



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



STATE REPORT: MADHYA PRADESH
SURVEY DURATION: FEBRUARY TO APRIL 2022

Contents

| | |
|--|----|
| Abbreviations | 2 |
| Glossary | 3 |
| Executive Summary | 5 |
| 1. State Factsheet | 8 |
| 2. Context | 10 |
| 2.1. State snapshot: Madhya Pradesh | 10 |
| 2.2. FHTC Assessment Objectives | 11 |
| 2.3. Assessment Methodology | 11 |
| 2.4. Sample Size | 11 |
| 2.5. Sampling Methodology | 12 |
| 2.6. Methodology for Water Quantity Measurement at Households | 13 |
| 2.7. Methodology for Water Quality Measurement | 13 |
| 2.8. Project Implementation | 15 |
| 2.9. Sample coverage | 16 |
| 2.10. Sampled village and household profile | 16 |
| 3. Findings | 17 |
| 3.1. Functionality status of FHTC at household level | 17 |
| 3.2. Quantity, Regularity, and Quality of Water | 20 |
| 3.3. Operation and Maintenance (O&M) of schemes at village level | 32 |
| 3.4. Utilization of water at HHs for drinking and other activities | 35 |
| 3.5. Source sustainability at the village level | 40 |
| 3.6. Water quality monitoring and surveillance in the villages | 41 |
| 3.7. Management of water service delivery at village level | 45 |
| 3.8. Status of Operation & Maintenance | 47 |
| 3.9. Status of service delivery related grievances and redressal | 50 |
| 3.10. Perception of HHs on Outcome Indicators | 53 |
| 3.11. User satisfaction | 55 |
| 4. Status of functionality in Har-Ghar-Jal villages | 56 |
| 4.1. Overall Functionality (in %) | 56 |
| 4.2. Perception of HHs from Har-Ghar-Jal villages on Outcome Indicators | 58 |
| 4.3. Direct benefits in terms of income due to FHTC | 59 |
| 4.4. Change in social status | 60 |
| 5. Status of functionality in aspirational districts | 61 |
| 5.1. Overall Functionality (in %) | 61 |
| 5.2. Perception of HHs from aspirational districts on Outcome Indicators | 62 |
| 5.3. Direct benefits in terms of income due to FHTC | 63 |
| 5.4. Change in social status | 63 |
| 6. Annexure | 64 |

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
- Mini-solar based piped water supply scheme in isolated/tribal hamlets
 - Single Village Scheme (SVS) in villages having adequate groundwater that needs treatment
 - Single village scheme (having adequate groundwater/ spring water/ local or surface water source of prescribed Quality)
 - 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
 - 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 Madhya Pradesh lies in the southern part of India and has a population of 7,26,26,809 (Census 2011). It has 52 districts and 51585 villages, and 27331 villages have PWS schemes. The state is yet to achieve the Har Ghar Jal status. A total of 853 villages, across all districts, and 20164 households were randomly sampled for the survey, and additionally, water samples from 736 public institutions were tested.

In the assessment among sampled villages, 83% of villages have only one scheme, 15% of villages have 2-3 schemes, and 2% have 4 or more schemes. Mostly all schemes across the state were found functional.

At the state level, 74% of the HHs were satisfied with the regularity of the supply, 77% with the quality of the water supplied, 80% with the colour of the water supplied, and 81% with the taste of the supplied tap water.

Overall functionality status of Madhya Pradesh

At the state level, 65% of HHs received water on the day of the survey. While 48% of the HHs were found to have fully functional tap water connections within the premises. Out of which 66% received an adequate quantity of water, 67% reported receiving a fully regular supply of water, and 97% HHs received potable water.

It was found that 55% of households received water all 7 days a week, 25% of the households received water 3 or 4 days a week, and 14% of the households received water at least once a week. The average duration of water supply across the state was reported to be 1 hour per day.

In Madhya Pradesh, 48% of the villages have reported that water is directly supplied to the households and the remaining 52% 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 Madhya Pradesh, 13864 samples of water were submitted, and 11280 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 41% of the HHs. The percentage was relatively higher in the AWCs (more than 15%), wherein there is a possibility of additional chlorine being added locally for the purification of water.

Out of the 20164 HHs sampled for the FHTC assessment, a water quality test was carried out in 13123 HHs. pH was found within the acceptable limit in 99% of households. Among the public institution, pH was found in the acceptable limit of more than 99% in schools and HFs.

19% of villages in the state reported having available field test kits. And 17% 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 35% of villages in the state reported having a VWSC or a Pani Samiti out of which 51% of the VWSC/Pani Samitis reported to have more than 50% female members. In the state, 9% of the villages reported that VWSC/ Pani Samiti is responsible for the operation and maintenance of pipe water supply.

21% of villages reported having identified skilled manpower for O&M of PWS schemes. 7% of villages in the state reported having faced challenges with respect to O&M of PWS schemes.

64% of HHs reported that they are aware of any grievance redressal mechanism w.r.t. HH tap water through PWS, but only 5% HHs have reported a complaint in the last year and only 3% of complaints have been resolved. Among those who reported complaints (i.e., 5% HHs, 1018 HHs), 79% of the HHs reported their complaints to pump operators besides other reporting channels.

Overall, 39% of villages in the state levy charge for water service delivery to households whereas 37% HHs reported paying water service delivery charges at the households.

75% of HHs reported that their daily requirement of water was being met by HH tap connections.

Overall, 100% of HHs reported using an improved source of drinking water, as their primary source.

Overall, 17% HHs reported using booster pumps to maximize the water flow through their piped water connections.

It was found that 53% of the villages have schemes that are based on groundwater sources, while 9% on surface water sources.

Age-wise functionality of the schemes indicates an increase in 'always functional' schemes in the state since 2012. 21-% point increase in the fully functional scheme was recorded from 2012 to 2013-18. In 2019 and later the percentage of fully functional schemes decreased by 15% and 52% of schemes have been reported to be always functional and 8% as partially functional, and 4% as not functional (i.e., a total of 64% of schemes).

Impact of JJM

Across the state, 4% of the HHs reported having an incidence(s) of water-borne diseases in the last year.

Since having a functional HH tap connection, 29% HHs across the state have reported that there has been a change in the no. of employment days of the adult HH members while 43% HHs reported no change.

Out of the HHs reported (i.e., 17029) that female members used to fetch water before HH tap connection, 70% reported that post-installation of HH tap connection helped reduce time and effort in collection of water.

Across the state, 19% of the HHs reported that since having a functional HH tap connection the attendance of the girls going to schools has increased, and 64% 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, 77% of households received water on the day of the survey. While 51% of the households were found to have fully functional tap connections. Out of which 67% received an adequate quantity of water, more than 7 out of 10 reported receiving a fully regular supply of water and 96% received potable water.

Since having a functional HH tap connection, 33% 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, 74% reported that post-installation of HH tap connection helped reduce time and effort in collecting water. Across the Har Ghar Jal district, 25% 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, 100% of households received water on the day of the survey. While 74% of the households were found to have fully functional tap connections. Out of which 81% received an adequate quantity of water, more than 4 out of 5 reported receiving a fully regular supply of water and 97% received potable water.

Since having a functional HH tap connection, 23% 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, 61% reported that post-installation of HH tap connection helped reduce time and effort in collecting water. Across the aspirational district, 16% 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 | Madhya Pradesh |
|---|-------|----------------|
| Working tap connections- HHs which received water through tap connection at least once in last 7 days (%) | 86 | 65 |
| Quantity ¹ of water received by households | | |
| Adequate quantity (>55 LPCD) (%) | 85 | 66 |
| Partially adequate quantity (> 40 LPCD - < 55 LPCD) (%) | 5 | 10 |
| Inadequate quantity (<40 LPCD) (%) | 10 | 24 |
| Regularity ² of water received by households | | |
| Fully Regular Supply (as per schedule) (%) | 80 | 67 |
| Partially Regular Supply (not as per schedule) (%) | 14 | 25 |
| Irregular Supply (less than 9 months' supply) (%) | 6 | 8 |
| Potable ³ (Quality) water received by households (%) | 87 | 96 |
| Overall functionality ⁴ (%) | 62 | 47 |

| Service delivery parameters | India | Madhya Pradesh |
|---|-------|----------------|
| Overall user satisfaction on regularity at the household level (%) | 83 | 74 |
| Overall user satisfaction on quality at the household level (%) | 82 | 77 |
| Households receiving water supply daily-7 days a week (%) | 74 | 55 |
| Daily HH requirement of water being met by FHTC (%) | 80 | 75 |
| Households paying water service delivery charges (%) | 35 | 37 |
| Households aware of grievance redressal mechanism (%) | 71 | 64 |
| Households reported a reduction in time and effort in collecting water (%) | 79 | 70 |
| Average no. of times water is supplied in a day | 1 | 1 |
| Households reported incidence of water-borne diseases in the last year (%) | 2 | 4 |
| Households purifying water before drinking (%) | 57 | 75 |
| Residual Chlorine (RCL) detected within permissible limits (%) | 24 | 41 |
| Villages with Field Test Kits (%) | 30 | 19 |
| Villages in which bacteriological test was done in last 1 year by VWSC/ Pani Samiti (%) | 29 | 13 |
| Villages reported to have a mechanism for chlorination (%) | 21 | 5 |

| Institutional arrangement | India | Madhya Pradesh |
|---|-------|----------------|
| Village reported having presence of VWSC/ Pani Samiti (%) | 38 | 35 |
| Villages in which VWSC/ Pani Samiti is responsible for Operation & Maintenance of PWS schemes (%) | 14 | 9 |
| Villages in which persons are trained to use Field Test Kits (%) | 31 | 17 |
| Villages levying water service delivery to households (%) | 34 | 39 |
| Villages having skilled manpower for Operation & Maintenance of PWS schemes (%) | 31 | 21 |
| Community monitoring of water wastage in villages (%) | 19 | 9 |
| Villages in which signages about JJM were observed (%) | 15 | 6 |

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

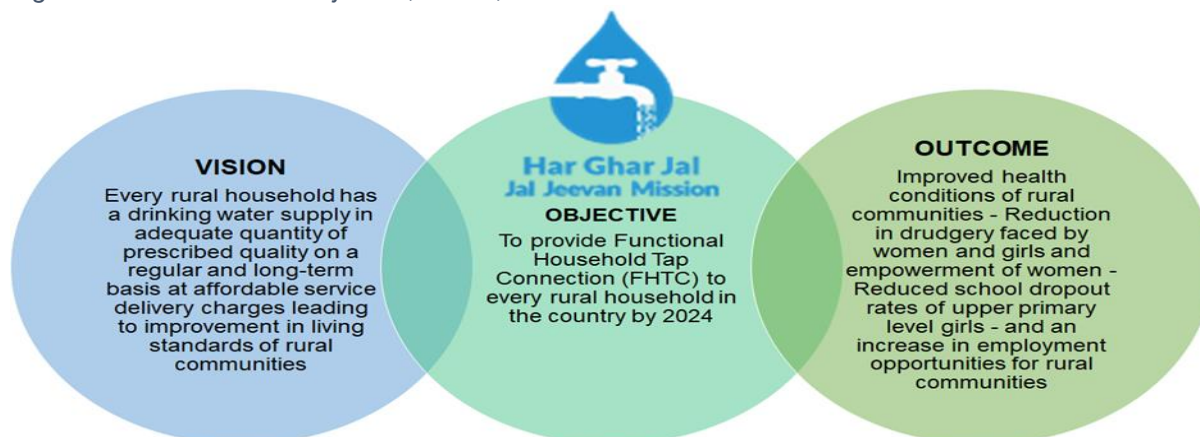
| Functionality status of tap connection at households in Har Ghar Jal Districts | India | Madhya Pradesh |
|---|-------|----------------|
| Working tap connections- HHs which received water through tap connection at least once in last 7 days (%) | 91 | 77 |
| Quantity of water received by households | | |
| Adequate quantity (>55 LPCD) (%) | 88 | 67 |
| Partially adequate quantity (> 40 LPCD - < 55 LPCD) (%) | 4 | 9 |
| Inadequate quantity (<40 LPCD) (%) | 8 | 24 |
| Regularity of water received by households | | |
| Fully Regular Supply (as per schedule) (%) | 84 | 73 |
| Partially Regular Supply (not as per schedule) (%) | 11 | 22 |
| Irregular Supply (less than 9 months' supply) (%) | 5 | 5 |
| Potable (Quality) water received by households | 90 | 96 |
| Overall functionality (%) | 69 | 51 |

| Functionality status of tap connection at households in Aspirational Districts | India | Madhya Pradesh |
|---|-------|----------------|
| Working tap connections- HHs which received water through tap connection at least once in last 7 days (%) | 78 | 64 |
| Quantity of water received by households | | |
| Adequate quantity (>55 LPCD) (%) | 85 | 81 |
| Partially adequate quantity (> 40 LPCD - < 55 LPCD) (%) | 5 | 8 |
| Inadequate quantity (<40 LPCD) (%) | 10 | 11 |
| Regularity of water received by households | | |
| Fully Regular Supply (as per schedule) (%) | 77 | 86 |
| Partially Regular Supply (not as per schedule) (%) | 14 | 10 |
| Irregular Supply (less than 9 months' supply) (%) | 9 | 4 |
| Potable (Quality) water received by households (%) | 88 | 97 |
| Overall functionality (%) | 62 | 73 |

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: Madhya Pradesh

The state of Madhya Pradesh lies on the central part of India and has a population of 7,26,26,809 people. It has 52 districts and 51585 villages where 27331 villages have PWS schemes. The state lies on the Western Plateau and Hills region and Central Plateau and Hills region and receives an average annual rainfall of about 997.8mm. Among the villages with PWS schemes, 19338 villages (37.49%) 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:

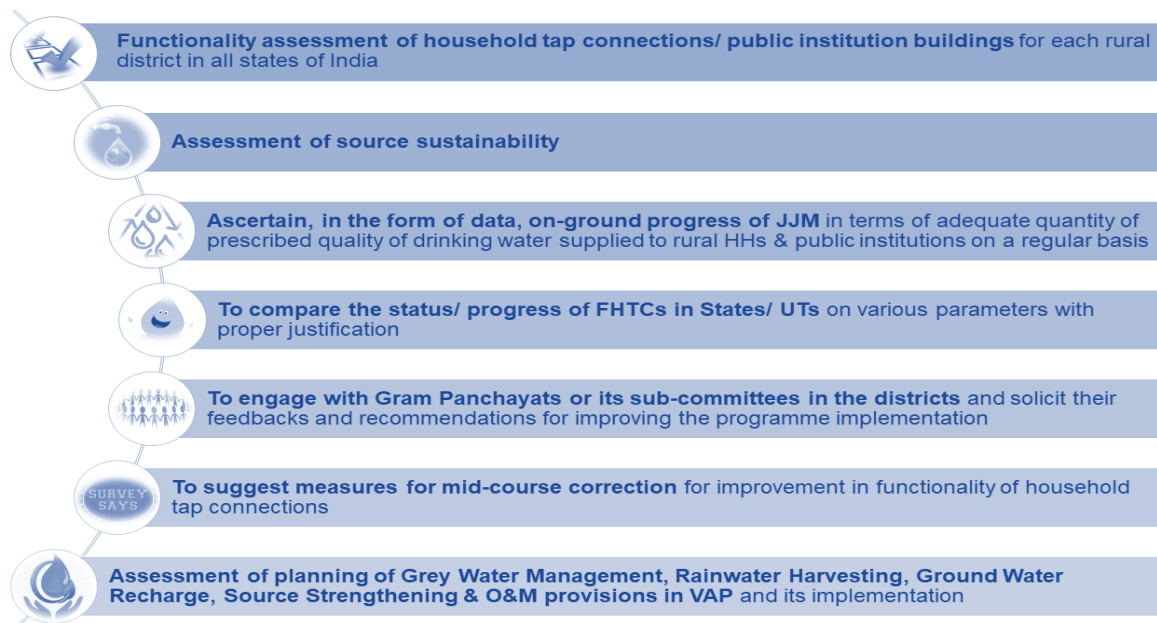
- Not a Har Ghar Jal state.
- 13 districts are Iron & 17 districts are Fluoride affected
- 19338 (37.49% of all) villages with PWS more than 20 FHTC
- 9.43% villages covered under HH tap connections under HGJ



2.2. FHTC Assessment Objectives

The overall objectives of the FHTC assessment are as presented:

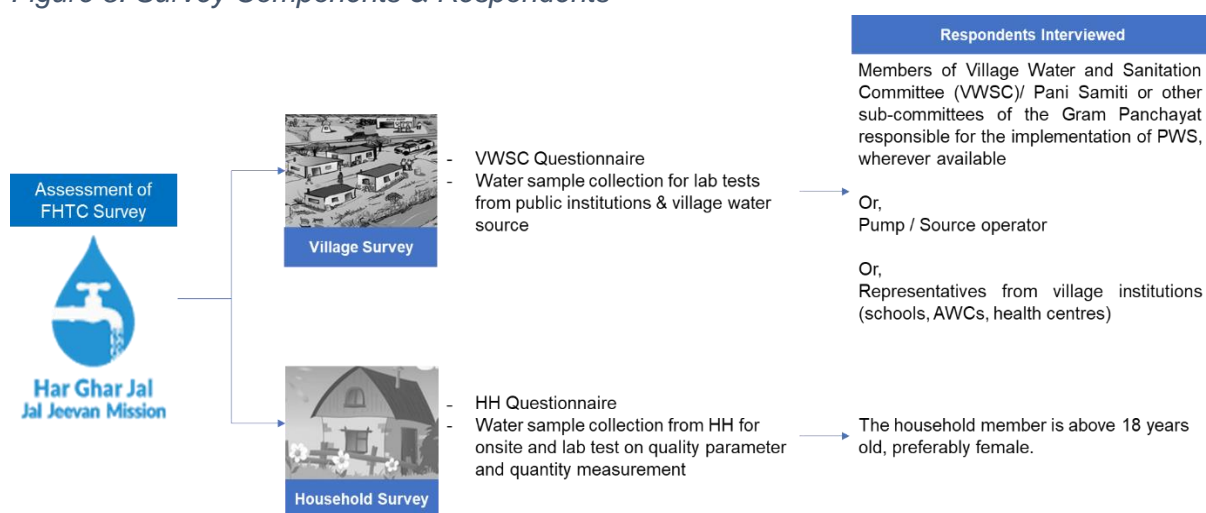
Figure 4: FHTC Assessment Objectives



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

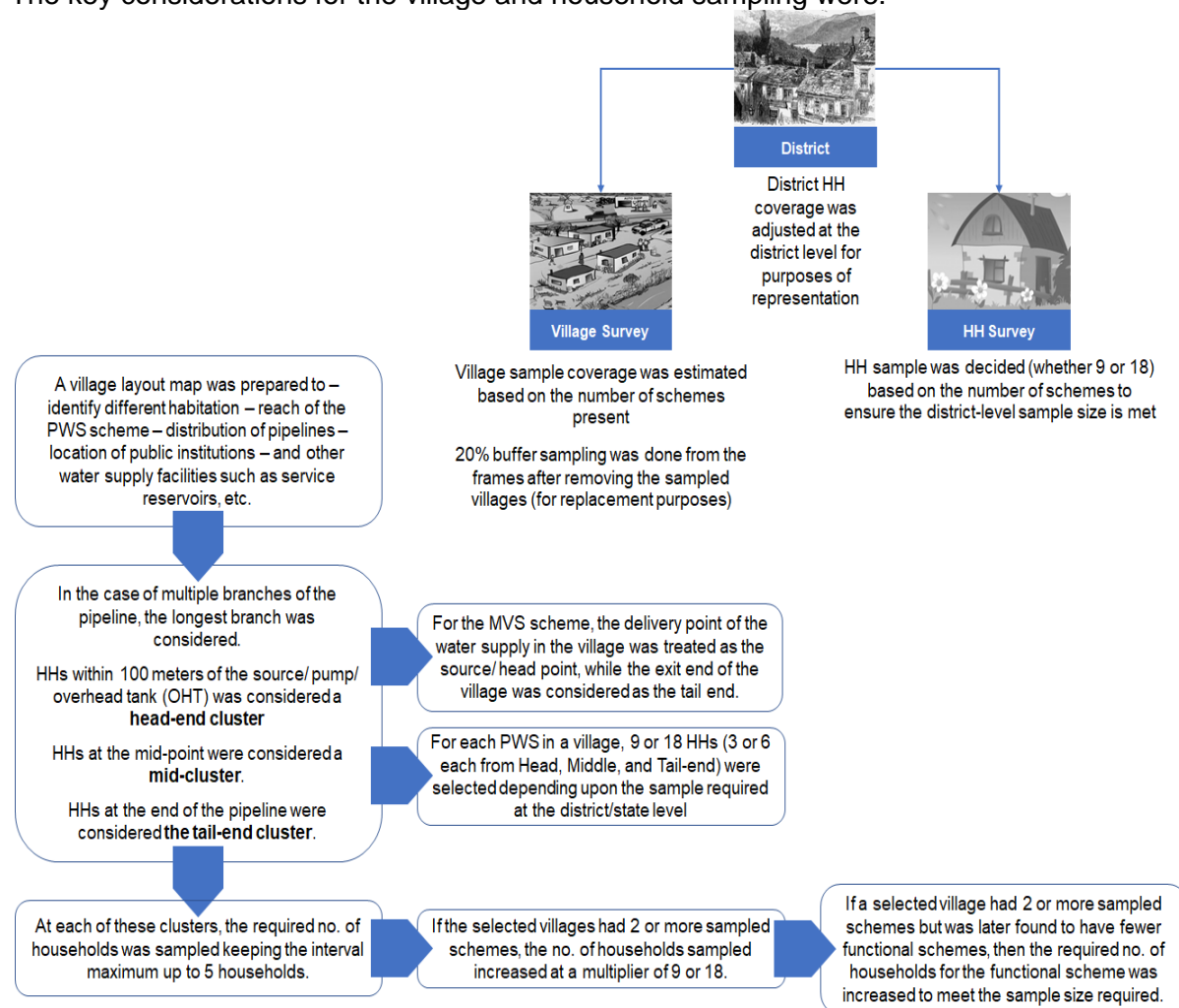
As per the design, all villages having a PWS scheme with 20 or more functional household tap connections were included in the sample frame. The probability proportionate to size (PPS) method was used for village selection in each district. The steps for random selection of villages using PPS are presented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

Figure 6: Steps for Random Sampling of Villages



Figure 7: Household Selection

The key considerations for the village and household sampling were:

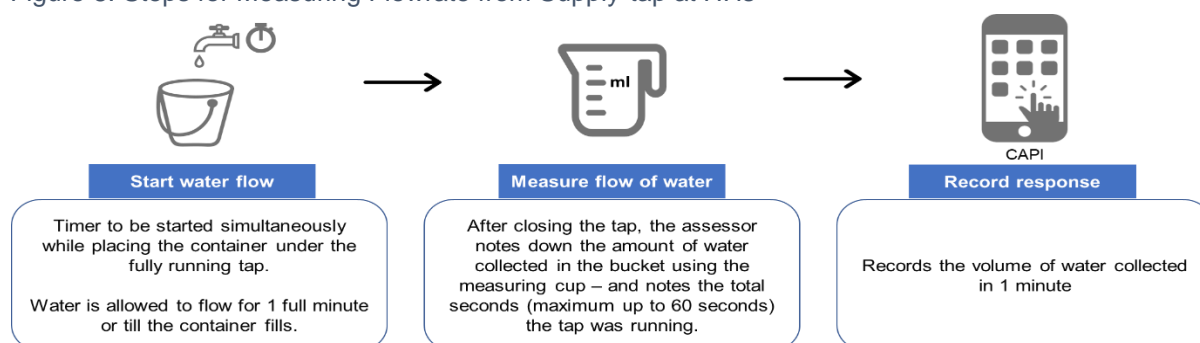


The record of all district-wise village replacements is maintained and reported as part of the annexure.

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:

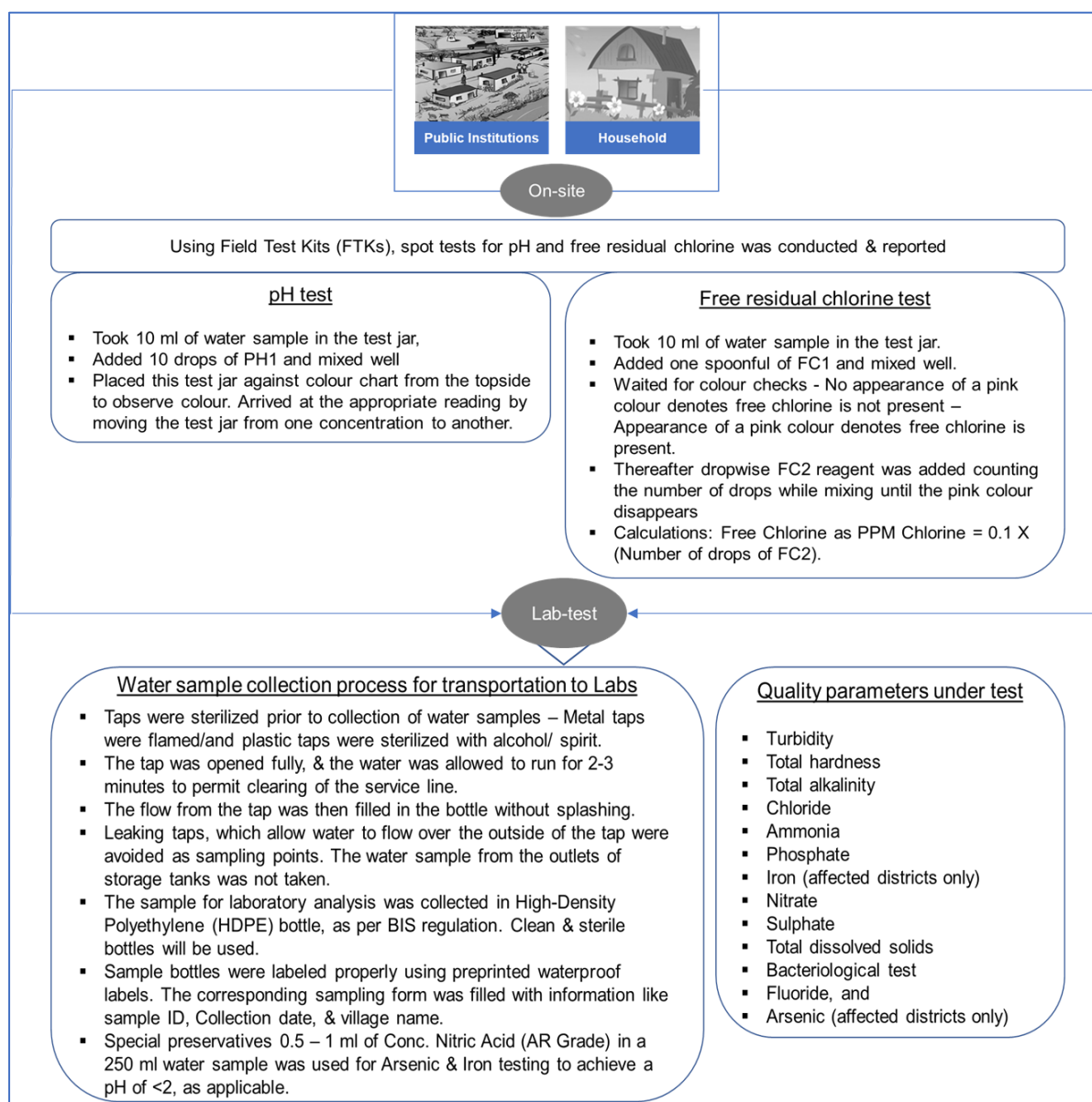
- Assessor first asked and recorded length, breadth, and height.
- Assessor dipped a 5 feet long rod, marked the level of the water table, and calculated the volume – length x breadth x-height of water.
- Next the assessor opened the valve of the connection and allowed the water to flow inside the storage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

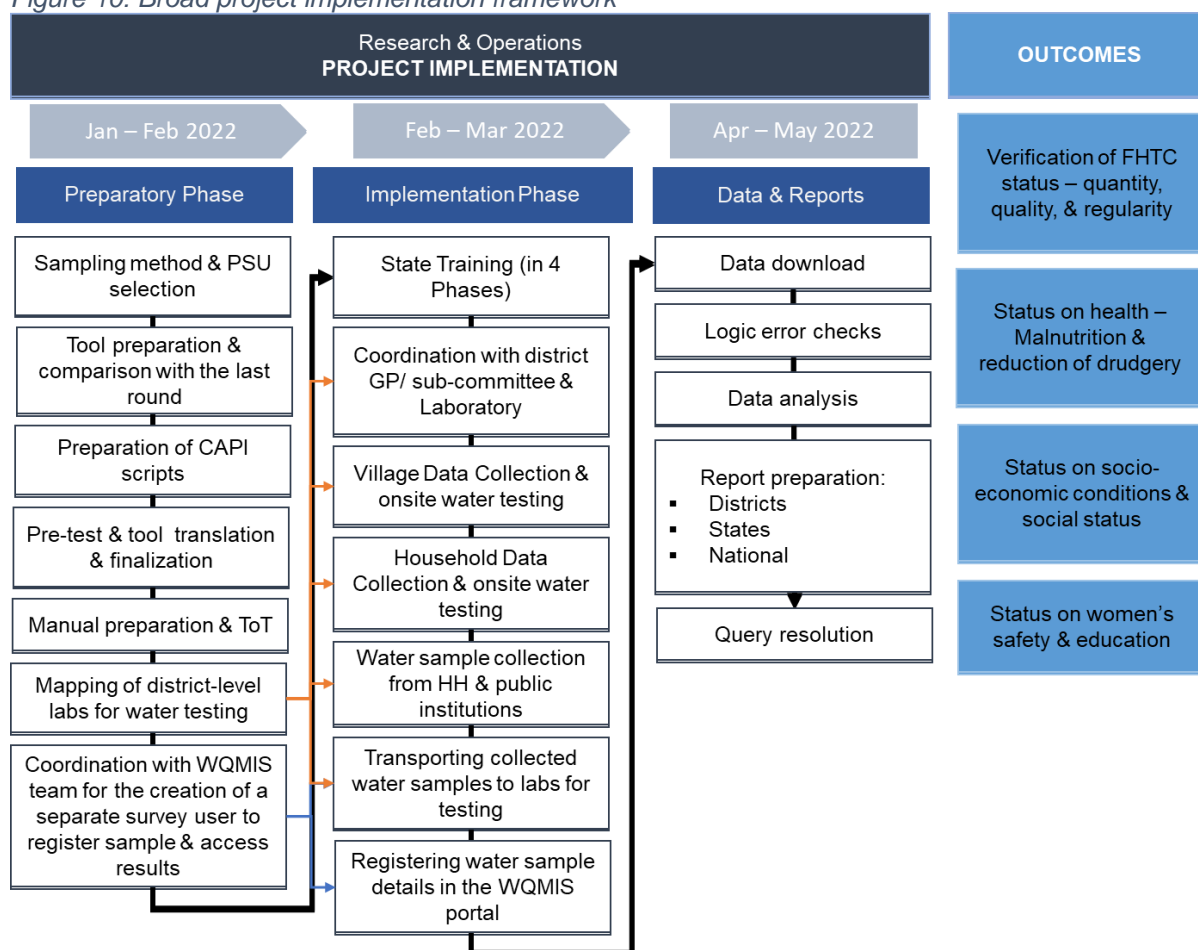


JJM, with the support of the BMI Division of ICMR, enabled a new interface on the WQMIS portal for “Functionality Assessment (FA) User” to enable seamless harmonization of water sample registration, and sample submission for testing, and sharing of results as per the applicable quality parameters.

2.8. Project Implementation

An overview of the project implementation is as presented:

Figure 10: Broad project implementation framework



A total of 22 teams (comprising 22 supervisors, 132 assessors, and 22 water collection assistants) were recruited, trained, and deployed to complete the survey across the states of Madhya Pradesh. 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 |
|----------------|----------------|---------------------------|-----------------------|----------------------------|
| Madhya Pradesh | 22 Teams | 17 th February | 4 th April | 45 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 |
| Madhya Pradesh | 52 | 847 | 20,025 | 52 | 847 | 20,164 | 736 |

2.10. Sampled village and household profile

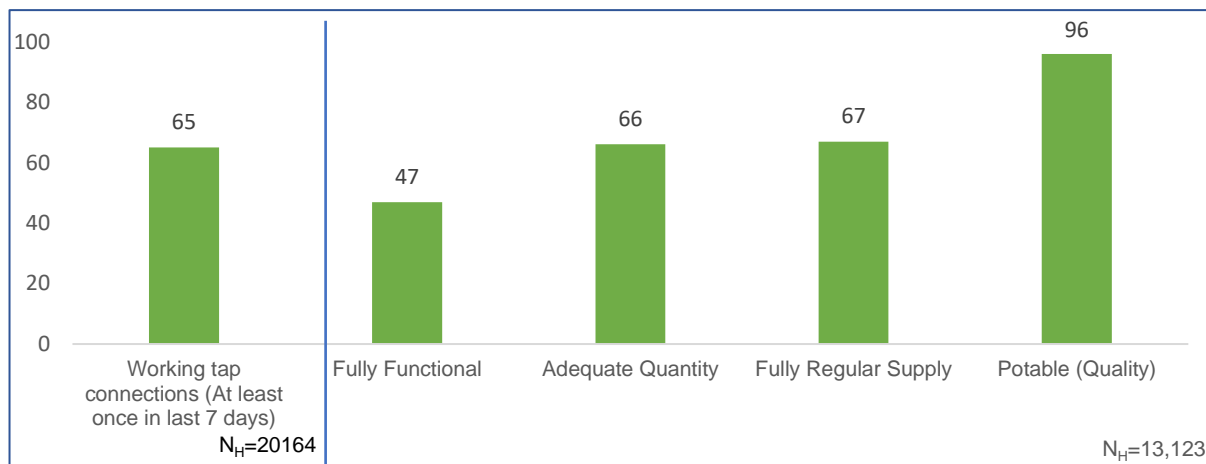
| SAMPLED VILLAGES | SAMPLED HOUSEHOLDS |
|--|--|
| <ul style="list-style-type: none"> Total no. of villages covered in the state – 847 Percentage of SC dominated villages covered in the State is 8.5% (while at national level the average is 12.6%) Percentage of ST dominated villages covered in the State is 26.4% (while at national level the average is 20.2%) Higher proportion of pump operator interviewed at the village level 1.6% 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 – 20164 (Respondents: Male 10,353, Female 9,811) Proportion of General – 15.5%, SC 18.2%, ST 22.1%, OBC 44.2% households 48.7% of the FHTC connections are under the name of a female member Average household size – 5.5 100% 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=20,164 implies all HHs where water was found on the day of the survey.

It has been found that 65 percent of the sampled HHs (N=13,123) had working tap connections. Moreover, less than half of the households (66 percent) received adequate (≥ 55 LPCD) water supply and more than 2 out of 3 received regular supply (67 percent) of water. The on-site testing for pH and all the different quality parameters in the water tested in laboratories indicate that 96% of the sampled households in the state receive potable water.

Out of the 20,164 HHs sampled for the FHTC assessment, water quantity and quality test was carried out in 13,123 due to non-availability of water in 35 percent HHs on the day of survey.

| S. No. | District (N _H =20164) | Working tap connections for 7 days preceding the survey (%HH) | Fully functional (%HH) | Quantity ≥ 55 LPCD (% HH) | Regularity (% HH) | Potability# (% HH) |
|--------|----------------------------------|---|------------------------|--------------------------------|-------------------|--------------------|
| 1. | Singrouli | 0 | | | | |
| 2. | Bhind | 5 | 100 | 100 | 100 | 100 |
| 3. | Sidhi | 14 | 22 | 36 | 36 | 98 |
| 4. | Rewa | 19 | 0 | 61 | 0 | 100 |
| 5. | Indore | 21 | 13 | 29 | 55 | 97 |
| 6. | Chhatarpur | 22 | 73 | 98 | 74 | 100 |
| 7. | Dhar | 22 | 1 | 4 | 54 | 94 |
| 8. | Hoshangabad | 36 | 61 | 62 | 63 | 100 |
| 9. | Satna | 38 | 2 | 44 | 5 | 99 |
| 10. | Katni | 38 | 82 | 82 | 100 | 100 |
| 11. | Umaria | 40 | 10 | 17 | 48 | 91 |
| 12. | Morena | 41 | 88 | 99 | 89 | 100 |
| 13. | Panna | 49 | 2 | 52 | 15 | 99 |
| 14. | Rajgarh | 50 | 69 | 80 | 85 | 100 |
| 15. | Jhabua | 52 | 31 | 42 | 75 | 100 |
| 16. | Alirajpur | 52 | 28 | 36 | 59 | 96 |
| 17. | Bhopal | 57 | 56 | 59 | 89 | 100 |
| 18. | Shahdol | 58 | 25 | 26 | 87 | 100 |
| 19. | Sehore | 59 | 66 | 75 | 87 | 100 |
| 20. | Gwalior | 59 | 84 | 95 | 88 | 100 |

| Table No. 3: Quantity, Regularity, and Quality of FHTC at the district level (%HH) | | | | | | |
|--|---------------------------------------|--|--------------------------------|-------------------------------------|--------------------------|---------------------------|
| S. No. | District (N_H=20164) | Working tap connections for 7 days preceding the survey (%HH) | Fully functional (%HH) | Quantity >=55 LPCD (% HH) | Regularity (% HH) | Potability# (% HH) |
| 21. | Jabalpur | 62 | 62 | 76 | 87 | 96 |
| 22. | Datia | 62 | 71 | 81 | 90 | 84 |
| 23. | Tikamgarh | 64 | 34 | 40 | 80 | 99 |
| 24. | Dindori | 64 | 44 | 53 | 66 | 100 |
| 25. | MADHYA PRADESH | 65 | 47 | 66 | 67 | 96 |
| 26. | Mandsaur | 65 | 9 | 44 | 29 | 94 |
| 27. | Barwani | 70 | 69 | 73 | 82 | 100 |
| 28. | Agar | 72 | 41 | 42 | 86 | 100 |
| 29. | Sagar | 74 | 11 | 35 | 26 | 91 |
| 30. | Dewas | 77 | 28 | 34 | 76 | 98 |
| 31. | Balaghat | 81 | 42 | 72 | 49 | 99 |
| 32. | Shivpuri | 81 | 70 | 86 | 81 | 94 |
| 33. | Harda | 81 | 21 | 72 | 27 | 98 |
| 34. | Sheopur | 81 | 74 | 98 | 86 | 88 |
| 35. | Shajapur | 81 | 24 | 35 | 49 | 89 |
| 36. | Ujjain | 82 | 47 | 56 | 77 | 99 |
| 37. | Khandwa | 83 | 52 | 69 | 71 | 96 |
| 38. | Anuppur | 83 | 39 | 39 | 73 | 100 |
| 39. | Neemuch | 86 | 44 | 62 | 65 | 99 |
| 40. | Niwari | 86 | 58 | 83 | 63 | 100 |
| 41. | Mandla | 86 | 47 | 70 | 58 | 99 |
| 42. | Raisen | 86 | 64 | 71 | 82 | 99 |
| 43. | Seoni | 90 | 19 | 93 | 21 | 99 |
| 44. | Chhindwara | 91 | 23 | 95 | 32 | 79 |
| 45. | Damoh | 91 | 72 | 76 | 82 | 99 |
| 46. | Betul | 95 | 7 | 71 | 10 | 98 |
| 47. | Ashoknagar | 95 | 76 | 94 | 87 | 90 |
| 48. | Guna | 95 | 88 | 89 | 100 | 100 |
| 49. | Narsinghpur | 95 | 77 | 96 | 80 | 99 |
| 50. | Khargone | 95 | 41 | 42 | 88 | 99 |
| 51. | Ratlam | 97 | 42 | 58 | 63 | 97 |
| 52. | Burhanpur | 99 | 56 | 65 | 80 | 97 |
| 53. | Vidisha | 100 | 85 | 93 | 95 | 91 |
| * '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., 18072 HHs. # Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical, and bacteriological as given in Table 6 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 state indicate that Singrouli, Bhind, Sidhi, Rewa, Indore, Chhatarpur, Dhar, Hoshangabad, Satna, Katni, Umaria, Morena, Panna, Rajgarh, Jhabua, Alirajpur, Bhopal, Shahdol, Sehore, Gwalior, Jabalpur, Datia, Tikamgarh, and Dindori reported functionality less than the state average. The districts of Vidisha, Ashoknagar, Chhindwara, Gwalior, Narsinghpur, Chhatarpur, Sheopur, Morena, and Bhind FHTC provide more than 55 LPCD of water in more than 90 percent HHs.

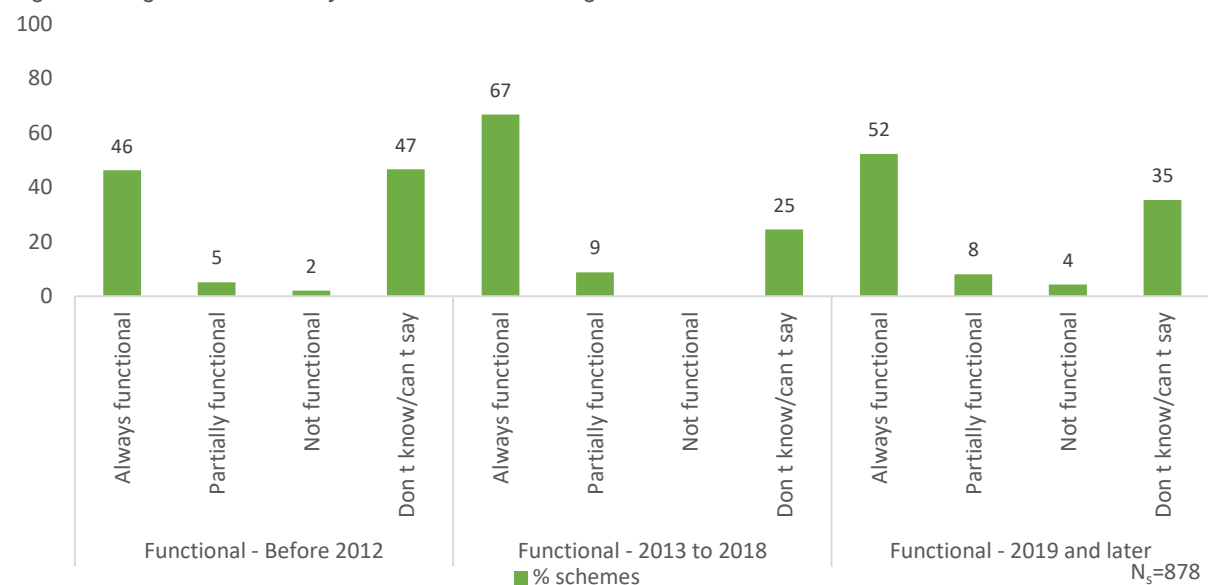
More than 95 percent HHs in the districts of Rajgarh, Guna, Harda, and Bhind reported to regularly receive water through FHTC. Regular supply of water is less than 50 percent in the districts of Rewa, Satna, Raisen, Panna, Chhindwara, Sagar, Barwani, Singrouli, Mandla, Sidhi, Sheopur, Seoni, and Agar.

Potability of water was found to be less than 80% in the district of Chhindwara (79%). All other districts had a potability greater than 80%.

B. Age vs functionality of schemes in the villages

More than 4 out of 10 schemes are functional since 2012 which reflects a 21-point increase till 2018 and 15-point decrease in 2019 and later.

Figure 12: Age vs Functionality of schemes in the villages



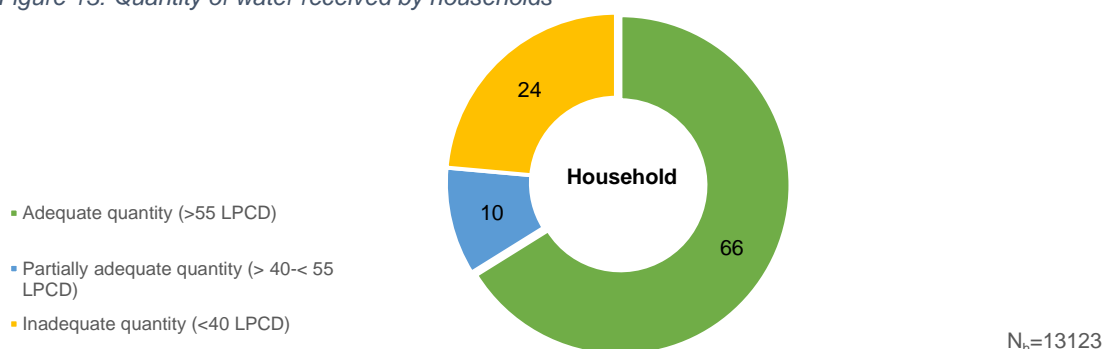
3.2. Quantity, Regularity, and Quality of Water

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. Quantity of water supplied to Households (in Litres per Capita per Day)

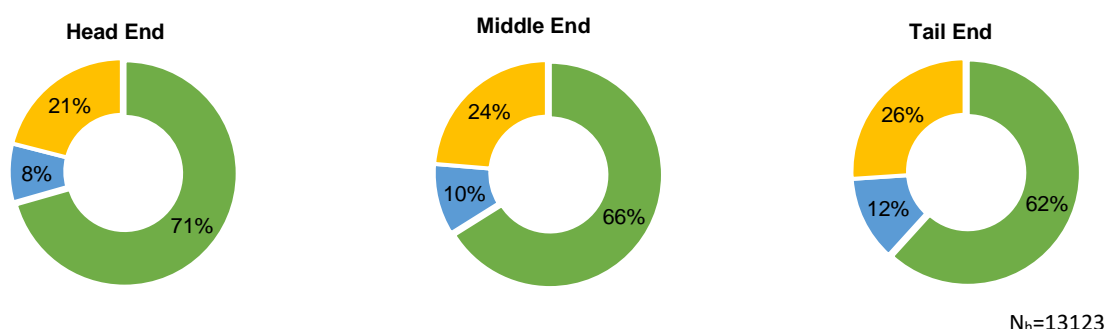
66% HHs reported receiving more than 55 LPCD of water.

Figure 13: Quantity of water received by households



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

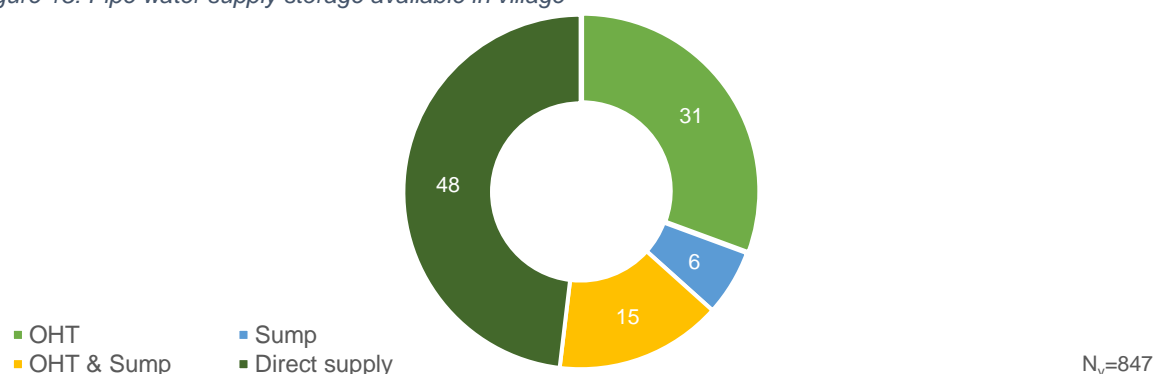
Figure 14: Quantity of water received across head, middle and tail end households



The quantity of water received across the head, middle, and the tail end was observed to have declined, and less two-third (66 percent) 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 15: Pipe water supply storage available in village



Less than one out of two respondents in the state reported water being directly supplied. And in 15 percent reported water being stored in sump and overhead tanks.

| S. No. | District (N _H =20,164) | Villages with OHT/sump (%HHs) |
|--------|-----------------------------------|-------------------------------|
| 1. | Satna | 0 |
| 2. | Dhar | 0 |
| 3. | Sidhi | 6 |
| 4. | Singrouli | 6 |
| 5. | Panna | 11 |
| 6. | Sagar | 11 |
| 7. | Rewa | 13 |
| 8. | Indore | 13 |
| 9. | Damoh | 24 |
| 10. | Jabalpur | 29 |
| 11. | Khargone | 31 |
| 12. | Chhindwara | 32 |
| 13. | Hoshangabad | 33 |
| 14. | Katni | 35 |
| 15. | Bhind | 37 |
| 16. | Narsinghpur | 41 |
| 17. | Dindori | 44 |
| 18. | Ujjain | 44 |
| 19. | Mandsaur | 47 |
| 20. | Seoni | 47 |
| 21. | Vidisha | 47 |
| 22. | Chhatarpur | 50 |
| 23. | Bhopal | 50 |
| 24. | Betul | 50 |
| 25. | Sheopur | 50 |
| 26. | MADHYA PRADESH | 52 |
| 27. | Barwani | 53 |
| 28. | Burhanpur | 54 |
| 29. | Niwari | 56 |
| 30. | Alirajpur | 59 |
| 31. | Shajapur | 61 |
| 32. | Neemuch | 63 |
| 33. | Datia | 65 |
| 34. | Khandwa | 65 |

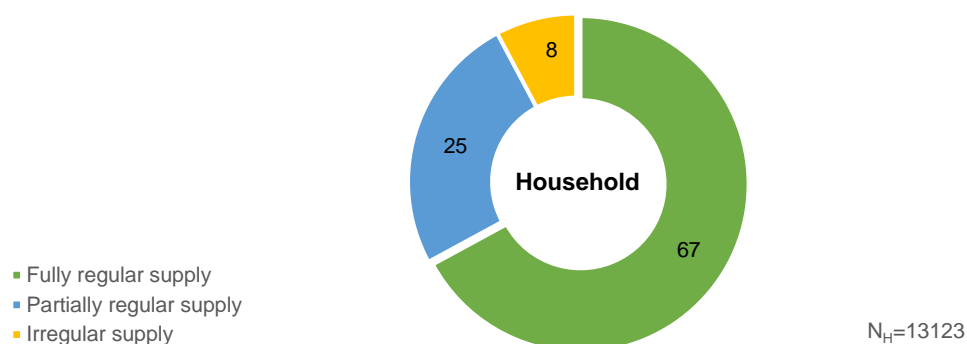
| Table No. 4: District wise types of water storage arrangements at village level (in %) | | |
|--|-----------------------------------|-------------------------------|
| S. No. | District (N _H =20,164) | Villages with OHT/sump (%HHs) |
| 35. | Balaghat | 67 |
| 36. | Ashoknagar | 69 |
| 37. | Sehore | 70 |
| 38. | Umaria | 71 |
| 39. | Tikamgarh | 71 |
| 40. | Mandla | 71 |
| 41. | Harda | 73 |
| 42. | Dewas | 74 |
| 43. | Morena | 76 |
| 44. | Shivpuri | 76 |
| 45. | Raisen | 76 |
| 46. | Rajgarh | 78 |
| 47. | Guna | 79 |
| 48. | Gwalior | 81 |
| 49. | Agar | 86 |
| 50. | Ratlam | 88 |
| 51. | Shahdol | 93 |
| 52. | Jhabua | 94 |
| 53. | Anuppur | 100 |

52 percent villages in the state have either an OHT or a sump for storing water for supplying to the households. Anuppur is the only district where all the villages have either an OHT or a sump, followed by Jhabua, and Shahdol where more than 90 percent of the villages have facilities to store water for supplying to the households.

B. Regularity of water supply to households

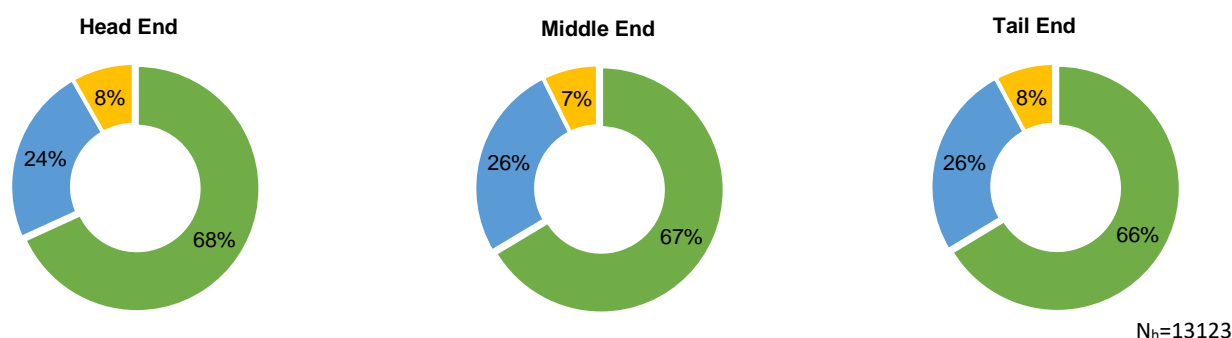
67% HHs receive a regular supply of water (as per agreed schedule).

Figure 16: Regularity of water received across households



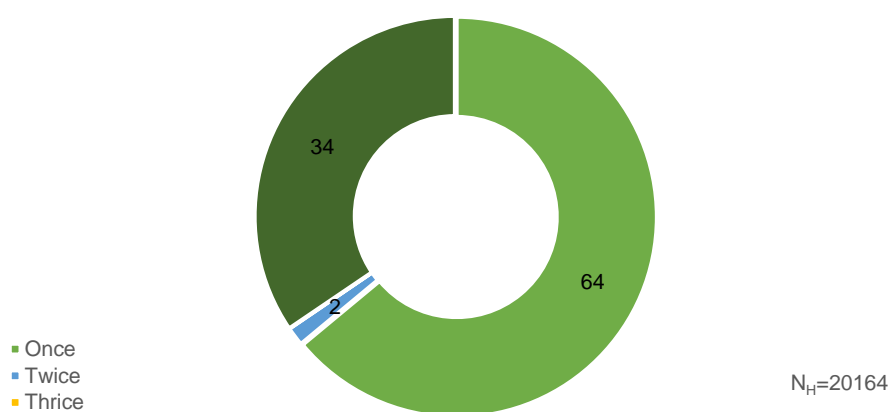
Regularity of water received across head, mid, and tail end HHs

Figure 17: 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 18: Average no. of times water is supplied in a day

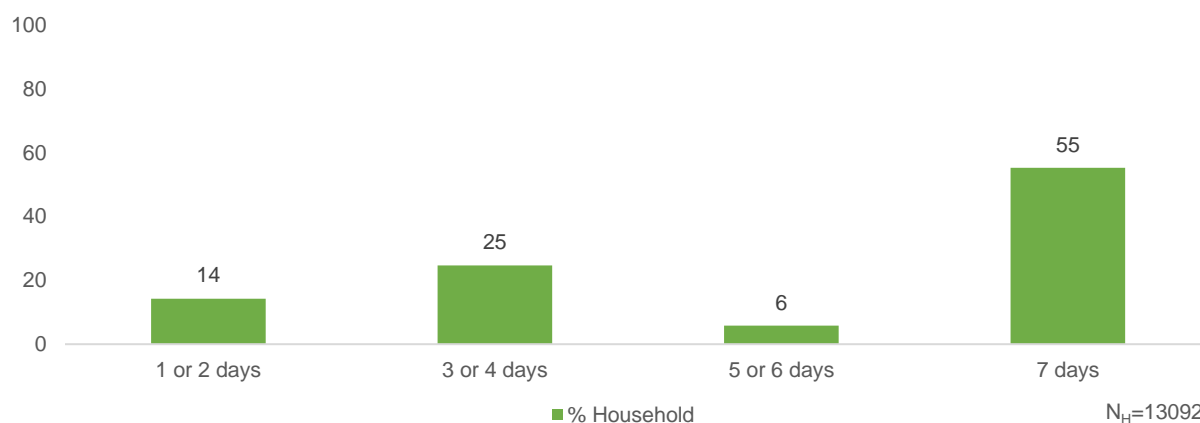


HHs in **64 percent of districts** receive water once a day. The average duration of water supply across the state was reported to be **1 hour per day**.

Average water supply days in a week to households

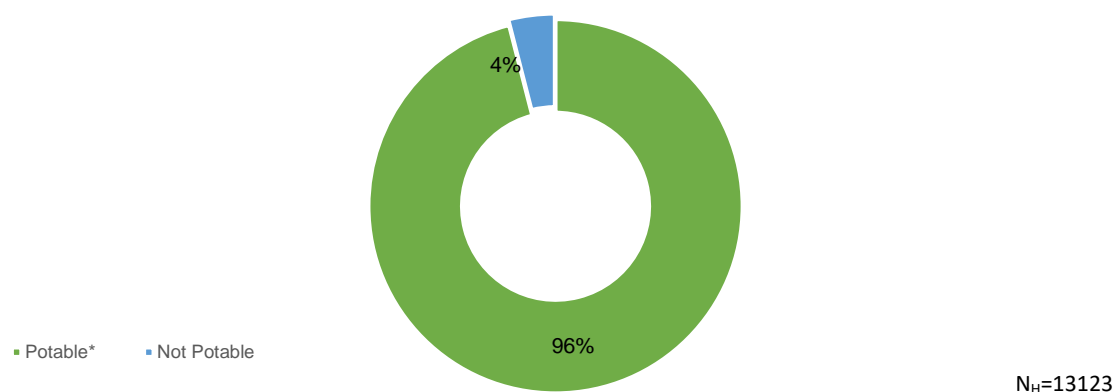
55 percent of HHs reported receiving water for all 7 days in a week (daily).

Figure 19: Average number of days households receive water supply in a week (in %)



C. Potability Water – Quality

Figure 20: 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 6 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 Madhya Pradesh where water was found on the day of the survey, the potability of water was found to be 96%.

Table No. 5: Village quality parameters reported within permissible range (% sample within permissible range)

| Quality Parameters (N _v =847) | Water Samples Tested from Public Institutes | | | |
|--|---|-----------------|---------|--------|
| | Anganwadi Centre | Health Facility | Schools | Others |
| pH (on-site) | 95 | 100 | 99 | 95 |
| Turbidity | 100 | 96 | 100 | 100 |
| Total Hardness | 100 | 100 | 99 | 100 |
| Total Alkalinity | 100 | 100 | 100 | 100 |
| Chloride | 100 | 100 | 100 | 100 |
| Ammonia | Not Tested | | | |
| Iron | 100 | 100 | 100 | 100 |
| Nitrate | 100 | 100 | 100 | 100 |
| Sulphate | 100 | 100 | 100 | 100 |
| Total Dissolved Solids | 100 | 100 | 100 | 100 |
| Bacteriological Test (Absence) | 100 | 100 | 99 | 100 |
| Fluoride | 100 | 100 | 100 | 100 |
| Arsenic | 100 | 100 | 100 | 100 |

Table No. 6: 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=13123). 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) | 13,123 | 99 |
| Turbidity | 9,857 | 100 |
| Total Hardness | 9,548 | 99 |
| Total Alkalinity | 9,403 | 100 |
| Chloride | 406 | 100 |
| Ammonia | Not Tested | |
| Iron | 2,335 | 100 |
| Nitrate | 8,307 | 100 |
| Sulphate | 7,636 | 100 |
| Total Dissolved Solids | 9,585 | 100 |
| Bacteriological Test (Absence) | 9,027 | 100 |
| Fluoride | 3,638 | 98 |
| Arsenic | 1,164 | 100 |

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

The Residual Chlorine (RC) in the state of Madhya Pradesh was found in 12% samples. 2% of the samples had RC outside the range and the remaining 86% had no RC. 100% of the samples did not have any bacteriological contamination present.

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 11 water quality parameters. 13,864 water samples were submitted, and 11,280 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. 7: Performance of Labs | | | | | | |
|----------------------------------|------------|---------------|-------------|-------------------|-----------------|---|
| Sl. No | District | Lab available | HH surveyed | Samples submitted | Report received | Overall lab experience |
| 1 | Morena | Yes | 396 | 166 | 0 | The labs did not have capacity to test more than 40 number of samples and had issues of human resource, reagents etc |
| 2 | Bhind | Yes | 378 | 21 | 1 | The labs did not have capacity to test more than 40 number of samples and had issues of human resource, reagents etc |
| 3 | Gwalior | Yes | 380 | 228 | 226 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 4 | Datia | Yes | 379 | 260 | 191 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 5 | Shivpuri | Yes | 379 | 336 | 318 | The labs did not have capacity to test more than 40 number of samples and had issues of human resource, reagents etc |
| 6 | Ashoknagar | Yes | 378 | 366 | 257 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 7 | Guna | Yes | 382 | 381 | 357 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 8 | Niwari | Yes | 378 | 359 | 355 | The labs did not have capacity to test more than 40 number of |

| Table No. 7: Performance of Labs | | | | | | |
|---|------------|---------------|-------------|-------------------|-----------------|---|
| Sl. No | District | Lab available | HH surveyed | Samples submitted | Report received | Overall lab experience |
| | | | | | | samples and had issues of human resource, reagents etc |
| 9 | Tikamgarh | Yes | 407 | 262 | 169 | The labs did not have capacity to test more than 40 number of samples and had issues of human resource, reagents etc |
| 10 | Chhatarpur | Yes | 386 | 92 | 72 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 11 | Panna | Yes | 410 | 203 | 73 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 12 | Sagar | Yes | 398 | 328 | 254 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 13 | Damoh | Yes | 380 | 349 | 239 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 14 | Satna | Yes | 383 | 154 | 144 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 15 | Rewa | Yes | 388 | 78 | 71 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 16 | Shahdol | Yes | 389 | 236 | 224 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 17 | Anuppur | Yes | 379 | 329 | 313 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 18 | Sidhi | Yes | 397 | 58 | 12 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 19 | Singrouli | Yes | 380 | 3 | 0 | There were no water sample collected in this district. |
| 20 | Mandsaur | Yes | 385 | 283 | 274 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 21 | Ratlam | Yes | 390 | 418 | 319 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |

| Table No. 7: Performance of Labs | | | | | | |
|---|-----------|---------------|-------------|-------------------|-----------------|---|
| Sl. No | District | Lab available | HH surveyed | Samples submitted | Report received | Overall lab experience |
| 22 | Ujjain | Yes | 404 | 386 | 288 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 23 | Agar | Yes | 398 | 305 | 292 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 24 | Shajapur | Yes | 388 | 323 | 292 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 25 | Dewas | Yes | 385 | 339 | 301 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 26 | Jhabua | Yes | 380 | 214 | 130 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 27 | Alirajpur | Yes | 379 | 202 | 88 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 28 | Dhar | Yes | 398 | 89 | 80 | The labs did not have capacity to test more than 40 number of samples and had issues of human resource, reagents etc |
| 29 | Indore | Yes | 407 | 90 | 78 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 30 | Khargone | Yes | 399 | 421 | 407 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 31 | Khandwa | Yes | 384 | 350 | 281 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 32 | Burhanpur | Yes | 379 | 420 | 418 | The labs did not have capacity to test more than 40 number of samples and had issues of human resource, reagents etc |
| 33 | Rajgarh | Yes | 397 | 207 | 179 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 34 | Vidisha | Yes | 379 | 393 | 354 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |

| Table No. 7: Performance of Labs | | | | | | |
|---|-----------------|----------------------|--------------------|--------------------------|------------------------|---|
| Sl. No | District | Lab available | HH surveyed | Samples submitted | Report received | Overall lab experience |
| 35 | Bhopal | Yes | 378 | 228 | 215 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 36 | Sehore | Yes | 399 | 245 | 239 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 37 | Raisen | Yes | 389 | 341 | 335 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 38 | Betul | Yes | 379 | 401 | 369 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 39 | Hoshangabad | Yes | 397 | 155 | 150 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 40 | Jabalpur | Yes | 380 | 236 | 34 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 41 | Narsinghpur | Yes | 404 | 400 | 229 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 42 | Mandla | Yes | 388 | 341 | 335 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 43 | Chhindwara | Yes | 379 | 356 | 283 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 44 | Seoni | Yes | 390 | 366 | 354 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 45 | Balaghat | Yes | 378 | 319 | 317 | The labs did not have capacity to test more than 40 number of samples and had issues of human resource, reagents etc |
| 46 | Sheopur | Yes | 399 | 334 | 332 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 47 | Umaria | Yes | 391 | 160 | 144 | The labs did not have any issue with testing the number of water samples submitted nor had any |

| Table No. 7: Performance of Labs | | | | | | |
|---|----------|---------------|-------------|-------------------|-----------------|---|
| Sl. No | District | Lab available | HH surveyed | Samples submitted | Report received | Overall lab experience |
| | | | | | | issues with human resource, reagents etc |
| 48 | Neemuch | Yes | 389 | 362 | 224 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 49 | Barwani | Yes | 388 | 277 | 276 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 50 | Harda | Yes | 379 | 307 | 292 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 51 | Katni | Yes | 379 | 144 | 33 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |
| 52 | Dindori | Yes | 379 | 246 | 62 | The labs did not have any issue with testing the number of water samples submitted nor had any issues with human resource, reagents etc |

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

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

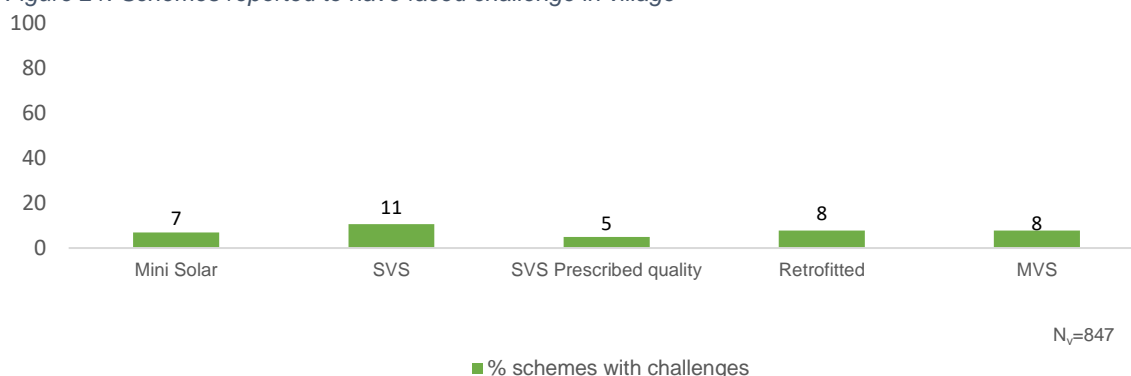
| Table No. 8: District wise distribution of households reported that their HH tap-water was collected and tested in the last one year | | |
|---|-----------------------------------|---|
| S. No. | District (N _H =20,164) | HH - water tested in last 1 year (% HH) |
| 1. | Chhatarpur | 0 |
| 2. | Sehore | 0 |
| 3. | Mandla | 0 |
| 4. | Barwani | 0 |
| 5. | Dindori | 0 |
| 6. | Raisen | 1 |
| 7. | Niwari | 1 |
| 8. | Jhabua | 1 |
| 9. | Alirajpur | 1 |
| 10. | Bhopal | 1 |
| 11. | Agar | 1 |
| 12. | Rajgarh | 1 |
| 13. | Dewas | 1 |
| 14. | Burhanpur | 1 |
| 15. | Shajapur | 2 |
| 16. | Ratlam | 2 |
| 17. | Khargone | 3 |
| 18. | Bhind | 3 |
| 19. | Balaghat | 6 |
| 20. | Betul | 7 |

| Table No. 8: District wise distribution of households reported that their HH tap-water was collected and tested in the last one year | | |
|---|--|--|
| S. No. | District (N_H=20,164) | HH - water tested in last 1 year (% HH) |
| 21. | Ujjain | 7 |
| 22. | Morena | 8 |
| 23. | Tikamgarh | 8 |
| 24. | Datia | 8 |
| 25. | Damoh | 8 |
| 26. | Mandsaur | 8 |
| 27. | Dhar | 9 |
| 28. | Sagar | 11 |
| 29. | Neemuch | 12 |
| 30. | Gwalior | 14 |
| 31. | Seoni | 14 |
| 32. | Chhindwara | 14 |
| 33. | Harda | 15 |
| 34. | Sheopur | 15 |
| 35. | Shivpuri | 15 |
| 36. | MADHYA PRADESH | 18 |
| 37. | Indore | 21 |
| 38. | Sidhi | 21 |
| 39. | Panna | 31 |
| 40. | Umaria | 34 |
| 41. | Singrouli | 37 |
| 42. | Khandwa | 39 |
| 43. | Katni | 39 |
| 44. | Rewa | 40 |
| 45. | Narsinghpur | 41 |
| 46. | Satna | 43 |
| 47. | Ashoknagar | 44 |
| 48. | Anuppur | 45 |
| 49. | Shahdol | 46 |
| 50. | Jabalpur | 49 |
| 51. | Hoshangabad | 51 |
| 52. | Guna | 84 |
| 53. | Vidisha | 98 |

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

The **SVS scheme** faced the most challenges (11%) in comparison to the other schemes in the state.

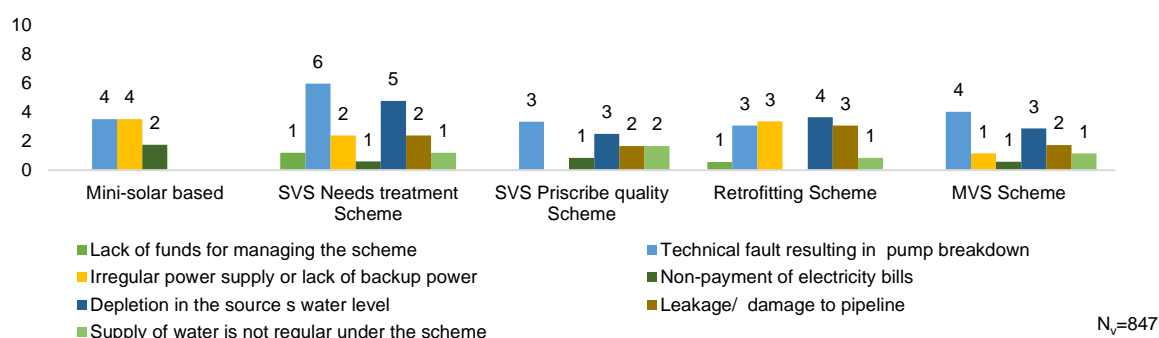
Figure 21: Schemes reported to have faced challenge in village



Type of challenge faced by the schemes

The most faced problem varied from one scheme to another. However, 'Technical fault resulting in pump breakdown' and 'Irregular power supply or lack of backup power' is a problem that was found unanimously in all the schemes.

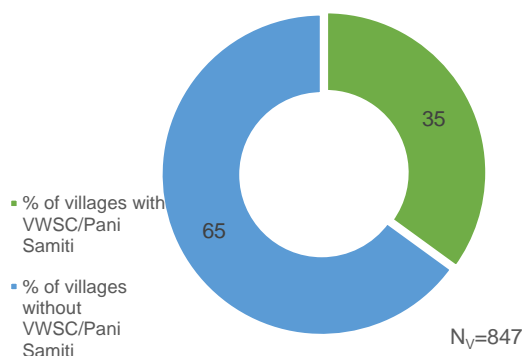
Figure 22: Type of challenge faced by the schemes



A. Presence of VWSC/Pani Samiti

35% of villages in the state reported to have a VWSC or a Pani Samiti.

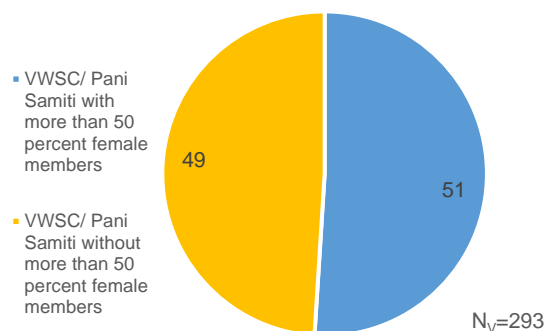
Figure 24: Villages where VWSC/ Pani Samiti is present



B. Villages with more VWSC with more than 50% females

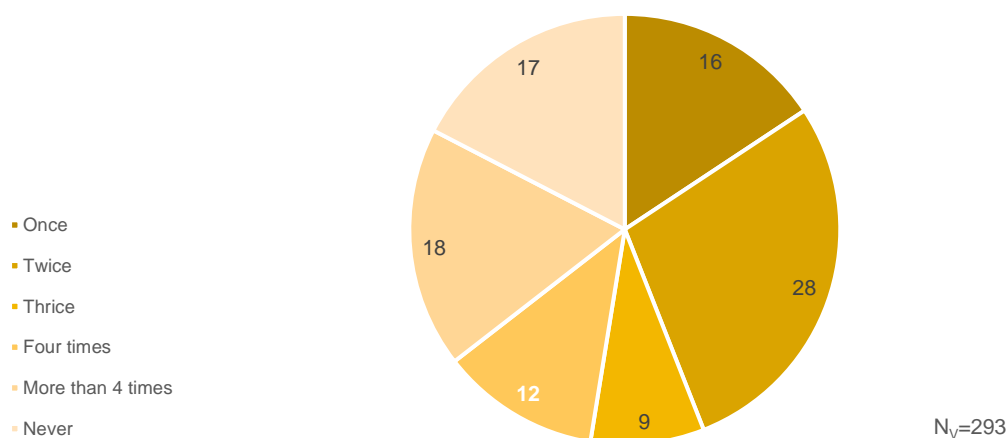
51% of villages in the state reported to have a VWSC or a Pani Samiti with more than 50% female members.

Figure 23: VWSC/ Pani Samiti with more than 50 percent female members



C. Frequency of VWSC/Pani Samiti meetings

Figure 25: VWSC meetings held in last one year



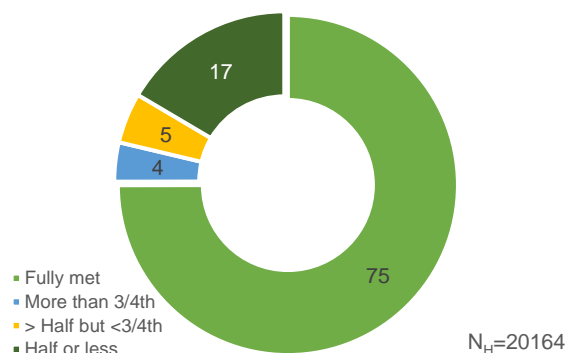
| Table No. 9: Villages where VWSC/ Pani Samiti is present | | | | | | | | | |
|---|------------------------------|--|--|---|--------------|---------------|-------------------|--------------------------|--------------|
| Sl. No. | District (Base = 847) | Presence of VWSC/Pani Samiti (in %) | VWSC/Pani Samiti with more than 50% females | Frequency of VWSC/Pani Samiti meetings | | | | | |
| | | | | Once | Twice | Thrice | Four times | More than 4 times | Never |
| 1. | Morena | 35 | 67 | 0 | 2 | 1 | 1 | 0 | 2 |
| 2. | Bhind | 5 | 100 | 0 | 0 | 0 | 1 | 0 | 0 |
| 3. | Gwalior | 88 | 64 | 1 | 4 | 0 | 1 | 5 | 3 |
| 4. | Datia | 24 | 50 | 1 | 0 | 0 | 2 | 0 | 1 |
| 5. | Shivpuri | 59 | 50 | 0 | 4 | 1 | 2 | 2 | 1 |
| 6. | Ashoknagar | 25 | 100 | 1 | 0 | 1 | 0 | 2 | 0 |
| 7. | Guna | 50 | 71 | 2 | 1 | 2 | 0 | 0 | 2 |
| 8. | Niwari | 94 | 24 | 4 | 3 | 0 | 1 | 8 | 1 |
| 9. | Tikamgarh | 21 | 33 | 1 | 2 | 0 | 0 | 0 | 0 |
| 10. | Chhatarpur | 72 | 8 | 0 | 6 | 2 | 2 | 0 | 3 |
| 11. | Panna | 33 | 83 | 2 | 3 | 0 | 0 | 0 | 1 |
| 12. | Sagar | 17 | 33 | 0 | 1 | 0 | 1 | 1 | 0 |
| 13. | Damoh | 12 | 100 | 1 | 1 | 0 | 0 | 0 | 0 |
| 14. | Satna | 0 | | | | | | | |
| 15. | Rewa | 7 | 100 | 0 | 1 | 0 | 0 | 0 | 0 |
| 16. | Shahdol | 27 | 75 | 0 | 1 | 0 | 3 | 0 | 0 |
| 17. | Anuppur | 20 | 67 | 0 | 0 | 2 | 0 | 1 | 0 |
| 18. | Sidhi | 29 | 40 | 1 | 1 | 0 | 0 | 0 | 3 |
| 19. | Singrouli | 0 | | | | | | | |
| 20. | Mandsaur | 33 | 20 | 2 | 1 | 0 | 1 | 0 | 1 |
| 21. | Ratlam | 38 | 17 | 4 | 1 | 1 | 0 | 0 | 0 |
| 22. | Ujjain | 67 | 25 | 2 | 2 | 3 | 2 | 2 | 1 |
| 23. | Agar | 21 | 100 | 1 | 0 | 0 | 0 | 1 | 1 |
| 24. | Shajapur | 44 | 38 | 3 | 1 | 1 | 0 | 1 | 2 |
| 25. | Dewas | 68 | 31 | 0 | 0 | 0 | 6 | 6 | 1 |
| 26. | Jhabua | 19 | 100 | 1 | 0 | 0 | 2 | 0 | 0 |
| 27. | Alirajpur | 24 | 100 | 0 | 1 | 0 | 2 | 0 | 1 |
| 28. | Dhar | 0 | | | | | | | |
| 29. | Indore | 27 | 25 | 0 | 0 | 0 | 0 | 1 | 3 |
| 30. | Khargone | 56 | 56 | 0 | 3 | 3 | 2 | 1 | 0 |
| 31. | Khandwa | 29 | 20 | 1 | 2 | 0 | 0 | 1 | 1 |
| 32. | Burhanpur | 38 | 20 | 0 | 1 | 1 | 1 | 2 | 0 |
| 33. | Rajgarh | 17 | 67 | 0 | 1 | 0 | 0 | 1 | 1 |
| 34. | Vidisha | 41 | 100 | 0 | 1 | 1 | 0 | 1 | 4 |
| 35. | Bhopal | 71 | 50 | 0 | 3 | 1 | 2 | 4 | 0 |
| 36. | Sehore | 50 | 80 | 1 | 5 | 0 | 0 | 3 | 1 |
| 37. | Raisen | 29 | 60 | 0 | 3 | 0 | 0 | 1 | 1 |
| 38. | Betul | 69 | 55 | 3 | 4 | 4 | 0 | 0 | 0 |
| 39. | Hoshangabad | 22 | 75 | 1 | 0 | 0 | 1 | 0 | 2 |
| 40. | Jabalpur | 0 | | | | | | | |
| 41. | Narsinghpur | 24 | 25 | 0 | 3 | 0 | 1 | 0 | 0 |
| 42. | Mandla | 0 | | | | | | | |
| 43. | Chhindwara | 37 | 29 | 1 | 6 | 0 | 0 | 0 | 0 |
| 44. | Seoni | 60 | 89 | 2 | 6 | 0 | 0 | 0 | 1 |
| 45. | Balaghat | 50 | 67 | 3 | 1 | 1 | 0 | 0 | 1 |
| 46. | Sheopur | 93 | 38 | 0 | 3 | 0 | 1 | 5 | 4 |
| 47. | Umaria | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 48. | Neemuch | 35 | 33 | 2 | 2 | 0 | 0 | 0 | 2 |
| 49. | Barwani | 33 | 40 | 1 | 0 | 0 | 0 | 3 | 1 |
| 50. | Harda | 47 | 86 | 4 | 2 | 0 | 0 | 0 | 1 |
| 51. | Katni | 12 | 50 | 0 | 0 | 0 | 0 | 0 | 2 |
| 52. | Dindori | 19 | 67 | 0 | 1 | 0 | 0 | 1 | 1 |
| 53. | MADHYA PRADESH | 35 | 51 | 46 | 83 | 25 | 35 | 53 | 51 |

Across the villages in the state, that reported to have VWSC/Pani Samitis (293 villages), 2 meetings in last one year was reported the most (28 percent)

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

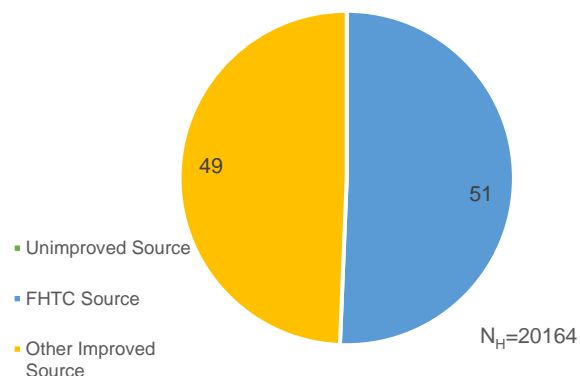
75% of HHs reported that their daily requirement of water was being met by HH tap connections

Figure 27: Daily household's requirement of water being met by FHTC



51% HHs reported HH tap connections as their primary source of drinking water

Figure 26: Households reported FHTC as primary source of drinking water

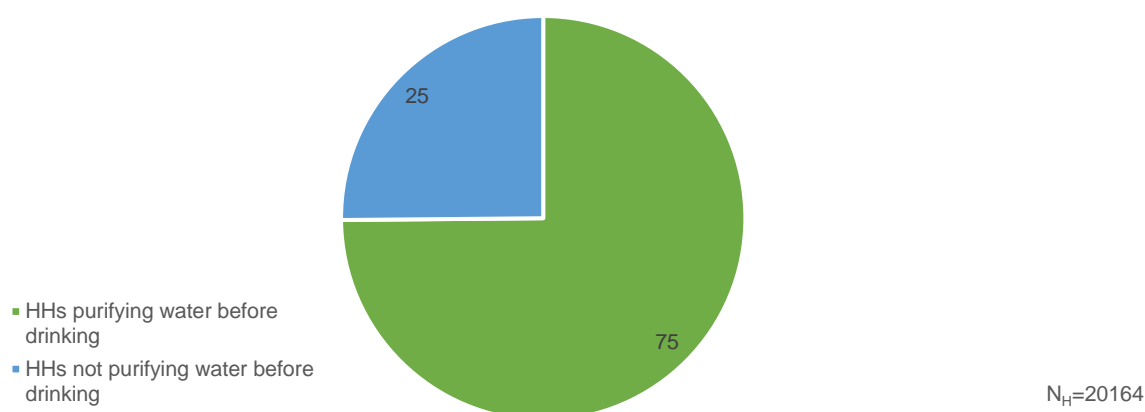


3 out of 4 (75 percent) HHs reported their daily requirement of water being fully met by the HH tap connections. And 51 percent HHs reported used household tap connection for drinking water (primary source). About 49 percent of the HHs even though have reported household tap connections to fully meet their requirements, were not found using the same for drinking purposes.

Overall, **100 percent of HHs** reported using improved primary source of drinking water, out of which **51 percent of HHs** reported HH tap water as their primary source.

A. Households who practice of purifying water before drinking

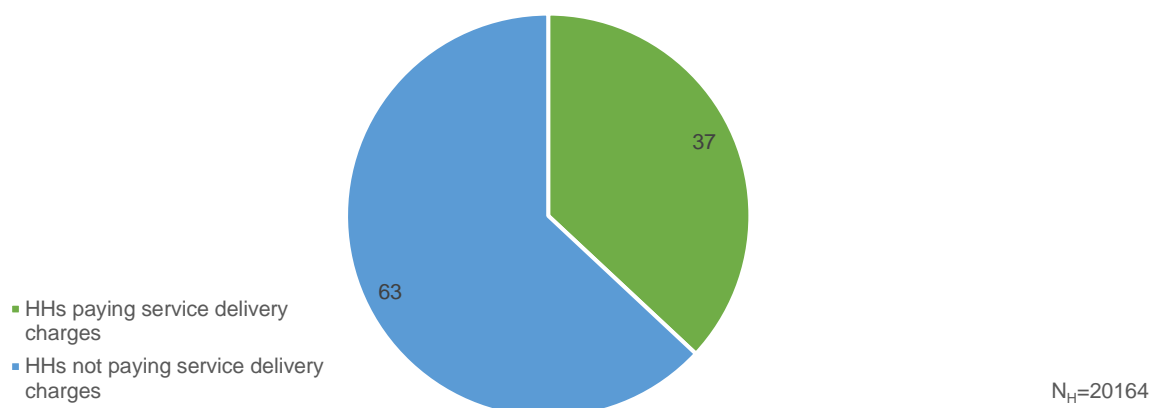
Figure 28: Households who practice purifying water before drinking



Practice of purifying water before drinking was reported the most in Ujjain, Mandla, Singrouli, and Vidisha (100 percent) where 78 percent, 66 percent, 0 percent, and 74 percent HHs respectively, reported using HH tap water as primary drinking water source, while the least was reported in Chhatarpur (12 percent) where 18 percent HHs reported using HH tap water as a primary drinking water source.

B. Households paying water service delivery charges

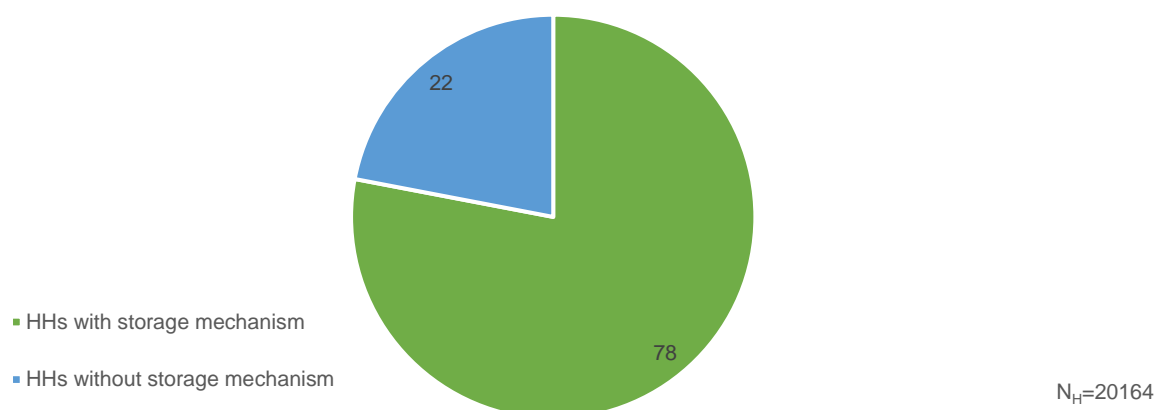
Figure 29: Households paying water service delivery charges



37% of the HHs in Madhya Pradesh were reported to pay service delivery charges.

C. Storage mechanism used by households

Figure 30: Households with storage mechanism

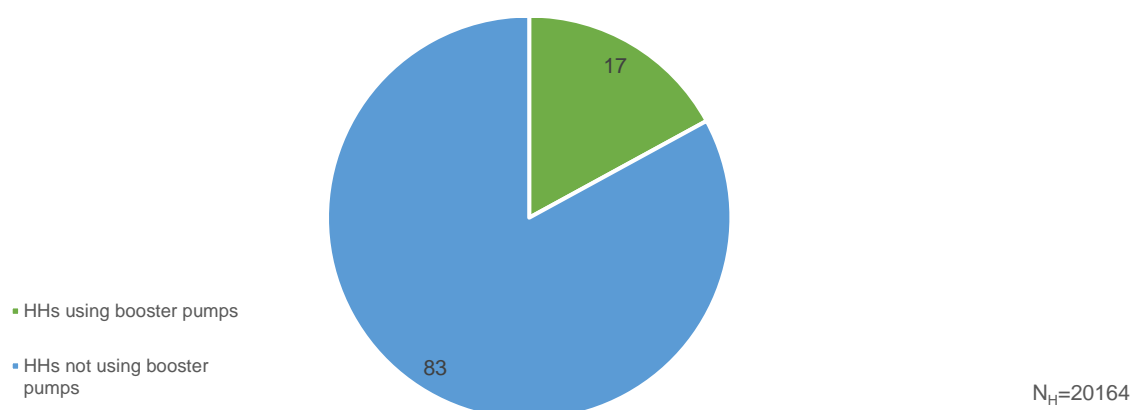


78% HHs in the state reported to have a storage mechanism.

D. Households using booster pumps

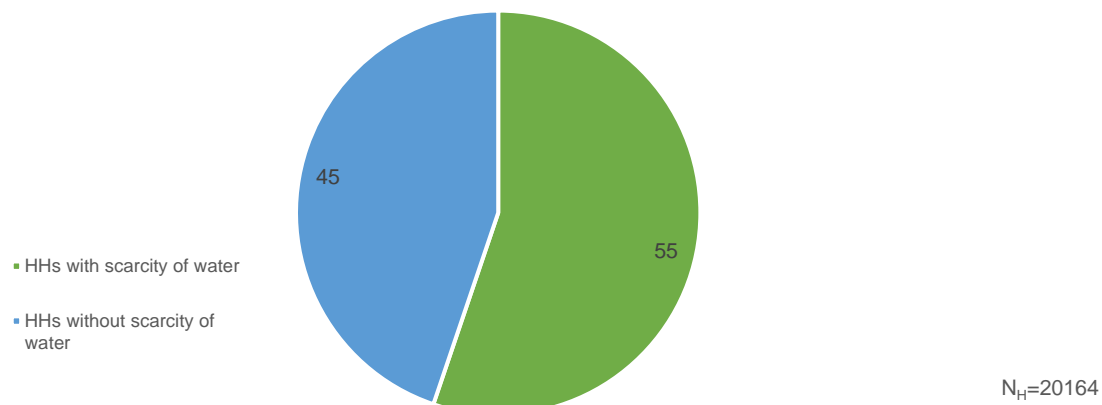
Overall, **17 percent HHs** reported using booster pumps to maximize the water flow through their piped water connections.

Figure 31: Households reported to use booster pumps



E. Households who faced shortage of water

Figure 32: Households who faced water scarcity

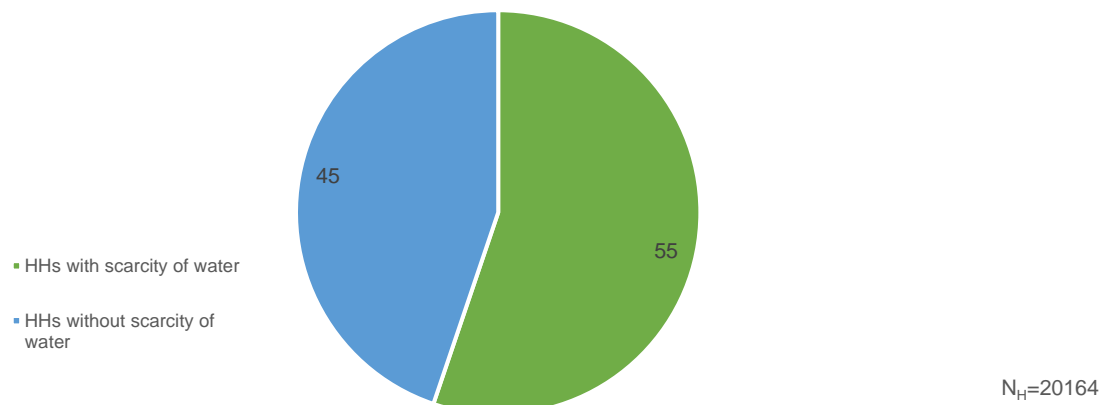


55% households in the state of Madhya Pradesh reported to have faced scarcity of water.

F. Households with coping mechanism during scarcity of water

In the state, **55 percent HHs** faced shortage of water during any time of the year, while **55 percent HHs** reported having some mechanism to cope with scarcity of water.

Figure 33: Households with a mechanism to cope water scarcity



| Sl. No. | Districts | Primary source of drinking water | | | Purifying water | | Storage mechanism in households | | Households paying water service delivery charges | HHs using booster pumps | HHs who faced water scarcity | HHs having coping mechanism |
|---------|------------|----------------------------------|-----------------------|-------------------|-------------------------------------|---|---------------------------------|-------------|--|-------------------------|------------------------------|-----------------------------|
| | | FHTC Source | Other Improved Source | Unimproved Source | HHs purifying water before drinking | HHs not purifying water before drinking | Present | Not present | | | | |
| | | | | | | | | | | | | |
| 1. | Morena | 41 | 59 | 0 | 30 | 70 | 89 | 11 | 23 | 3 | 56 | 53 |
| 2. | Bhind | 3 | 97 | 0 | 58 | 42 | 69 | 31 | 6 | 1 | 74 | 70 |
| 3. | Gwalior | 59 | 41 | 0 | 54 | 46 | 92 | 8 | 43 | 4 | 49 | 49 |
| 4. | Datia | 52 | 48 | 0 | 29 | 71 | 88 | 12 | 31 | 5 | 61 | 61 |
| 5. | Shivpuri | 77 | 23 | 0 | 51 | 49 | 87 | 13 | 31 | 3 | 54 | 54 |
| 6. | Ashoknagar | 86 | 14 | 0 | 89 | 11 | 94 | 6 | 29 | 23 | 36 | 36 |
| 7. | Guna | 94 | 6 | 0 | 96 | 4 | 91 | 9 | 35 | 2 | 21 | 21 |
| 8. | Niwari | 42 | 57 | 2 | 16 | 84 | 91 | 9 | 40 | 3 | 68 | 68 |
| 9. | Tikamgarh | 24 | 76 | 0 | 63 | 37 | 94 | 6 | 29 | 10 | 94 | 94 |
| 10. | Chhatarpur | 18 | 82 | 0 | 12 | 88 | 94 | 6 | 27 | 1 | 82 | 82 |
| 11. | Panna | 32 | 68 | 0 | 97 | 3 | 100 | 0 | 8 | 32 | 85 | 85 |
| 12. | Sagar | 68 | 32 | 0 | 89 | 11 | 70 | 30 | 53 | 14 | 96 | 94 |
| 13. | Damoh | 82 | 18 | 0 | 90 | 10 | 75 | 25 | 34 | 34 | 35 | 35 |
| 14. | Satna | 16 | 84 | 0 | 99 | 1 | 99 | 1 | 1 | 28 | 86 | 86 |
| 15. | Rewa | 8 | 92 | 0 | 99 | 1 | 99 | 1 | 1 | 20 | 64 | 64 |
| 16. | Shahdol | 57 | 42 | 1 | 79 | 21 | 31 | 69 | 22 | 28 | 10 | 10 |
| 17. | Anuppur | 76 | 24 | 0 | 75 | 25 | 29 | 71 | 18 | 49 | 13 | 13 |
| 18. | Sidhi | 9 | 91 | 0 | 83 | 17 | 43 | 57 | 3 | 6 | 49 | 49 |
| 19. | Singrouli | 0 | 100 | 0 | 100 | 0 | 98 | 2 | 0 | 13 | 61 | 60 |
| 20. | Mandsaur | 46 | 53 | 1 | 89 | 11 | 77 | 23 | 68 | 33 | 85 | 85 |
| 21. | Ratlam | 86 | 14 | 0 | 77 | 23 | 81 | 19 | 51 | 20 | 48 | 47 |
| 22. | Ujjain | 78 | 22 | 0 | 100 | 0 | 87 | 13 | 65 | 18 | 67 | 67 |
| 23. | Agar | 59 | 41 | 0 | 94 | 6 | 85 | 15 | 27 | 16 | 26 | 26 |
| 24. | Shajapur | 50 | 49 | 1 | 48 | 52 | 77 | 23 | 56 | 20 | 53 | 51 |
| 25. | Dewas | 65 | 35 | 0 | 93 | 7 | 88 | 12 | 55 | 18 | 59 | 59 |
| 26. | Jhabua | 48 | 52 | 0 | 90 | 10 | 72 | 28 | 1 | 6 | 43 | 43 |
| 27. | Alirajpur | 39 | 61 | 0 | 93 | 7 | 62 | 38 | 8 | 1 | 69 | 69 |
| 28. | Dhar | 3 | 97 | 0 | 94 | 6 | 76 | 24 | 0 | 1 | 99 | 95 |
| 29. | Indore | 9 | 91 | 0 | 98 | 2 | 78 | 22 | 28 | 18 | 99 | 97 |
| 30. | Khargone | 48 | 51 | 1 | 97 | 3 | 82 | 18 | 71 | 20 | 29 | 29 |
| 31. | Khandwa | 78 | 22 | 0 | 60 | 40 | 91 | 9 | 46 | 9 | 59 | 59 |
| 32. | Burhanpur | 99 | 1 | 0 | 59 | 41 | 97 | 3 | 53 | 5 | 53 | 53 |
| 33. | Rajgarh | 27 | 73 | 0 | 83 | 17 | 51 | 49 | 7 | 2 | 56 | 56 |
| 34. | Vidisha | 74 | 26 | 0 | 100 | 0 | 96 | 4 | 42 | 8 | 11 | 11 |

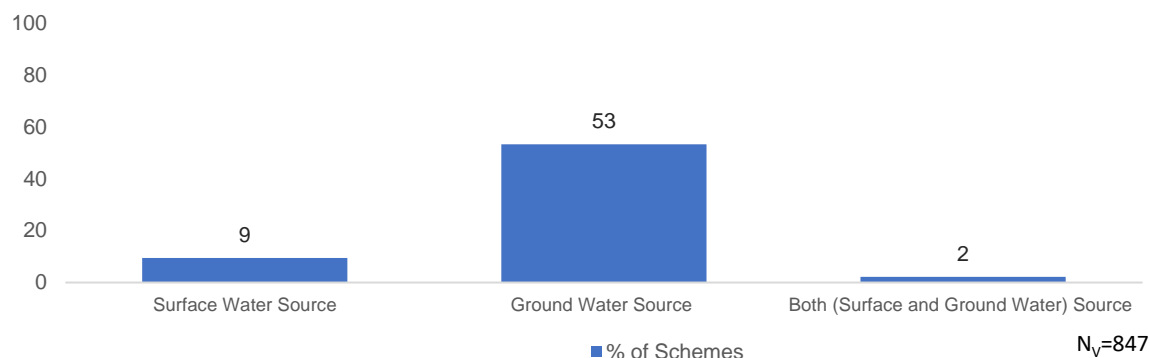
| Table No. 10: Utilization of water at HHs for drinking and other activities | | | | | | | | | | | | |
|---|----------------|----------------------------------|-----------------------|-------------------|-------------------------------------|---|---------------------------------|-------------|--|-------------------------|------------------------------|-----------------------------|
| Sl. No. | Districts | Primary source of drinking water | | | Purifying water | | Storage mechanism in households | | Households paying water service delivery charges | HHs using booster pumps | HHs who faced water scarcity | HHs having coping mechanism |
| | | FHTC Source | Other Improved Source | Unimproved Source | HHs purifying water before drinking | HHs not purifying water before drinking | Present | Not present | | | | |
| | | | | | | | | | | | | |
| 35. | Bhopal | 50 | 50 | 0 | 81 | 19 | 76 | 24 | 49 | 6 | 43 | 43 |
| 36. | Sehore | 37 | 59 | 3 | 57 | 43 | 61 | 39 | 55 | 16 | 53 | 49 |
| 37. | Raisen | 72 | 28 | 0 | 41 | 59 | 77 | 23 | 82 | 25 | 52 | 50 |
| 38. | Betul | 28 | 72 | 0 | 85 | 15 | 97 | 3 | 96 | 52 | 72 | 72 |
| 39. | Hoshangabad | 31 | 69 | 0 | 75 | 25 | 11 | 89 | 4 | 36 | 17 | 17 |
| 40. | Jabalpur | 61 | 39 | 0 | 48 | 52 | 62 | 38 | 18 | 12 | 47 | 46 |
| 41. | Narsinghpur | 74 | 26 | 0 | 66 | 34 | 64 | 36 | 46 | 5 | 34 | 34 |
| 42. | Mandla | 66 | 34 | 0 | 100 | 0 | 97 | 3 | 80 | 10 | 82 | 82 |
| 43. | Chhindwara | 69 | 31 | 0 | 82 | 18 | 87 | 13 | 80 | 41 | 55 | 55 |
| 44. | Seoni | 15 | 85 | 0 | 85 | 15 | 90 | 10 | 57 | 51 | 69 | 69 |
| 45. | Balaghat | 51 | 49 | 0 | 98 | 2 | 85 | 15 | 57 | 4 | 56 | 56 |
| 46. | Sheopur | 82 | 18 | 0 | 49 | 51 | 95 | 5 | 49 | 1 | 44 | 44 |
| 47. | Umaria | 40 | 60 | 0 | 99 | 1 | 41 | 59 | 6 | 23 | 61 | 61 |
| 48. | Neemuch | 80 | 19 | 0 | 82 | 18 | 89 | 11 | 71 | 37 | 65 | 65 |
| 49. | Barwani | 66 | 34 | 1 | 36 | 64 | 68 | 32 | 46 | 19 | 54 | 50 |
| 50. | Harda | 67 | 33 | 0 | 59 | 41 | 94 | 6 | 66 | 39 | 35 | 35 |
| 51. | Katni | 38 | 62 | 0 | 73 | 27 | 55 | 45 | 2 | 38 | 5 | 5 |
| 52. | Dindori | 58 | 42 | 0 | 91 | 9 | 79 | 21 | 53 | 2 | 70 | 70 |
| 53. | MADHYA PRADESH | 51 | 49 | 0 | 75 | 25 | 78 | 22 | 37 | 17 | 55 | 55 |

3.5. Source sustainability at the village level

Schemes based on surface and ground water

9% of schemes reported to be based on surface water source while **53% of schemes** reported to be based of ground water sources.

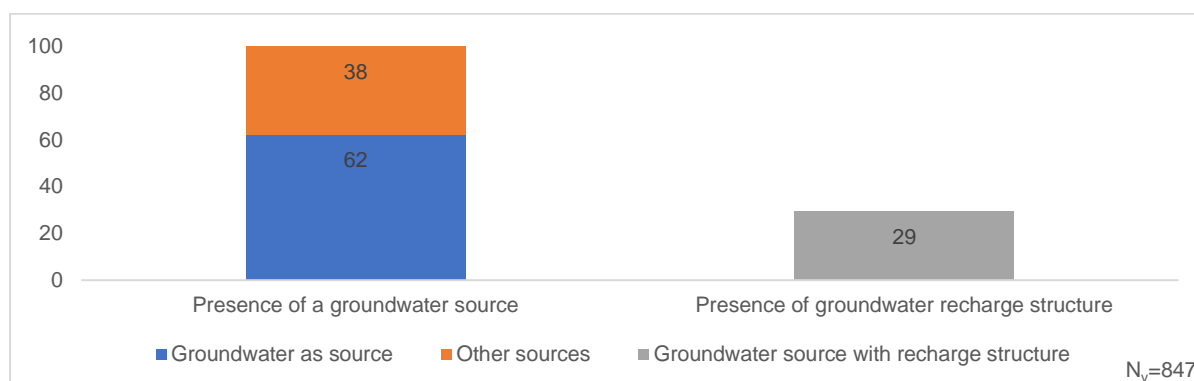
Figure 34: Schemes based on water source in village



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

Villages reported having presence of a groundwater source

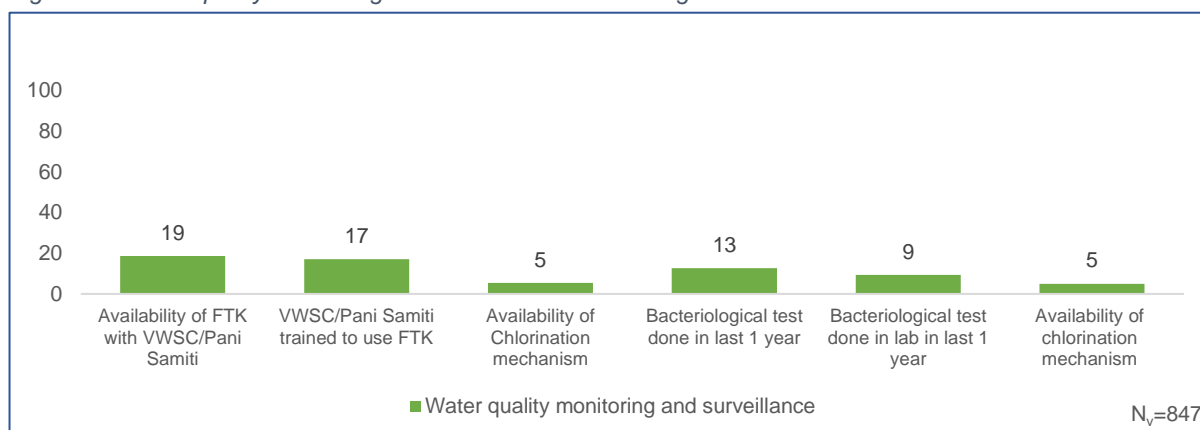
Figure 35: Villages reported the presence of groundwater sources and among those how many reported to have a recharge structure



In the state, **62 percent villages** reported the presence of groundwater sources like improved dug wells and borewells. Out of which, 29 percent of villages reported (i.e., 248 villages) reported having a recharge structure.

3.6. Water quality monitoring and surveillance in the villages

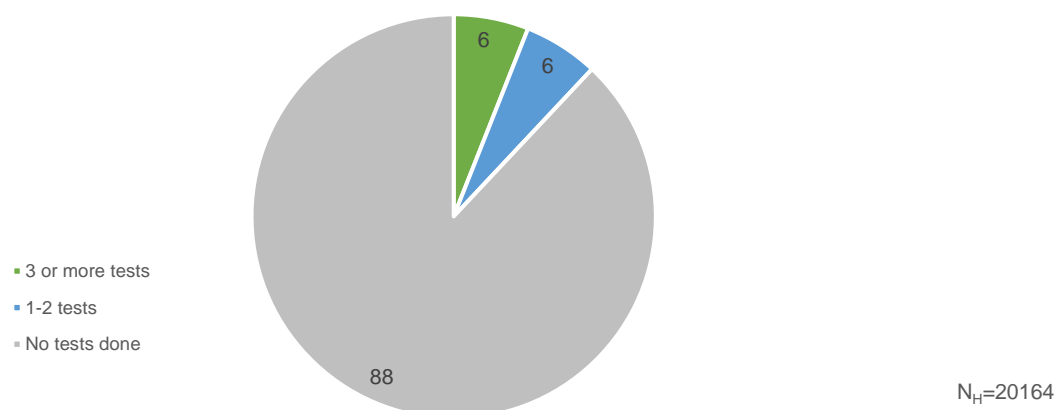
Figure 36: Water quality monitoring and surveillance in the villages



In Madhya Pradesh, it was found that in 19% of the sampled villages (N=847) the VWSC/Pani Samiti were availed with FTKs and 17% of the VWSC/Pani Samiti members were trained to use them. Furthermore, to check for the presence of contamination in the water supplied, bacteriological test using FTK was done in 13% of the sampled villages in Madhya Pradesh. The presence of bacteriological contamination was also tested in labs in 9% of the sampled villages in Madhya Pradesh. It was also found that chlorination mechanism to treat the contamination (if present) was available in 5% of the villages in the state.

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

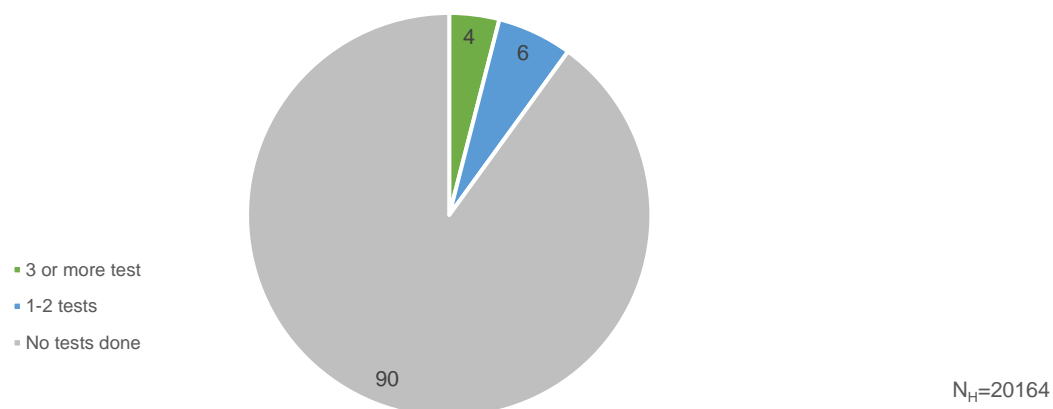
Figure 37: Frequency of testing using FTK



Across the state, about less than one-tenth of the total sampled villages (6 percent) 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.

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

Figure 38: Frequency of testing in labs



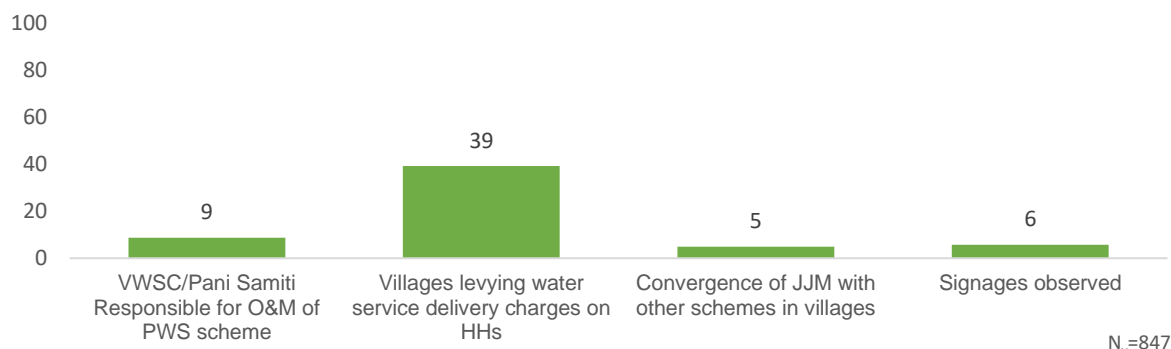
Across the state, less than one-tenth of the total sampled villages (4 percent) reported that the quality of water (at different points in the respective villages) was checked at least three times through laboratories in last one year.

| Sl. no | District | Availability of FTK | Persons trained to use FTK | Frequency of testing using FTK | | | Frequency of lab testing | | | Bacteriological test done in last 1 year (%) | Bacteriological test done in lab in last 1 year (%) | Availability of chlorination mechanism (%) |
|--------|------------|---------------------|----------------------------|--------------------------------|---------------|--------------|--------------------------|---------------|--------------|--|---|--|
| | | | | 3 or more tests (%) | 1-2 tests (%) | No tests (%) | 3 or more tests (%) | 1-2 tests (%) | No tests (%) | | | |
| 1. | Morena | 18 | 24 | 18 | 0 | 82 | 12 | 6 | 82 | 12 | 12 | 12 |
| 2. | Bhind | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 0 |
| 3. | Gwalior | 25 | 25 | 0 | 25 | 75 | 0 | 6 | 94 | 6 | 0 | 0 |
| 4. | Datia | 6 | 6 | 0 | 0 | 100 | 0 | 6 | 94 | 6 | 0 | 0 |
| 5. | Shivpuri | 24 | 24 | 6 | 6 | 88 | 6 | 12 | 82 | 24 | 24 | 18 |
| 6. | Ashoknagar | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 0 |
| 7. | Guna | 50 | 57 | 7 | 7 | 86 | 0 | 14 | 86 | 21 | 7 | 7 |
| 8. | Niwari | 11 | 11 | 11 | 11 | 78 | 6 | 0 | 94 | 11 | 11 | 11 |
| 9. | Tikamgarh | 29 | 21 | 0 | 0 | 100 | 0 | 0 | 100 | 14 | 0 | 7 |
| 10. | Chhatarpur | 11 | 17 | 0 | 17 | 83 | 0 | 6 | 94 | 6 | 0 | 0 |
| 11. | Panna | 17 | 11 | 0 | 11 | 89 | 0 | 6 | 94 | 6 | 6 | 6 |
| 12. | Sagar | 39 | 28 | 0 | 0 | 100 | 0 | 6 | 94 | 11 | 11 | 11 |
| 13. | Damoh | 18 | 18 | 0 | 0 | 100 | 0 | 6 | 94 | 24 | 18 | 0 |
| 14. | Satna | 19 | 19 | 0 | 0 | 100 | 6 | 6 | 88 | 25 | 13 | 13 |
| 15. | Rewa | 13 | 20 | 20 | 0 | 80 | 13 | 7 | 80 | 20 | 7 | 0 |
| 16. | Shahdol | 80 | 80 | 27 | 33 | 40 | 13 | 7 | 80 | 20 | 13 | 20 |
| 17. | Anuppur | 40 | 47 | 7 | 27 | 67 | 7 | 13 | 80 | 47 | 27 | 0 |
| 18. | Sidhi | 18 | 18 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 0 |
| 19. | Singrouli | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 100 | 13 | 13 | 0 |
| 20. | Mandsaur | 60 | 33 | 13 | 20 | 67 | 7 | 27 | 67 | 33 | 7 | 7 |
| 21. | Ratlam | 31 | 6 | 6 | 13 | 81 | 6 | 13 | 81 | 13 | 6 | 0 |
| 22. | Ujjain | 17 | 11 | 17 | 6 | 78 | 11 | 6 | 83 | 22 | 22 | 17 |
| 23. | Agar | 7 | 0 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 7 |
| 24. | Shajapur | 0 | 6 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 0 |
| 25. | Dewas | 53 | 47 | 37 | 11 | 53 | 32 | 11 | 58 | 42 | 42 | 21 |
| 26. | Jhabua | 19 | 25 | 6 | 0 | 94 | 0 | 6 | 94 | 6 | 6 | 0 |
| 27. | Alirajpur | 47 | 41 | 12 | 12 | 76 | 12 | 18 | 71 | 24 | 24 | 18 |
| 28. | Dhar | 0 | 0 | 0 | 7 | 93 | 0 | 0 | 100 | 0 | 0 | 0 |
| 29. | Indore | 7 | 13 | 0 | 7 | 93 | 0 | 0 | 100 | 7 | 7 | 7 |
| 30. | Khargone | 25 | 13 | 13 | 25 | 63 | 6 | 19 | 75 | 19 | 19 | 19 |

| Sl. no | District | Availability of FTK | Persons trained to use FTK | Frequency of testing using FTK | | | Frequency of lab testing | | | Bacteriological test done in last 1 year (%) | Bacteriological test done in lab in last 1 year (%) | Availability of chlorination mechanism (%) |
|--------|-----------------------|---------------------|----------------------------|--------------------------------|---------------|--------------|--------------------------|---------------|--------------|--|---|--|
| | | | | 3 or more tests (%) | 1-2 tests (%) | No tests (%) | 3 or more tests (%) | 1-2 tests (%) | No tests (%) | | | |
| 31. | Khandwa | 12 | 12 | 12 | 6 | 82 | 0 | 12 | 88 | 12 | 12 | 0 |
| 32. | Burhanpur | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 0 |
| 33. | Rajgarh | 0 | 6 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 6 |
| 34. | Vidisha | 24 | 18 | 0 | 0 | 100 | 0 | 6 | 94 | 6 | 6 | 0 |
| 35. | Bhopal | 64 | 64 | 36 | 14 | 50 | 43 | 7 | 50 | 57 | 43 | 21 |
| 36. | Sehore | 5 | 0 | 5 | 0 | 95 | 5 | 0 | 95 | 5 | 5 | 0 |
| 37. | Raisen | 6 | 6 | 12 | 0 | 88 | 6 | 6 | 88 | 18 | 18 | 18 |
| 38. | Betul | 6 | 13 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 6 |
| 39. | Hoshangabad | 22 | 33 | 0 | 22 | 78 | 0 | 17 | 83 | 28 | 22 | 0 |
| 40. | Jabalpur | 6 | 0 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 0 |
| 41. | Narsinghpur | 41 | 29 | 12 | 0 | 88 | 12 | 0 | 88 | 24 | 18 | 12 |
| 42. | Mandla | 7 | 7 | 0 | 0 | 100 | 0 | 0 | 100 | 7 | 7 | 0 |
| 43. | Chhindwara | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 100 | 5 | 5 | 0 |
| 44. | Seoni | 13 | 13 | 0 | 0 | 100 | 0 | 0 | 100 | 13 | 13 | 7 |
| 45. | Balaghat | 25 | 17 | 0 | 8 | 92 | 0 | 17 | 83 | 17 | 17 | 0 |
| 46. | Sheopur | 43 | 43 | 36 | 7 | 57 | 7 | 21 | 71 | 21 | 14 | 7 |
| 47. | Umaria | 6 | 0 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 0 |
| 48. | Neemuch | 24 | 18 | 18 | 6 | 76 | 6 | 12 | 82 | 12 | 6 | 0 |
| 49. | Barwani | 0 | 7 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 7 |
| 50. | Harda | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 0 |
| 51. | Katni | 0 | 6 | 0 | 0 | 100 | 0 | 0 | 100 | 6 | 0 | 0 |
| 52. | Dindori | 6 | 0 | 0 | 6 | 94 | 0 | 6 | 94 | 6 | 6 | 0 |
| 53. | MADHYA PRADESH | 19 | 17 | 6 | 6 | 88 | 4 | 6 | 90 | 13 | 9 | 5 |

3.7. Management of water service delivery at village level

Figure 39: Management of water service delivery at village level



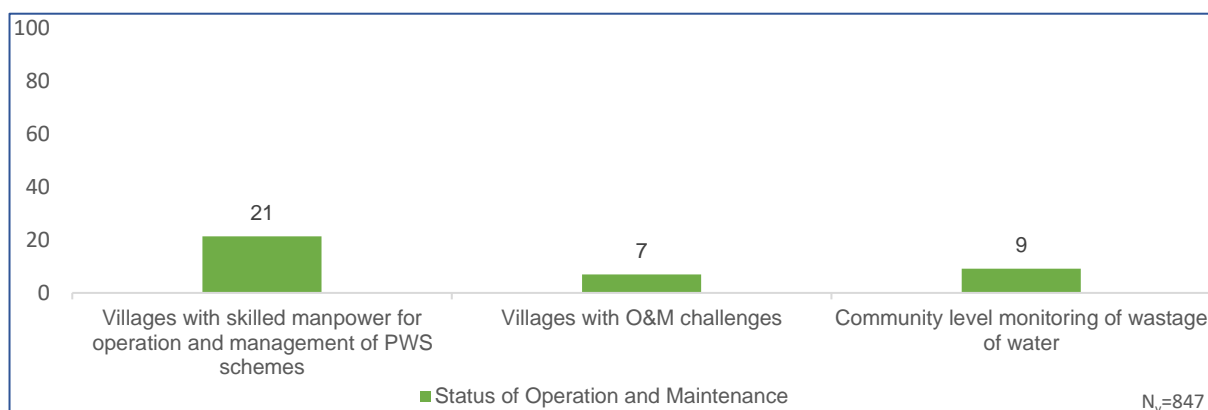
In Madhya Pradesh, 9% of the sampled villages reported that VWSC/Pani Samiti were responsible for O&M of PWS scheme. It was also found in the survey that 39% of the villages levied water service delivery charges on HHs. Only 5% of the villages in the state reported convergence of JJM activities with other schemes in the villages, and signages were observed in 6% of the sampled villages.

| Sl. No. | District (N _v =1319) | VWSC/Pani Samiti responsible of O&M of PWS scheme | Villages levying service delivery charges on households | Convergence of JJM activities with other schemes in villages | Villages where signages were observed |
|---------|---------------------------------|---|---|--|---------------------------------------|
| 1. | Morena | 0 | 24 | 6 | 0 |
| 2. | Bhind | 0 | 11 | 0 | 11 |
| 3. | Gwalior | 31 | 44 | 0 | 0 |
| 4. | Datia | 12 | 35 | 0 | 12 |
| 5. | Shivpuri | 18 | 41 | 12 | 0 |
| 6. | Ashoknagar | 6 | 25 | 6 | 6 |
| 7. | Guna | 21 | 50 | 0 | 0 |
| 8. | Niwari | 11 | 61 | 39 | 0 |
| 9. | Tikamgarh | 7 | 36 | 0 | 0 |
| 10. | Chhatarpur | 17 | 44 | 6 | 0 |
| 11. | Panna | 6 | 6 | 0 | 0 |
| 12. | Sagar | 0 | 44 | 17 | 11 |
| 13. | Damoh | 0 | 53 | 0 | 0 |
| 14. | Satna | 0 | 0 | 0 | 6 |
| 15. | Rewa | 0 | 0 | 7 | 0 |
| 16. | Shahdol | 7 | 27 | 13 | 13 |
| 17. | Anuppur | 7 | 27 | 7 | 7 |
| 18. | Sidhi | 6 | 18 | 0 | 6 |
| 19. | Singrouli | 0 | 6 | 6 | 0 |
| 20. | Mandsaur | 7 | 67 | 0 | 27 |
| 21. | Ratlam | 13 | 69 | 6 | 6 |
| 22. | Ujjain | 11 | 50 | 0 | 22 |
| 23. | Agar | 14 | 21 | 0 | 0 |
| 24. | Shajapur | 22 | 33 | 0 | 6 |
| 25. | Dewas | 5 | 63 | 0 | 42 |
| 26. | Jhabua | 0 | 13 | 0 | 0 |
| 27. | Alirajpur | 6 | 12 | 0 | 0 |
| 28. | Dhar | 0 | 0 | 0 | 0 |
| 29. | Indore | 7 | 13 | 0 | 0 |
| 30. | Khargone | 6 | 44 | 6 | 6 |
| 31. | Khandwa | 12 | 12 | 0 | 0 |

| Table No. 12: Management of water service delivery at village level | | | | | |
|--|---------------------------|--|--|---|--|
| Sl. No. | District (Nv=1319) | VWSC/Pani Samiti responsible of O&M of PWS scheme | Villages levying service delivery charges on households | Convergence of JJM activities with other schemes in villages | Villages where signages were observed |
| 32. | Burhanpur | 8 | 54 | 0 | 0 |
| 33. | Rajgarh | 11 | 11 | 6 | 6 |
| 34. | Vidisha | 24 | 41 | 0 | 0 |
| 35. | Bhopal | 0 | 50 | 0 | 43 |
| 36. | Sehore | 5 | 60 | 15 | 15 |
| 37. | Raisen | 0 | 71 | 0 | 12 |
| 38. | Betul | 25 | 88 | 31 | 0 |
| 39. | Hoshangabad | 6 | 22 | 0 | 0 |
| 40. | Jabalpur | 0 | 24 | 0 | 0 |
| 41. | Narsinghpur | 18 | 47 | 0 | 0 |
| 42. | Mandla | 0 | 86 | 7 | 0 |
| 43. | Chhindwara | 11 | 84 | 21 | 5 |
| 44. | Seoni | 13 | 73 | 0 | 7 |
| 45. | Balaghat | 17 | 50 | 0 | 0 |
| 46. | Sheopur | 21 | 57 | 0 | 0 |
| 47. | Umaria | 0 | 0 | 0 | 0 |
| 48. | Neemuch | 29 | 71 | 12 | 12 |
| 49. | Barwani | 0 | 47 | 0 | 7 |
| 50. | Harda | 7 | 80 | 13 | 0 |
| 51. | Katni | 0 | 18 | 0 | 0 |
| 52. | Dindori | 13 | 69 | 13 | 0 |
| 53. | MADHYA PRADESH | 9 | 39 | 5 | 6 |

3.8. Status of Operation & Maintenance

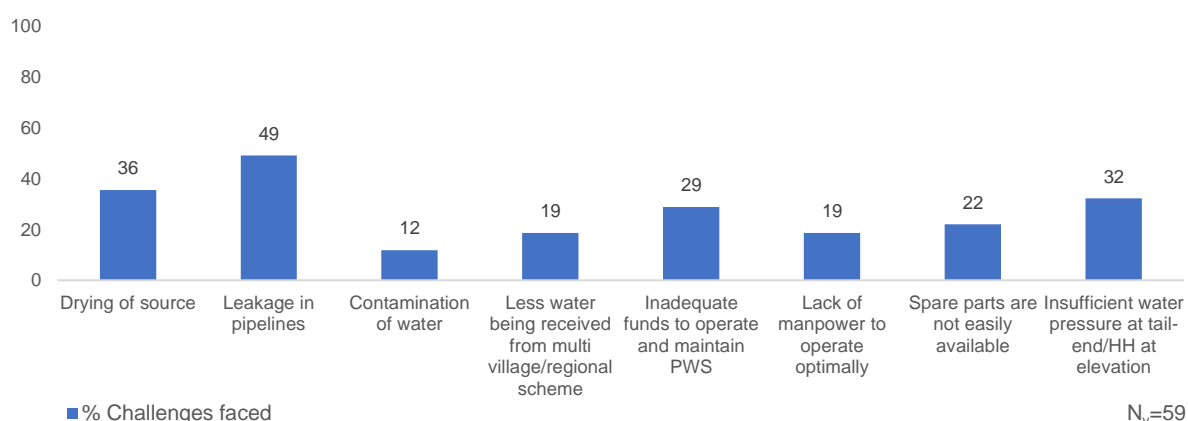
Figure 40: Operation and Maintenance



In Madhya Pradesh, availability of skilled manpower for the operation and maintenance of PWS schemes across the villages was found to be 21% based on the sample survey. It was also found that 7% of the villages faced challenges with respected O&M. Community level monitoring of wastage of water was also found among 9% of the sampled villages in Madhya Pradesh.

A. Details of challenges faced

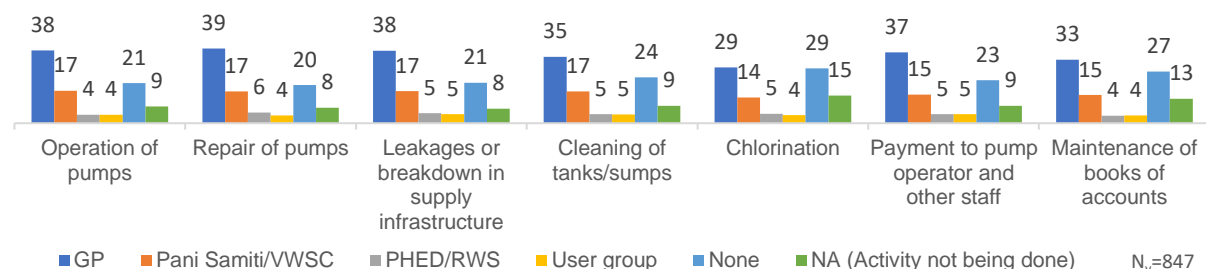
Figure 41: Details of O&M challenges faced by village



Out of the 7 percent of villages that had faced challenges with respect to O&M of PWS schemes (59 villages), 'leakage in pipelines' was attributed the most – at 49 percent.

B. Responsible for O&M

Figure 42: 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.

| Sl. No. | District | Villages with skilled manpower for O&M of PWS (% HH) | Villages with O&M challenges (% HH) | Villages with community monitoring (% HH) |
|---------|-------------|--|-------------------------------------|---|
| 1. | Morena | 12 | 6 | 6 |
| 2. | Bhind | 5 | 5 | 0 |
| 3. | Gwalior | 6 | 19 | 6 |
| 4. | Datia | 12 | 12 | 0 |
| 5. | Shivpuri | 6 | 12 | 6 |
| 6. | Ashoknagar | 38 | 0 | 0 |
| 7. | Guna | 29 | 0 | 0 |
| 8. | Niwari | 28 | 0 | 6 |
| 9. | Tikamgarh | 29 | 29 | 14 |
| 10. | Chhatarpur | 33 | 39 | 6 |
| 11. | Panna | 6 | 0 | 0 |
| 12. | Sagar | 67 | 6 | 28 |
| 13. | Damoh | 6 | 12 | 0 |
| 14. | Satna | 0 | 6 | 6 |
| 15. | Rewa | 7 | 0 | 0 |
| 16. | Shahdol | 27 | 0 | 13 |
| 17. | Anuppur | 7 | 0 | 7 |
| 18. | Sidhi | 12 | 6 | 6 |
| 19. | Singrouli | 6 | 0 | 0 |
| 20. | Mandsaur | 80 | 20 | 27 |
| 21. | Ratlam | 38 | 6 | 13 |
| 22. | Ujjain | 50 | 11 | 33 |
| 23. | Agar | 36 | 7 | 29 |
| 24. | Shajapur | 44 | 11 | 0 |
| 25. | Dewas | 68 | 11 | 47 |
| 26. | Jhabua | 19 | 6 | 13 |
| 27. | Alirajpur | 24 | 12 | 12 |
| 28. | Dhar | 0 | 0 | 0 |
| 29. | Indore | 13 | 7 | 13 |
| 30. | Khargone | 56 | 0 | 44 |
| 31. | Khandwa | 6 | 24 | 0 |
| 32. | Burhanpur | 8 | 0 | 0 |
| 33. | Rajgarh | 22 | 0 | 17 |
| 34. | Vidisha | 41 | 6 | 6 |
| 35. | Bhopal | 57 | 21 | 36 |
| 36. | Sehore | 15 | 15 | 0 |
| 37. | Raisen | 29 | 0 | 6 |
| 38. | Betul | 13 | 13 | 0 |
| 39. | Hoshangabad | 6 | 0 | 11 |
| 40. | Jabalpur | 12 | 0 | 0 |
| 41. | Narsinghpur | 12 | 0 | 24 |

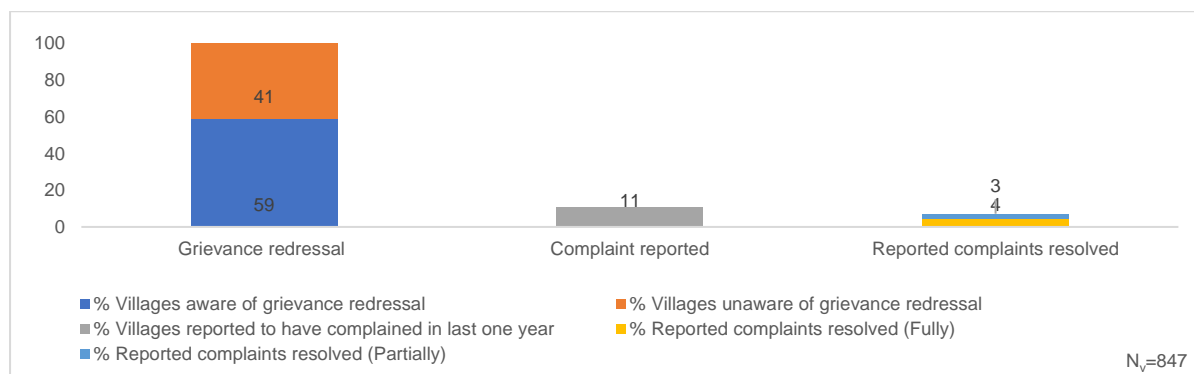
| Table No. 13: Status of Operation and Management | | | | |
|---|-----------------------|---|--|--|
| Sl. No. | District | Villages with skilled manpower for O&M of PWS (% HH) | Villages with O&M challenges (% HH) | Villages with community monitoring (% HH) |
| 42. | Mandla | 7 | 7 | 0 |
| 43. | Chhindwara | 5 | 5 | 0 |
| 44. | Seoni | 13 | 0 | 13 |
| 45. | Balaghat | 33 | 0 | 8 |
| 46. | Sheopur | 14 | 7 | 14 |
| 47. | Umaria | 6 | 6 | 6 |
| 48. | Neemuch | 35 | 6 | 6 |
| 49. | Barwani | 0 | 0 | 0 |
| 50. | Harda | 0 | 0 | 0 |
| 51. | Katni | 0 | 0 | 0 |
| 52. | Dindori | 13 | 6 | 0 |
| 53. | MADHYA PRADESH | 21 | 7 | 9 |

3.9. Status of service delivery related grievances and redressal

A. Village level

Grievance redressal at village

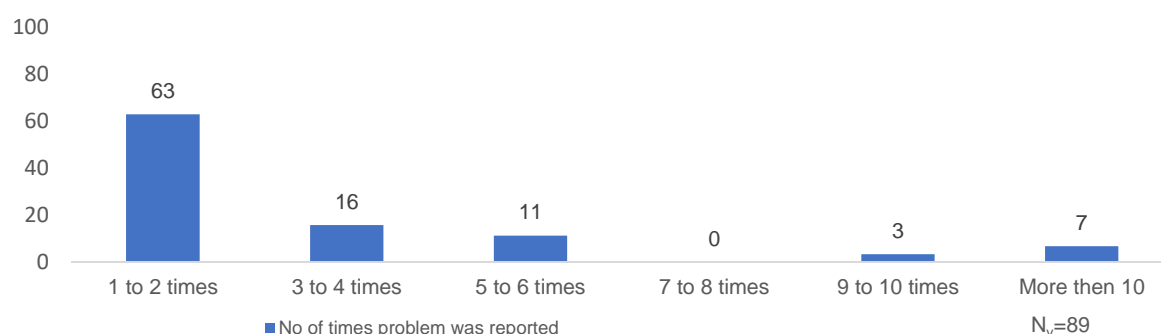
Figure 43: Reporting of grievance redressal at village level



In the state, **59 percent of villages** reported that they are aware of any grievance redressal mechanism, but only 11 percent HHs have reported a complaint in the last one year amongst which 4 percent reported that the complaints are fully resolved while 3 percent of complaints have been partially resolved.

Problem reported in last 1 year

Figure 44: Number of times villages have reported grievance in last 1 year

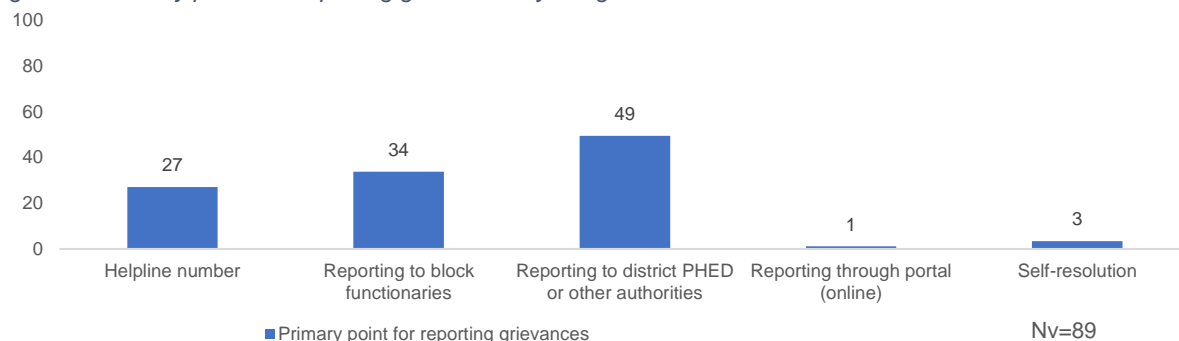


Among the villages who reported a complaint (i.e. 89 villages), 7 percent villages have reported a complaint more than 10 times in the last one year, while 63 percent reported a complaint at least once or twice.

Primary points for reporting grievances

Among those who reported complaint (i.e., 11% villages, 89 villages), **49% of villages** reported that they report their grievances to **PHED or other authorities** beside other reporting-points.

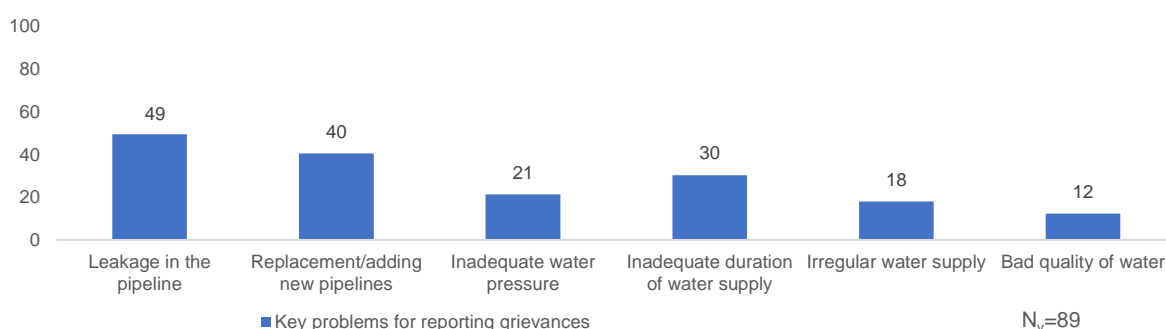
Figure 45: Primary points for reporting grievances by village



Key problems for reporting grievances

Overall, among those who reported complaint (i.e., 11% HHs, 89 villages) **49% of villages** reported that **leakage in the pipeline** is their most encountered problem for reporting grievances.

Figure 46: Key problems reported by village

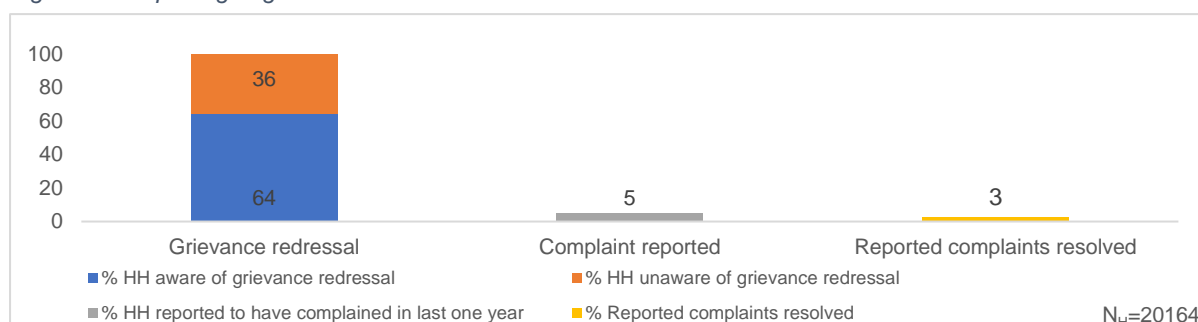


B. Household level

Awareness of grievance redressal at household

In the state, **64 percent of HHs** reported that they are aware of any grievance redressal mechanism w.r.t. HH tap water through PWS, but only 5 percent HHs have reported a complaint in the last one year and only 3 percent of complaints have been resolved.

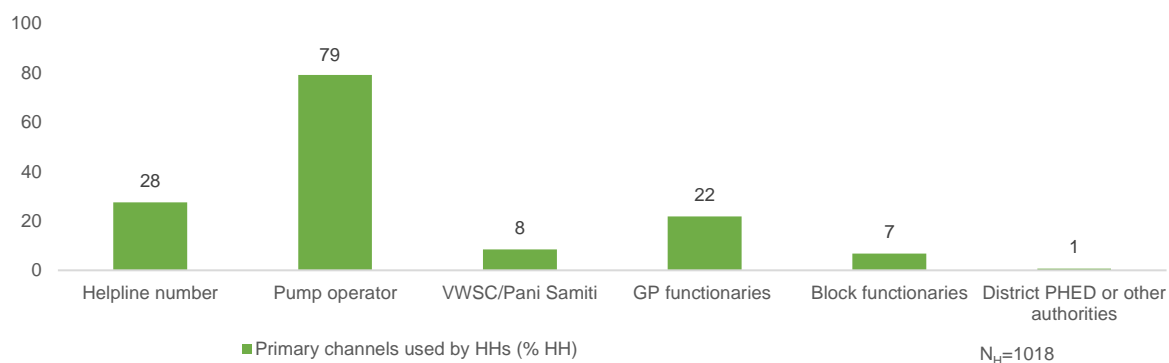
Figure 47: Reporting of grievance redressal at household level



Primary channels for reporting grievances by households

Among those who reported complaint as shown in the above graph (i.e., 5% HHs, 1018 HHs), **79%** of the HHs reported their complaints to the **pump operators** beside other reporting-channels.

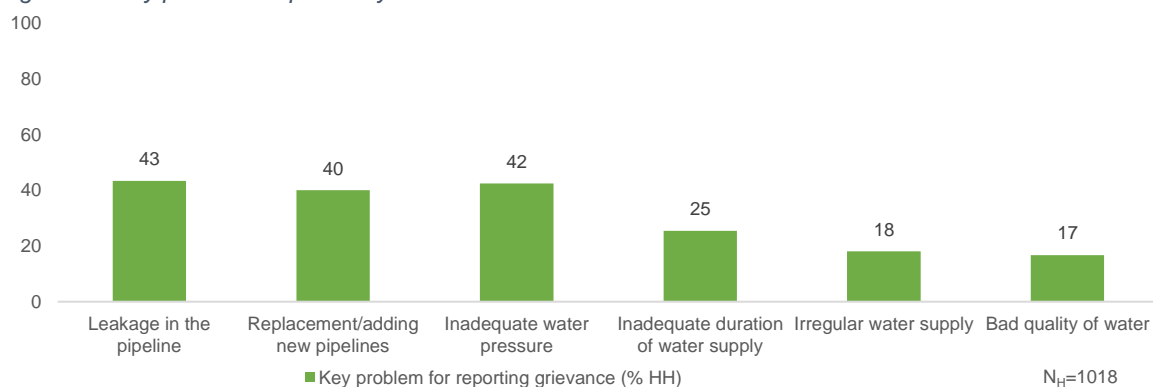
Figure 48: Primary channels for reporting grievances by households



Key problems for reporting grievances

Overall, among those who reported complaint (i.e., 5% HHs, 1018 HHs) **43%** of the HHs that reported problems was of **leakage in the pipeline** beside other problems.

Figure 49: Key problems reported by households

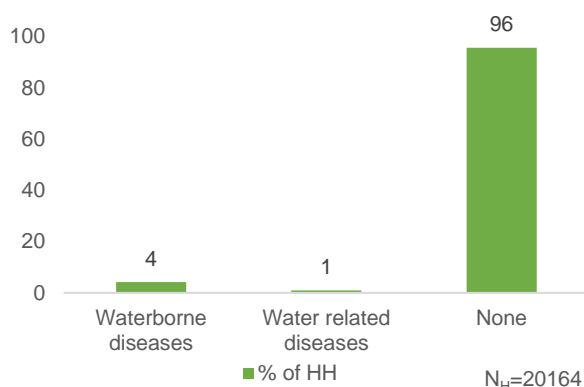


3.10. Perception of HHs on Outcome Indicators

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

Across the state only 4% HHs reported having an incidence(s) of water borne and 1% HHs reported having water related diseases in your household in last one year. The cases recorded were of Dysentery, Diarrhoea,

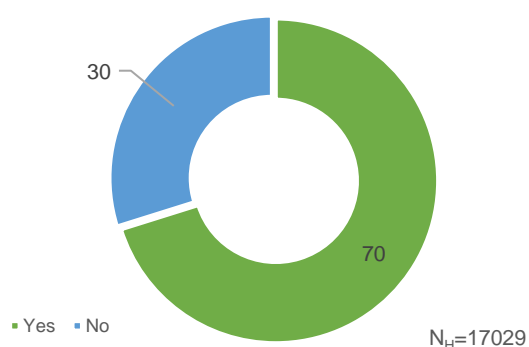
Figure 50: Household reported incidence of water borne diseases in last one year



C. Reduction in time and effort in collecting water

Out of the HHs reported (i.e. 17029) that female members used to fetch water before HH tap connection, 70% reported that post installation of HH tap connection it helped reduction of time and effort in collection of water.

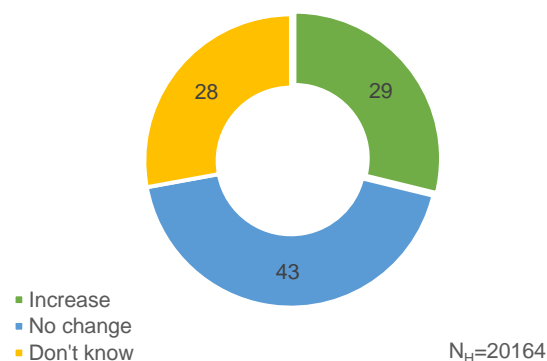
Figure 53: Households reported reduction in time and effort in collecting water



B. Change in employment days since FHTC programmes/schemes

Since having a functional HH tap connection, 29% HHs across the state has reported that there has been a change in the no. of employment days of the adult HH members while 43% HHs reported no change

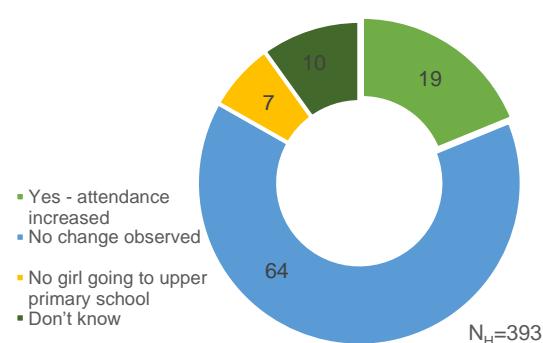
Figure 51: Household reported a change in employment days since FHTC programmes /schemes



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

Across the state, 19% HHs reported that since having a functional HH tap connection the attendance of the girls going to schools increased, while 64% 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

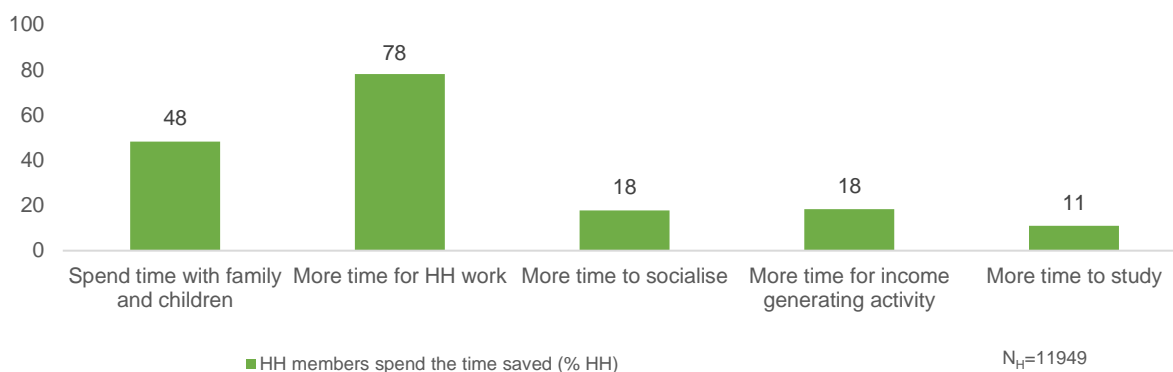
Figure 52: Households reported increase of attendance of girls going to upper primary school



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 (78 percent).

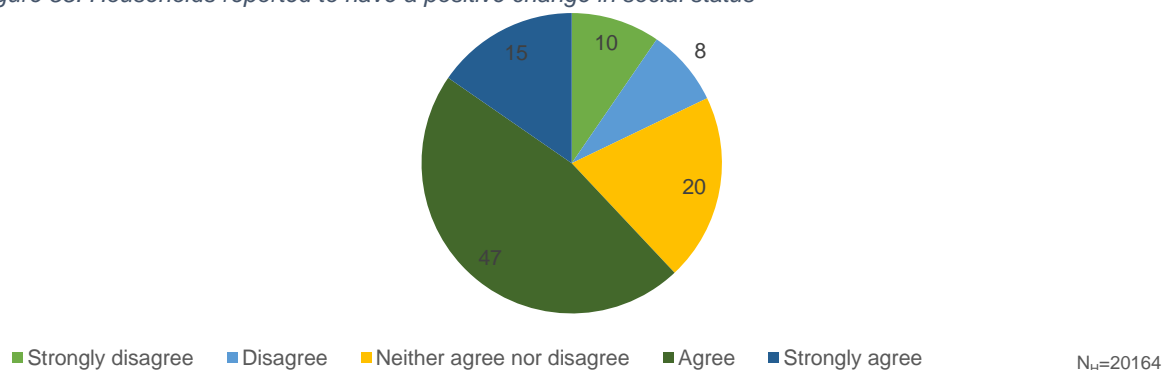
Figure 54: Utilization of time saved by households post installation of HH tap connection



F. Change in social status

Sense of pride and positive change in social status was reportedly realized by 25 percent of HHs post the installation of HH tap connections.

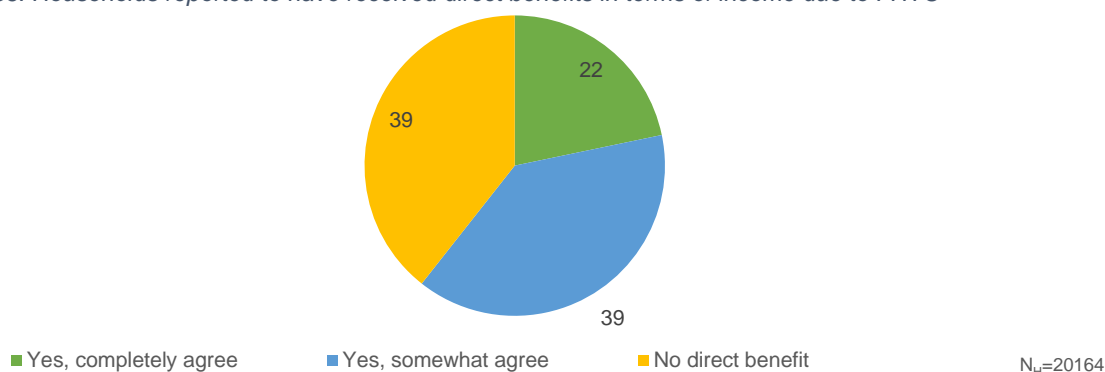
Figure 55: Households reported to have a positive change in social status








G. Direct benefits in terms of income due to FHTC

Across the state, 22 percent 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 39 percent HHs reported being in partial agreement against the same.

Figure 56: Households reported to have received direct benefits in terms of income due to FHTC



3.11. User satisfaction

| Table No. 14: User satisfaction - more than 75% happy with FHTC services | | | |
|--|-----------------------------------|---|------|
| S. No. | Parameter (N _h =20164) | | In % |
| 1 | Regularity |  | 74.3 |
| 2 | Overall quality |  | 77.2 |
| 3 | Colour |  | 79.9 |
| 4 | Taste |  | 80.7 |
| 5 | Odour |  | 78.2 |

Note:

Base (N_v)=847 means all villages sampled and covered in Madhya Pradesh state

Base (N_H)=20164 means all households sampled and covered across the 847 villages in Madhya Pradesh state

Base (N_H)=13123 means all households sampled where water sample be collected across the 847 villages in Madhya Pradesh state

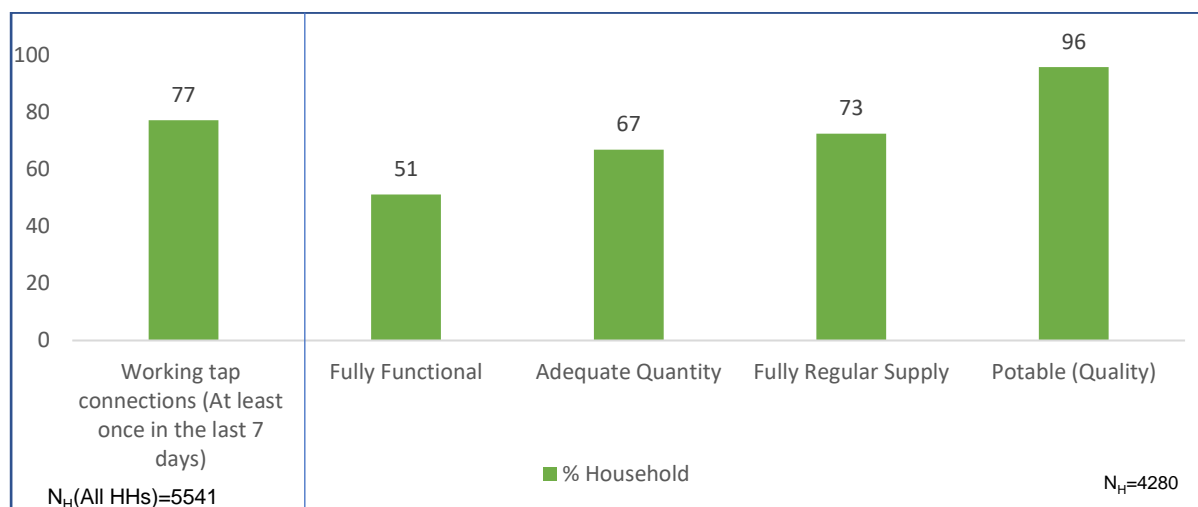
Base (N_H)=17029 means all households sampled where female members used to fetch water before HH tap connection

Base (N_H)=393 means all households sampled that had adolescent girls as one of HH members

4. Status of functionality in Har-Ghar-Jal villages

4.1. Overall Functionality (in %)

Figure 57: 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=4280 implies all HHs where water was found on the day of the survey.

It has been found that 77 percent of the sampled HHs (N=5541) had working tap connections. 51 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 more than 7 out of 10 received regular supply (73 percent) of water. The on-site testing and lab test results of the water indicates that more than 9 out of 10 (96%) 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. | Shivpuri | 100 | 75 | 95 | 81 | 100 |
| 2. | Ashoknagar | 100 | 96 | 100 | 96 | 100 |
| 3. | Guna | 100 | 92 | 93 | 99 | 100 |
| 4. | Niwari | 100 | 73 | 83 | 79 | 100 |
| 5. | Panna | 100 | 2 | 20 | 30 | 100 |
| 6. | Damoh | 100 | 85 | 94 | 93 | 98 |
| 7. | Shahdol | 100 | 0 | 0 | 89 | 100 |
| 8. | Shajapur | 100 | 15 | 28 | 72 | 69 |
| 9. | Khargone | 100 | 32 | 33 | 70 | 100 |
| 10. | Burhanpur | 100 | 56 | 65 | 80 | 97 |
| 11. | Vidisha | 100 | 81 | 93 | 86 | 90 |
| 12. | Bhopal | 100 | 22 | 22 | 94 | 100 |
| 13. | Raisen | 100 | 49 | 63 | 62 | 99 |
| 14. | Betul | 100 | 15 | 78 | 15 | 98 |
| 15. | Hoshangabad | 100 | 58 | 58 | 60 | 100 |
| 16. | Chhindwara | 100 | 20 | 100 | 48 | 33 |
| 17. | Seoni | 100 | 3 | 97 | 3 | 100 |
| 18. | Balaghat | 100 | 50 | 88 | 56 | 97 |
| 19. | Harda | 100 | 20 | 68 | 28 | 96 |
| 20. | Dindori | 100 | 39 | 39 | 100 | 100 |

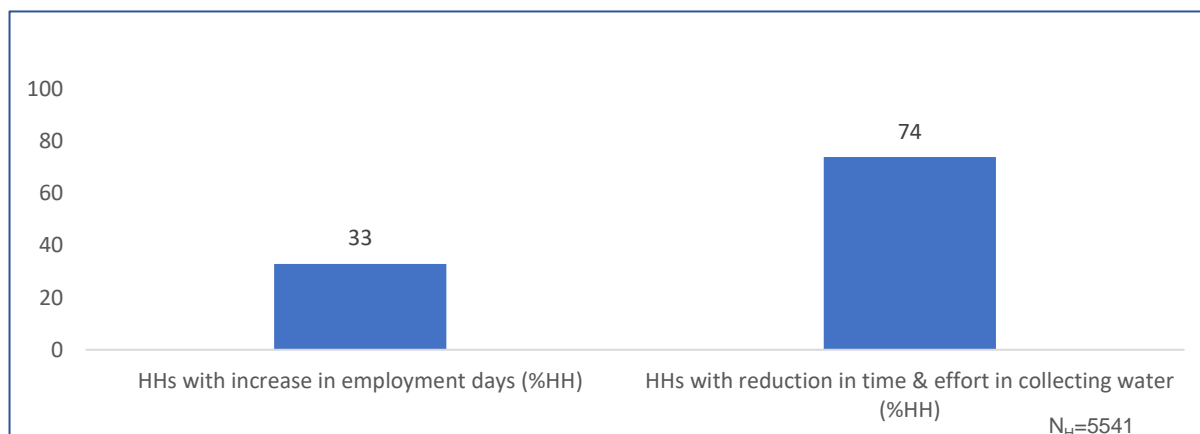
| Table No. 15: Quantity, Regularity, and Quality of FHTC for Har Ghar Jal districts (%HH) | | | | | | |
|--|-----------------------|---|-------------------------|--------------------------|----------------------------|--------------------------|
| S. No. | District | Working tap connections (HHs which 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) |
| 21. | Jabalpur | 98 | 51 | 100 | 51 | 100 |
| 22. | Narsinghpur | 98 | 81 | 96 | 83 | 100 |
| 23. | Ratlam | 96 | 56 | 71 | 72 | 95 |
| 24. | Khandwa | 96 | 46 | 57 | 73 | 99 |
| 25. | Mandsaur | 93 | 25 | 61 | 37 | 96 |
| 26. | Dewas | 91 | 22 | 30 | 72 | 99 |
| 27. | Ujjain | 90 | 38 | 49 | 65 | 98 |
| 28. | Tikamgarh | 86 | 58 | 69 | 89 | 98 |
| 29. | Anuppur | 83 | 40 | 41 | 60 | 100 |
| 30. | Agar | 83 | 39 | 40 | 86 | 100 |
| 31. | Datia | 80 | 78 | 83 | 88 | 88 |
| 32. | MADHYA PRADESH | 77 | 51 | 67 | 73 | 96 |
| 33. | Sehore | 75 | 74 | 83 | 90 | 100 |
| 34. | Neemuch | 70 | 61 | 75 | 83 | 99 |
| 35. | Sheopur | 67 | 64 | 98 | 99 | 67 |
| 36. | Barwani | 67 | 86 | 97 | 86 | 100 |
| 37. | Umaria | 60 | 2 | 4 | 50 | 96 |
| 38. | Morena | 56 | 79 | 99 | 80 | 100 |
| 39. | Rewa | 50 | 0 | 83 | 0 | 100 |
| 40. | Rajgarh | 40 | 44 | 44 | 97 | 100 |
| 41. | Jhabua | 29 | 44 | 44 | 100 | 100 |
| 42. | Sidhi | 19 | 43 | 43 | 48 | 95 |
| 43. | Chhatarpur | 13 | 100 | 100 | 100 | 100 |
| 44. | Bhind | | | | | |
| 45. | Sagar | | | | | |
| 46. | Satna | | | | | |
| 47. | Singrouli | | | | | |
| 48. | Dhar | | | | | |
| 49. | Indore | | | | | |
| 50. | Mandla | | | | | |
| 51. | Katni | | | | | |

Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical, and bacteriological as given in Table 6 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

Across the state, one-third (33 percent) of the sampled households reported that employment days increased since the installation of FHTC. Similarly, about 74 percent of the sampled households also reported that the effort and time in collecting water reduced after installation of FHTC.

Figure 58: Perception of HHs in Har Ghar Jal villages



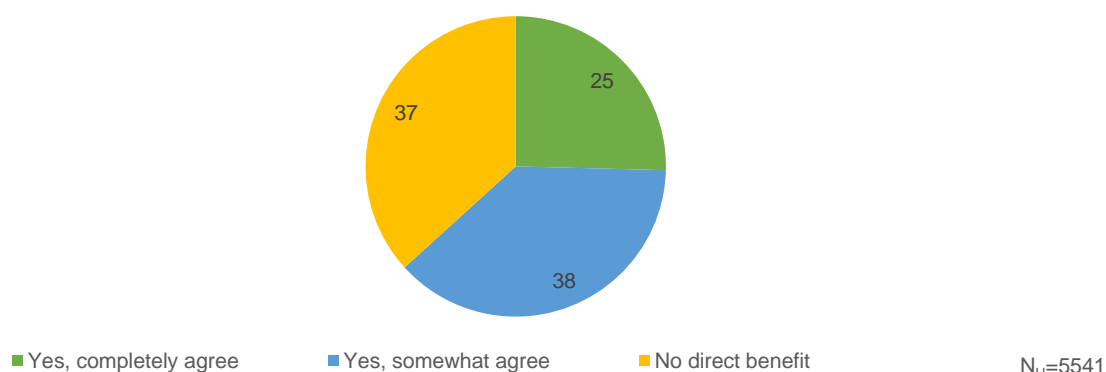
| S. No. | District (N _H =5541) | Households with increase in employment days (%HH) | Households with reduction in time & effort in collecting water (%HH) |
|--------|---------------------------------|---|--|
| 1. | Bhind | 0 | 3 |
| 2. | Ashoknagar | 0 | 100 |
| 3. | Dindori | 0 | 100 |
| 4. | Chhatarpur | 1 | 41 |
| 5. | Singrouli | 1 | 84 |
| 6. | Katni | 2 | 48 |
| 7. | Panna | 6 | 100 |
| 8. | Khargone | 6 | 72 |
| 9. | Guna | 6 | 30 |
| 10. | Sagar | 9 | 32 |
| 11. | Rewa | 11 | 94 |
| 12. | Niwari | 12 | 92 |
| 13. | Bhopal | 13 | 13 |
| 14. | Morena | 16 | 66 |
| 15. | Chhindwara | 17 | 98 |
| 16. | Jhabua | 19 | 73 |
| 17. | Betul | 22 | 99 |
| 18. | Rajgarh | 22 | 43 |
| 19. | Indore | 24 | 66 |
| 20. | Narsinghpur | 24 | 82 |
| 21. | Anuppur | 26 | 67 |
| 22. | Datia | 27 | 68 |
| 23. | Agar | 27 | 61 |
| 24. | Sidhi | 28 | 25 |
| 25. | Shajapur | 28 | 74 |
| 26. | Khandwa | 28 | 74 |
| 27. | Damoh | 30 | 85 |
| 28. | Burhanpur | 30 | 93 |
| 29. | Seoni | 31 | 94 |
| 30. | Tikamgarh | 32 | 74 |
| 31. | Dhar | 32 | 39 |
| 32. | MADHYA PRADESH | 33 | 74 |
| 33. | Sehore | 38 | 77 |
| 34. | Dewas | 38 | 93 |

| Table No. 16: Perception of HHs on outcome indicators in Har Ghar Jal villages (in %) | | | |
|--|--------------------------------------|--|---|
| S. No. | District (N_H=5541) | Households with increase in employment days (%HH) | Households with reduction in time & effort in collecting water (%HH) |
| 35. | Sheopur | 40 | 78 |
| 36. | Hoshangabad | 41 | 48 |
| 37. | Shivpuri | 41 | 100 |
| 38. | Harda | 42 | 94 |
| 39. | Umaria | 42 | 33 |
| 40. | Balaghat | 44 | 69 |
| 41. | Satna | 50 | 100 |
| 42. | Mandla | 50 | 53 |
| 43. | Mandsaur | 55 | 95 |
| 44. | Barwani | 56 | 60 |
| 45. | Shahdol | 57 | 90 |
| 46. | Raisen | 60 | 90 |
| 47. | Ujjain | 62 | 64 |
| 48. | Vidisha | 63 | 55 |
| 49. | Ratlam | 66 | 98 |
| 50. | Neemuch | 70 | 94 |
| 51. | Jabalpur | 89 | 94 |

4.3. Direct benefits in terms of income due to FHTC

Across the nation, 25 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 38 percent reported being in partial agreement against the same.

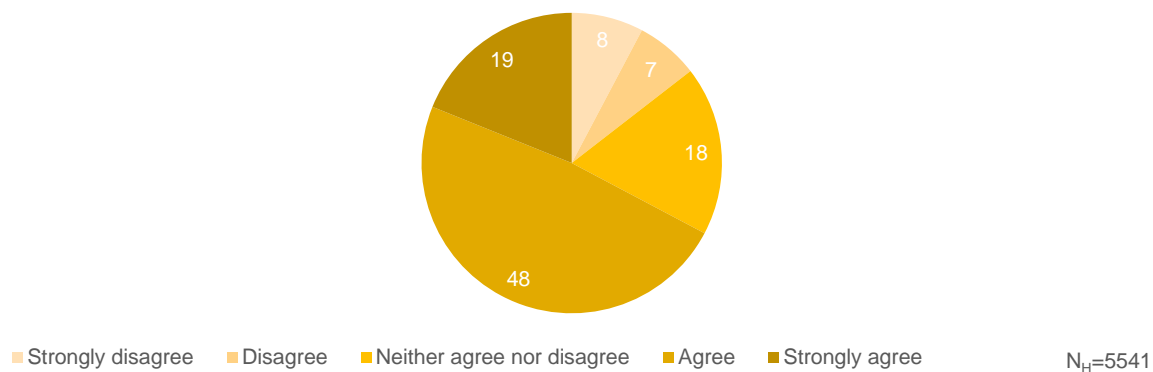
Figure 59: Households reported to have received direct benefits in terms of income due to FHTC in Har Ghar Jal districts



4.4. Change in social status

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

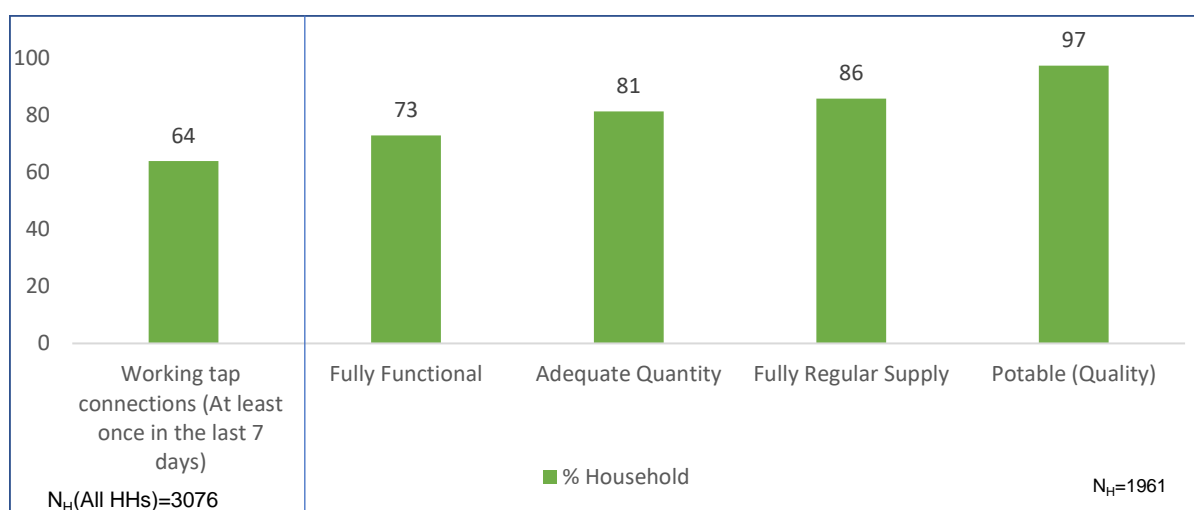
Figure 60: Households reported to have a positive change in social status in Har Ghar Jal districts



5. Status of functionality in aspirational districts

5.1. Overall Functionality (in %)

Figure 61: Functionality of HH tap connection for aspirational districts



* 'Functionality' has been computed as = Quantity \cap Regularity

Please note: For aspirational district, N_H=1961 implies all HHs where water was found on the day of the survey.

It has been found that 64 percent of the sampled HHs (N=3076) had working tap connections. 73 percent HHs in the state were found to have fully functional HH tap water connection. Moreover, more than 8 out of 10 of the households (81 percent) received adequate quantity (≥ 55 LPCD) of water supply and more than four-fifth of the sampled households received regular supply (86 percent) of water. The on-site testing and lab test results of the water indicates that more than 9 out of 10 (97%) 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. | Vidisha | 100 | 85 | 93 | 95 | 91 |
| 2. | Guna | 95 | 88 | 89 | 100 | 100 |
| 3. | Damoh | 91 | 72 | 76 | 82 | 99 |
| 4. | Khandwa | 84 | 52 | 70 | 71 | 96 |
| 5. | Barwani | 70 | 69 | 73 | 82 | 100 |
| 6. | MADHYA PRADESH | 64 | 74 | 81 | 86 | 97 |
| 7. | Raigarh | 50 | 69 | 80 | 85 | 100 |
| 8. | Chhatarpur | 22 | 73 | 98 | 74 | 100 |
| 9. | Singrouli | | | | | |

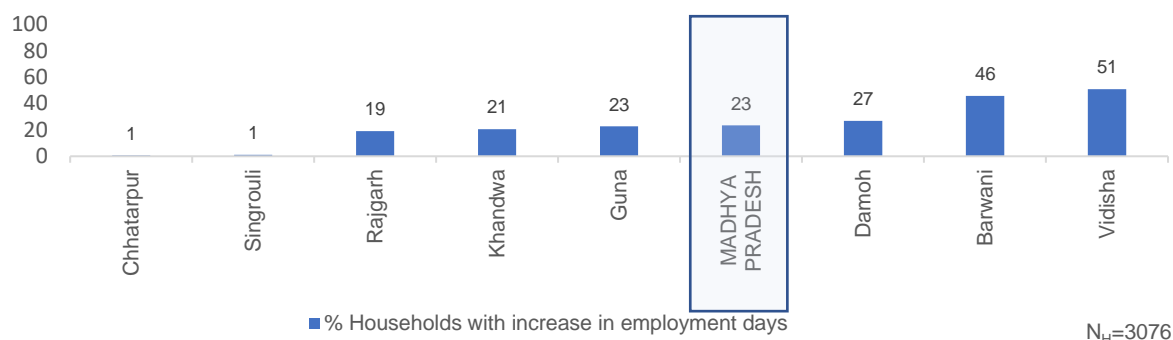
Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical, and bacteriological as given in Table 6 parameters (within acceptable/ permissible range) and onsite testing of pH. The details of laboratory test are mentioned in the table given above in the glossary.

5.2. Perception of HHs from aspirational districts on Outcome Indicators

A. Change in employment days since FHTC programmes/schemes

Only around 23 percent of the households in aspirational districts reported increase in employment days since installation of FHTC.

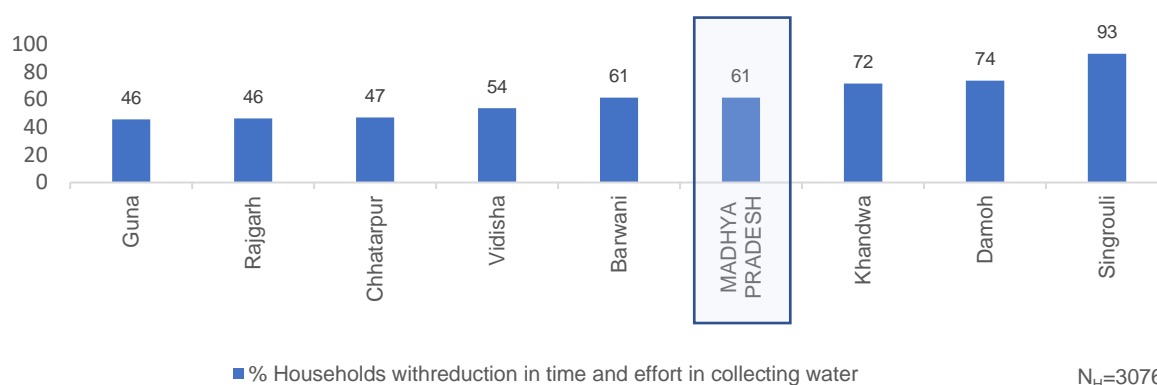
Figure 62: Household reported a change in employment days since FHTC programmes /schemes in Aspirational districts



B. Reduction in time and effort in collecting water

Only around 61 percent of the households in aspirational districts reported reduction in time and effort in collecting water.

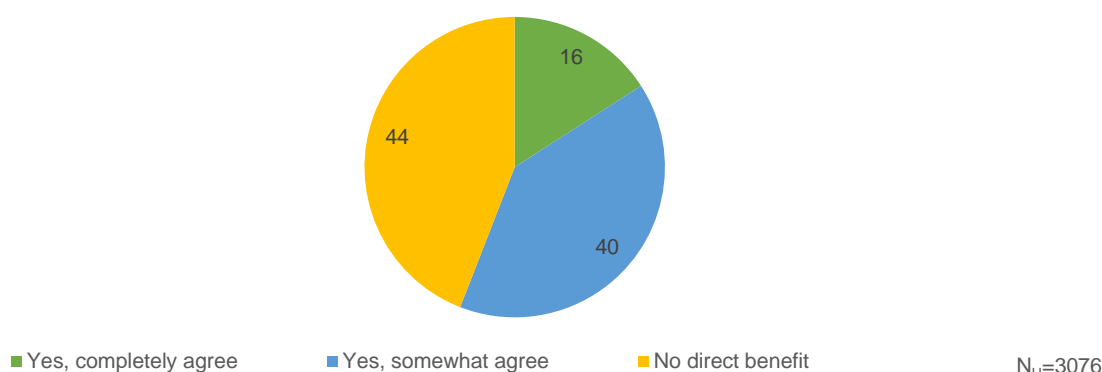
Figure 63: Households reported reduction in time and effort in collecting water in Aspirational districts



5.3. Direct benefits in terms of income due to FHTC

Across the state, 16 percent 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 40 percent reported being in partial agreement against the same.

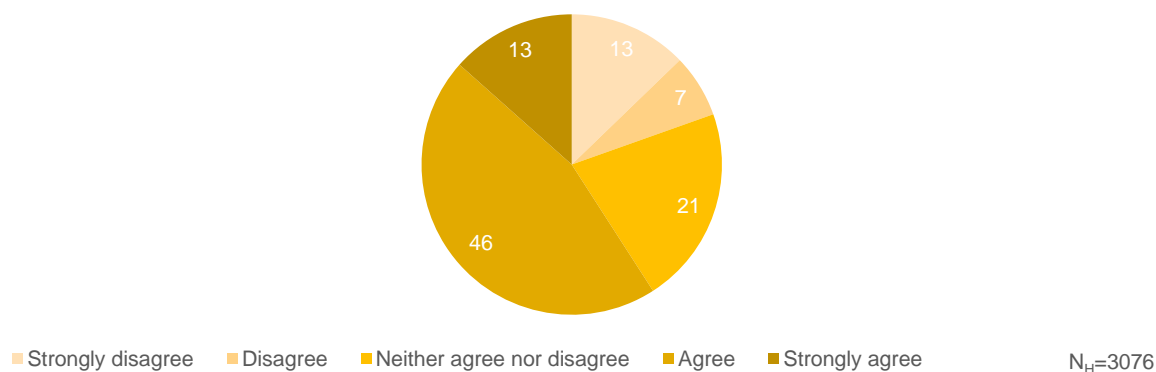
Figure 64: Households reported to have received direct benefits in terms of income due to FHTC in Aspirational districts



5.4. Change in social status

Three-fifth (59 percent) 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 65: Households reported to have a positive change in social status in Aspirational districts



6. Annexure

| Table No. 18: List of replaced villages | | | | |
|--|----------------------|---------------------|--|---|
| S. No. | District Name | Village Name | Status of the Scheme (No Scheme/Replaced & Defunct) | Remarks |
| 1 | Morena | Thara | No Scheme / Defunct Scheme | No Scheme present in the sampled village, hence replaced with Village- Kirrayach. Scheme found to be defunct in replacement village |
| 2 | Morena | Naka | No Scheme / Defunct Scheme | No Scheme present in the sampled village, hence replaced with Village- Bareh. Scheme found to be defunct in replacement village |
| 3 | Morena | Nawali Badagaon | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Sumawali. Scheme found to be functional in replacement village |
| 4 | Morena | Kaimara | No Scheme / Defunct Scheme | No Scheme present in the sampled village, hence replaced with Village- Jai Nagar Chokhuti. Scheme found to be defunct in replacement village |
| 5 | Morena | Budha Sirthara | No Scheme / Defunct Scheme | No Scheme present in the sampled village, hence replaced with Village- Arhela. Scheme found to be defunct in replacement village |
| 6 | Morena | Digwar | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Alapur. Scheme found to be functional in replacement village |
| 7 | Morena | Mangrol | No Scheme / Defunct Scheme | No Scheme present in the sampled village, hence replaced with Village- Chamargawan. Scheme found to be defunct in replacement village |
| 8 | Shivpuri | Raipur | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Budi Barod (Patkhed). Scheme found to be functional in replacement village |
| 9 | Shivpuri | Singhanwas | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Manakpur. Scheme found to be functional in replacement village |
| 10 | Shivpuri | Mohrai | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Saloda. Scheme found to be functional in replacement village |
| 11 | Shivpuri | Shergarh | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Tidhari. Scheme found to be functional in replacement village |
| 12 | Shivpuri | Himmatpur Damron | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Jaray. Scheme found to be functional in replacement village |
| 13 | Guna | Chakdevpur | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Tarawta. Scheme found to be functional in replacement village |
| 14 | Niwari | Kaithau Pahari | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Kachhipura. Scheme found to be functional in replacement village |
| 15 | Chhatarpur | Prakash Bamhauri | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Reona. Scheme found to be functional in replacement village |
| 16 | Chhatarpur | Ghura | No Scheme / Defunct Scheme | No Scheme present in the sampled village, hence replaced with Village- Hakimpura. Scheme found to be defunct in replacement village |
| 17 | Chhatarpur | Bari | No Scheme / Defunct Scheme | No Scheme present in the sampled village, hence replaced with Village- Dikoli. Scheme found to be defunct in replacement village |
| 18 | Mandsaur | Khajurichandrawat | No Scheme / Defunct Scheme | No Scheme present in the sampled village, hence replaced with Village- Sakhtali. Scheme found to be defunct in replacement village |

| Table No. 18: List of replaced villages | | | | |
|--|----------------------|---------------------|--|---|
| S. No. | District Name | Village Name | Status of the Scheme (No Scheme/Replaced & Defunct) | Remarks |
| 19 | Ratlam | Talidana | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Naulakha. Scheme found to be functional in replacement village |
| 20 | Ratlam | Laptiya | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Martandganj. Scheme found to be functional in replacement village |
| 21 | Ujjain | Choki Junarda | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Jalodiya. Scheme found to be functional in replacement village |
| 22 | Ujjain | Nazarpur | No Scheme / Defunct Scheme | No Scheme present in the sampled village, hence replaced with Village- Ishakpur. Scheme found to be defunct in replacement village |
| 23 | Agar | Bardiya Jogi | No Scheme / Defunct Scheme | No Scheme present in the sampled village, hence replaced with Village- Semali. Scheme found to be defunct in replacement village |
| 24 | Agar | Kumhariya Agar | No Scheme / Defunct Scheme | No Scheme present in the sampled village, hence replaced with Village- Ladwan. Scheme found to be defunct in replacement village |
| 25 | Shajapur | Dhabla Dheer | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Ronsi. Scheme found to be functional in replacement village |
| 26 | Dewas | Khokariya | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Sukalya. Scheme found to be functional in replacement village |
| 27 | Dewas | Thuriya | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Bhawana. Scheme found to be functional in replacement village |
| 28 | Dewas | Pipalyanankar | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Khal. Scheme found to be functional in replacement village |
| 29 | Alirajpur | Amla | No Scheme / Defunct Scheme | No Scheme present in the sampled village, hence replaced with Village- Keldi Ki Mal. Scheme found to be defunct in replacement village |
| 30 | Indore | Gajinda | No Scheme / Defunct Scheme | No Scheme present in the sampled village, hence replaced with Village- Asrawad Khurd. Scheme found to be defunct in replacement village |
| 31 | Rajgarh | Todi | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Gindor Meena. Scheme found to be functional in replacement village |
| 32 | Vidisha | Gondkhedi Mar | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Rojroo. Scheme found to be functional in replacement village |
| 33 | Vidisha | Mungwara | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Noulas. Scheme found to be functional in replacement village |
| 34 | Vidisha | Behlot | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Chack Raghunathpur. Scheme found to be functional in replacement village |
| 35 | Vidisha | Ahemdanagar | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Dhaturiya Haweli. Scheme found to be functional in replacement village |
| 36 | Vidisha | Palki | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Hamidpur. Scheme found to be functional in replacement village |
| 37 | Bhopal | Surajpura | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Hinoti Sadak. Scheme found to be functional in replacement village |

| Table No. 18: List of replaced villages | | | | |
|--|----------------------|---------------------|--|--|
| S. No. | District Name | Village Name | Status of the Scheme (No Scheme/Replaced & Defunct) | Remarks |
| 38 | Bhopal | Nalkheda | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Pathariya. Scheme found to be functional in replacement village |
| 39 | Bhopal | Balampur | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Bangarasia. Scheme found to be functional in replacement village |
| 40 | Sehore | Shahpura | No Scheme / Defunct Scheme | No Scheme present in the sampled village, hence replaced with Village- Satumadi (Sattumadi). Scheme found to be defunct in replacement village |
| 41 | Betul | Aamdhana Fv | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Gudgaon. Scheme found to be functional in replacement village |
| 42 | Narsinghpur | Dungariya Chandal | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Bhama. Scheme found to be functional in replacement village |
| 43 | Mandla | Jhurki. | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Katra. Scheme found to be functional in replacement village |
| 44 | Chhindwara | Jurtara | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Dungaria. Scheme found to be functional in replacement village |
| 45 | Chhindwara | Ghat Kamth | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Kapurkheda. Scheme found to be functional in replacement village |
| 46 | Balaghat | Ladsada | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Lalpur. Scheme found to be functional in replacement village |
| 47 | Balaghat | Gohara | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Padriganj. Scheme found to be functional in replacement village |
| 48 | Balaghat | Bisoni | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Bolegaon. Scheme found to be functional in replacement village |
| 49 | Sheopur | Balawani | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Dhamini. Scheme found to be functional in replacement village |
| 50 | Sheopur | Behdawad | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Kinnapura. Scheme found to be functional in replacement village |
| 51 | Barwani | Bhami | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Sajwani Kham. Scheme found to be functional in replacement village |
| 52 | Dindori | Bhusanda Mal. | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Roosa Mal.. Scheme found to be functional in replacement village |
| 53 | Dindori | Shobhapur Mal. | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Sukalpura Mal.. Scheme found to be functional in replacement village |
| 54 | Dindori | Pondi Mal | No Scheme | No Scheme present in the sampled village, hence replaced with Village- Ballarpur Mal.. Scheme found to be functional in replacement village |