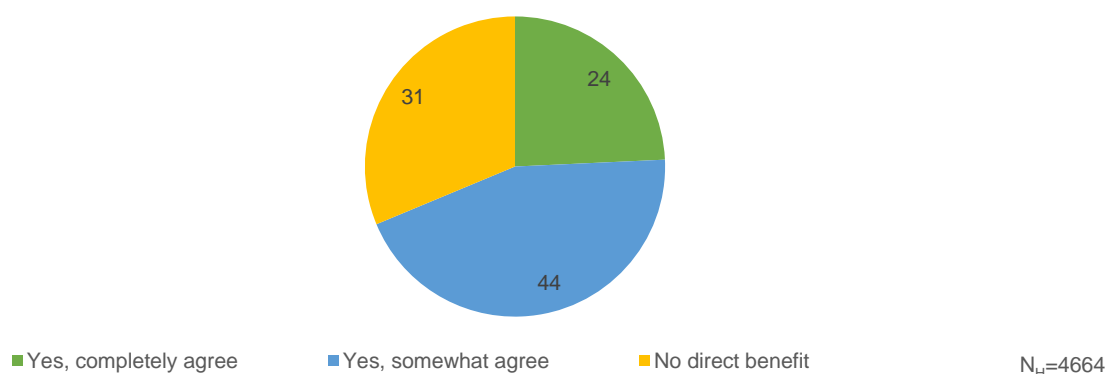
Figure 72: Households reported reduction in time and effort in collecting water in Har Ghar Jal districts



4.3. Direct benefits in terms of income due to FHTC

Across the state, 24 percent 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 44 percent reported being in partial agreement against the same.

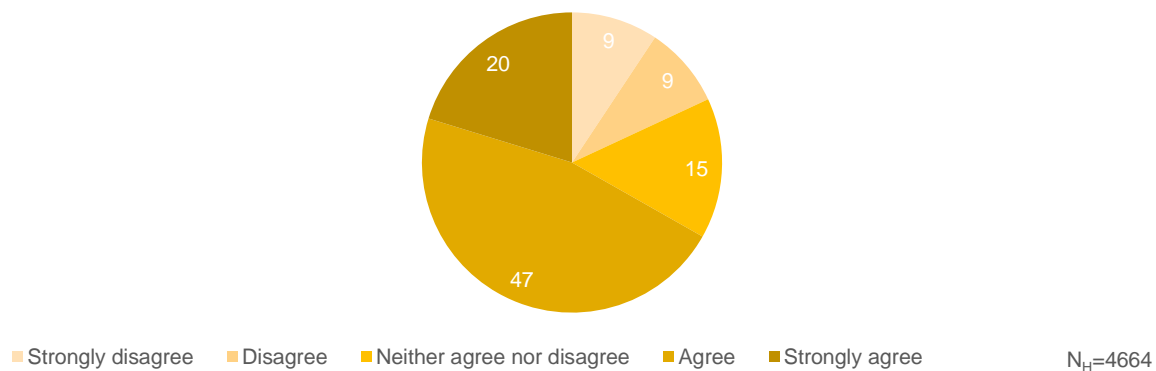
Figure 73: Households reported to have received direct benefits in terms of income due to FHTC in Har Ghar Jal districts



4.4. Change in social status

Almost 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.

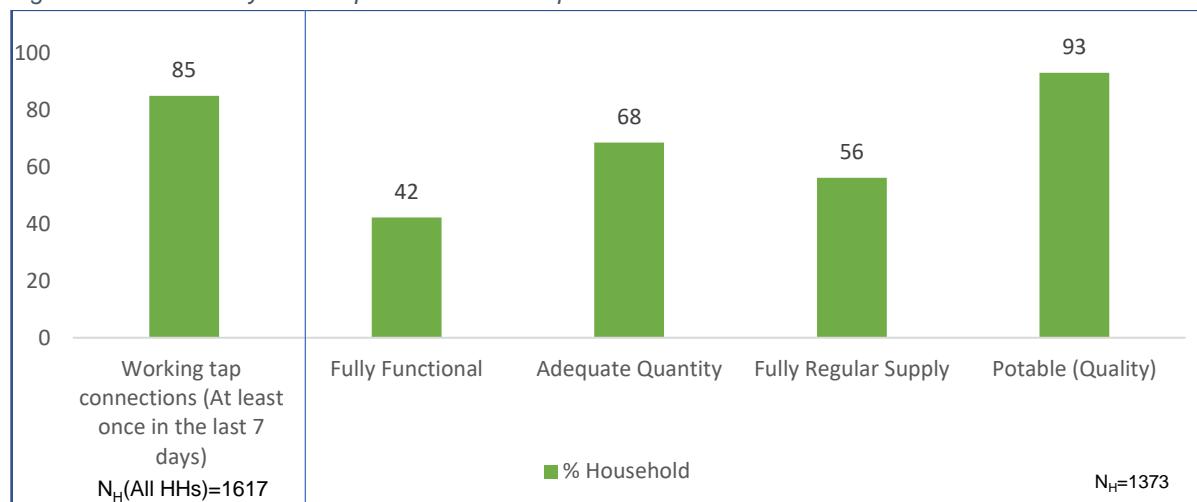
Figure 74: Households reported to have a positive change in social status in Har Ghar Jal districts



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=1373 implies all HHs where water was found on the day of the survey.

It has been found that 85 percent of the sampled HHs (N=1617) had working tap connections. 42 percent HHs in the state were found to have fully functional HH tap water connection. Moreover, more than 3 out of 5 households (68 percent) received adequate quantity (≥ 55 LPCD) of water supply and more than half received regular supply (56 percent) of water. The on-site testing and lab test results of the water indicates that more than 9 out of 10 (93%) 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.	Osmanabad	100	12	74	19	88
2.	Nandurbar	100	70	81	95	89
3.	MAHARASHTRA	85	42	68	56	93
4.	Gadchiroli	81	70	75	89	100
5.	Washim	58	3	26	4	97

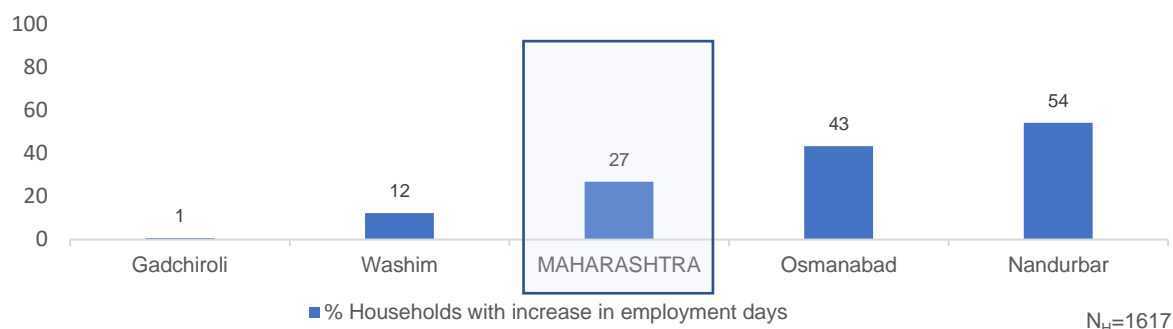
Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical, and bacteriological as given in Table 5 parameters (within acceptable/ permissible range) and onsite testing of pH. The details of laboratory test are mentioned in the table given above in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

5.2. Perception of HHs from aspirational districts on Outcome Indicators

A. Change in employment days since FHTC programmes/ schemes

Only around 27 percent of the households in aspirational districts reported increase in employment days since installation of FHTC.

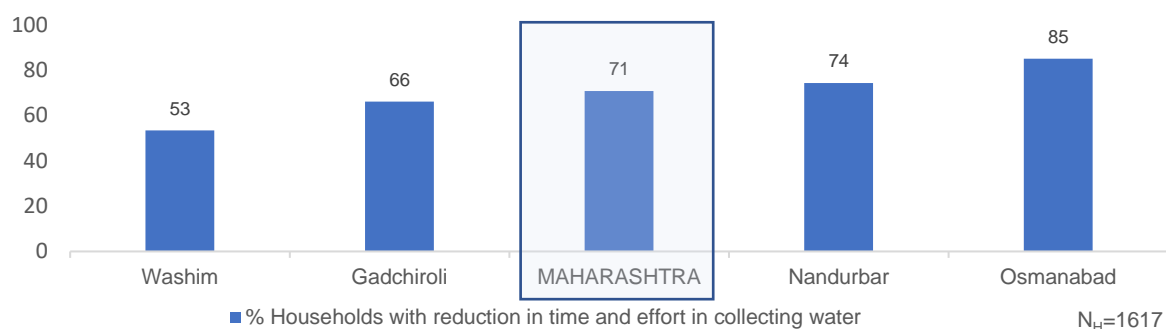
Figure 76: Household reported a change in employment days since FHTC programmes /schemes in Aspirational districts



B. Reduction in time and effort in collecting water

Only around 71 percent of the households in aspirational districts reported reduction in time and effort in collecting water.

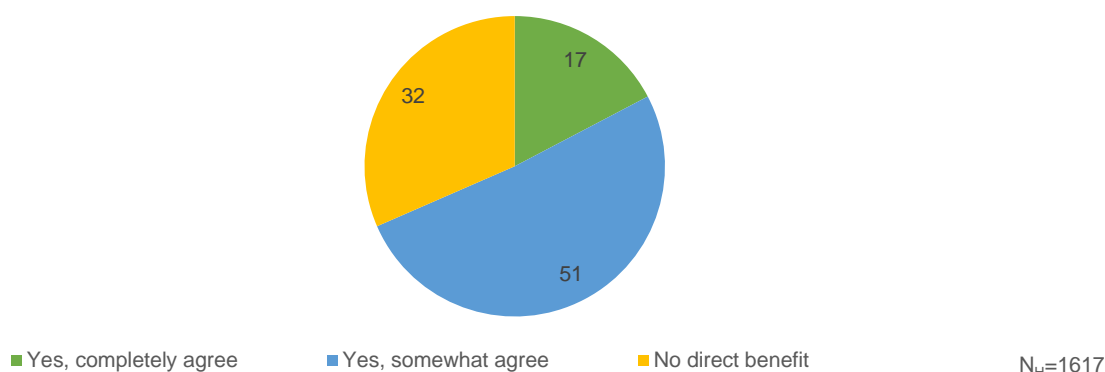
Figure 77: Households reported reduction in time and effort in collecting water in Aspirational districts



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 51% reported being in partial agreement against the same.

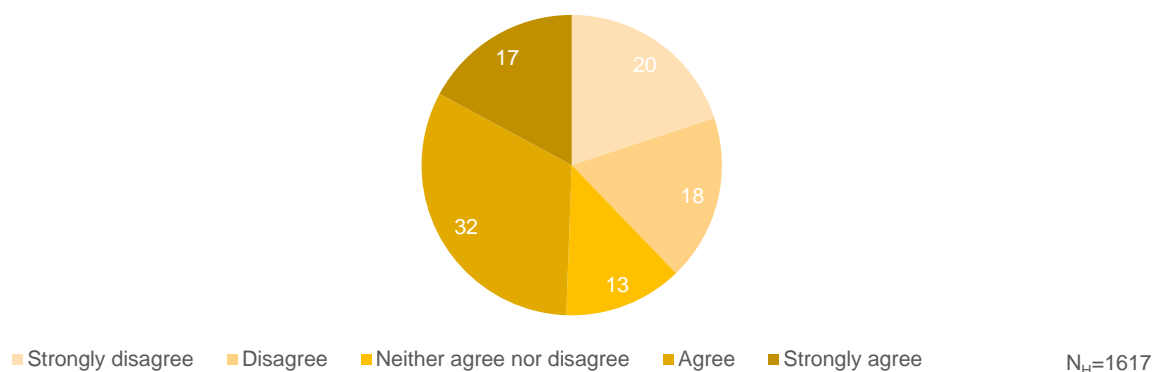
Figure 78: Households reported to have received direct benefits in terms of income due to FHTC in Aspirational districts



5.4. Change in social status

Less than half 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	Palghar	Zai	Replaced	Replaced due to transport issues, hence replaced with Village- Kalambholi.
2	Palghar	Sambha	Replaced	Replaced due to transport issues, hence replaced with Village- Harosale.
3	Thane	Aghai	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Kambare. Scheme found to be functional in replacement village
4	Raigad	Sahan	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Rayande. Scheme found to be functional in replacement village
5	Raigad	Nigade	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Patnoli. Scheme found to be functional in replacement village
6	Ratnagiri	Kondivale	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Tamhane. Scheme found to be functional in replacement village
7	Sindhudurg	Bambuli Tarf Haveli	Replaced	Replaced due to permission issue, hence replaced with Village- Talere.
8	Sindhudurg	Bandargaon	Replaced	Replaced due to permission issue, hence replaced with Village- Tembhdurinagar.
9	Sindhudurg	Kelus	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Khanoli. Scheme found to be functional in replacement village
10	Nashik	Manur	No Scheme	No Scheme present in the sampled village, hence replaced with Village- UTRANE. Scheme found to be functional in replacement village
11	Nashik	Gigaon	No Scheme	No Scheme present in the sampled village, hence replaced with Village- GILANE. Scheme found to be functional in replacement village
12	Nashik	Morzar	No Scheme	No Scheme present in the sampled village, hence replaced with Village- NANDUR. Scheme found to be functional in replacement village
13	Nashik	Fardapur	No Scheme	No Scheme present in the sampled village, hence replaced with Village- FATTEPUR. Scheme found to be functional in replacement village
14	Jalgaon	Marul	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Mhaiswadi. Scheme found to be functional in replacement village
15	Ahmednagar	Ghaitadakwadi	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Palavewadi. Scheme found to be functional in replacement village
16	Pune	Wagholi	Replaced	Replaced as sample PSU was Urban, hence replaced with Village- HINGANGAON.
17	Pune	Gujar Nimbalkarwadi	Replaced	Replaced as sample PSU was Urban, hence replaced with Village- MANDAKI .
18	Pune	Manjari Bk (N.V.)	Replaced	Replaced as sample PSU was Urban, hence replaced with Village- MANJARI KH.
19	Pune	Nahre (N.V.)	Replaced	Replaced as sample PSU was Urban, hence replaced with Village-PAWAI MAL.
20	Solapur	Habisewadi	Replaced	Replaced due to transport issues, hence replaced with Village- Dewale.
21	Solapur	Akluj	Replaced	Replaced as sample PSU was Urban, hence replaced with Village-Babhulgaon.
22	Solapur	Fadtari	Replaced	Replaced due to transport issues, hence replaced with Village- Malkhambi.

Table No. 10: List of replaced villages				
S. No.	District Name	Village Name	Status of the Scheme (No Scheme/Replaced & Defunct)	Remarks
23	Nanded	Hasnali	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Jarikot. Scheme found to be functional in replacement village
24	Osmanabad	Khamaswadi	No Scheme	No Scheme present in the sampled village, hence replaced with Village- YERMALA. Scheme found to be functional in replacement village
25	Buldana	Satgaon Mhasala	No Scheme / Defunct Scheme	No Scheme present in the sampled village, hence replaced with Village- Shirpur. Scheme found to be defunct in replacement village
26	Buldana	Nagapur	No Scheme / Defunct Scheme	No Scheme present in the sampled village, hence replaced with Village- Sakhal Kh.. Scheme found to be defunct in replacement village
27	Buldana	Mandwa	No Scheme / Defunct Scheme	No Scheme present in the sampled village, hence replaced with Village- Ajisapur. Scheme found to be defunct in replacement village
28	Akola	Sangwa	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Dodaki. Scheme found to be functional in replacement village
29	Akola	Bhandaraj Bk.	No Scheme / Defunct Scheme	No Scheme present in the sampled village, hence replaced with Village- Chandur. Scheme found to be defunct in replacement village
30	Akola	Malsoor	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Gonapur. Scheme found to be functional in replacement village
31	Akola	Zarandi	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Anakwadi. Scheme found to be functional in replacement village
32	Amravati	Bhulori	Replaced	Replaced due to transport issues, hence replaced with Village- Pardi.
33	Bhandara	Pimpalgaon	No Scheme / Defunct Scheme	No Scheme present in the sampled village, hence replaced with Village- Pahela. Scheme found to be functional in replacement village
34	Bhandara	Somalwada	No Scheme / Defunct Scheme	No Scheme present in the sampled village, hence replaced with Village- Bhilewada. Scheme found to be functional in replacement village
35	Bhandara	Pindkepar	No Scheme / Defunct Scheme	No Scheme present in the sampled village, hence replaced with Village- Dighori. Scheme found to be functional in replacement village
36	Gadchiroli	Burgi (S)	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Shankarpur. Scheme found to be functional in replacement village
37	Gadchiroli	Ekansur (S)	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Kasari Tukum. Scheme found to be functional in replacement village
38	Gadchiroli	Halewara	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Kondhala. Scheme found to be functional in replacement village
39	Gadchiroli	Jafrabad Chak	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Churmura. Scheme found to be functional in replacement village
40	Gadchiroli	Venkatapur	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Kotgal. Scheme found to be functional in replacement village
41	Gadchiroli	Ankisa Mal	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Waddha. 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
42	Gadchiroli	Tekadamotala	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Bahadurpur. Scheme found to be functional in replacement village
43	Gadchiroli	Kasampalli	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Chinchgundi. Scheme found to be functional in replacement village
44	Gadchiroli	Bandhona	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Navargaon. Scheme found to be functional in replacement village
45	Gadchiroli	Adpalli Chak	No Scheme / Defunct Scheme	No Scheme present in the sampled village, hence replaced with Village- Vikaspalli. Scheme found to be defunct in replacement village
46	Gadchiroli	Belargondi	No Scheme / Defunct Scheme	No Scheme present in the sampled village, hence replaced with Village- Zari. Scheme found to be defunct in replacement village
47	Gadchiroli	Jijgaon	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Khedi (Movad). Scheme found to be functional in replacement village
48	Nandurbar	Ghantani	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Nalve Bk. Scheme found to be functional in replacement village
49	Nandurbar	Nawa Nagarmutha	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Waghode. Scheme found to be functional in replacement village
50	Washim	Saykheda	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Tandali Bk.. Scheme found to be functional in replacement village
51	Washim	Ingalwadi	No Scheme / Defunct Scheme	No Scheme present in the sampled village, hence replaced with Village- Chikhali. Scheme found to be defunct in replacement village
52	Washim	Shendurjana (A)	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Waroli. Scheme found to be functional in replacement village
53	Gondia	Gidhadi	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Babai. Scheme found to be functional in replacement village
54	Gondia	Ramatola	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Boda. Scheme found to be functional in replacement village
55	Gondia	Palandur	No Scheme / Defunct Scheme	No Scheme present in the sampled village, hence replaced with Village- Hardoli. Scheme found to be defunct in replacement village
56	Hingoli	Shewala	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Malwata. Scheme found to be functional in replacement village
57	Hingoli	Takli Kanoba	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Parajana. Scheme found to be functional in replacement village
58	Hingoli	Kamtha	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Warud Kaji. Scheme found to be functional in replacement village
59	Hingoli	Aral	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Babhulgaon. 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
60	Hingoli	Amba	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Thorava. Scheme found to be functional in replacement village
61	Hingoli	Tembhurni	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Asegaon. Scheme found to be functional in replacement village
62	Hingoli	Rajdari	Replaced	Replaced due to no contact details received, hence replaced with Village- Undegaon.
63	Hingoli	Sirla Tanda	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Pardi Bk.. Scheme found to be functional in replacement village
64	Hingoli	Jadgaon	Replaced	Replaced due to no contact details received, hence replaced with Village- Pimpaldari Tarf Nandapur.
65	Hingoli	Kanjara	Replaced	Replaced due to no contact details received, hence replaced with Village- Tapowan.
66	Hingoli	Gadhala	Replaced	Replaced due to no contact details received, hence replaced with Village- Shirad Shahapur.
67	Hingoli	Kelsula	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Chikhalagar. Scheme found to be functional in replacement village
68	Hingoli	Talni Pra Narsi	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Bhankheda. Scheme found to be functional in replacement village
69	Hingoli	Phalegaon	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Ambala. Scheme found to be functional in replacement village
70	Hingoli	Lohagaon	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Sirsam Bk.. Scheme found to be functional in replacement village
71	Hingoli	Digraswani	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Umra. Scheme found to be functional in replacement village
72	Hingoli	Chincholi	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Isapur. Scheme found to be functional in replacement village
73	Hingoli	Incha	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Kherda. Scheme found to be functional in replacement village
74	Hingoli	Digras Kh.	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Bhategaon. Scheme found to be functional in replacement village
75	Satara	Laxminagar	No Scheme	No Scheme present in the sampled village, hence replaced with Village- Nathaval. Scheme found to be functional in replacement village

