Functionality Assessment of Household Tap Connections - 2022

Jal Jeevan Mission

National Report

Har Ghar Jal
Jal Jeevan Mission

सत्यमेव जयते

पेयजल एवं स्वच्छता विभाग
जल शक्ति मंत्रालय
भारत सरकार

DEPARTMENT OF DRINKING WATER AND SANITATION
MINISTRY OF JAL SHAKTI
GOVERNMENT OF INDIA

KANTAR PUBLIC

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Abbreviations

AD	Aspirational Districts
A&N Islands	Andaman & Nicobar Islands
AP	Andhra Pradesh
AWC	Anganwadi Centre
BMI	Bio-Medical Informatics
CAG	Central Advisory Group
CAPI	Computer-Assisted Personal Interviewing
CWPP	Community Water Purification Plant
DDWS	Department of Drinking Water and Sanitation
D&NH and D&D	Dadar & Nagar Haveli and Daman & Diu
FA	Functionality Assessment
FHTC	Functional Household Tap Connection
FTK	Field Test Kit
FY	Financial Year
GoI	Government of India
GP	Gram Panchayat
HDPE	High-Density Polyethylene
HF	Health Facility
HHs	Households
HGJ	Har Ghar Jal
HP	Himachal Pradesh
HTA	Hindustan Thompson Associates Private Limited
ICMR	Indian Council of Market Research
J&K	Jammu and Kashmir
JE-AES	Japanese Encephalitis - Acute Encephalitis Syndrome
JJM	Jal Jeevan Mission
LPCD	Litres per Capita per Day
Mg	Milligram
MoE	Margin of Error
MP	Madhya Pradesh
MVS	Multi-village Scheme
NABL	National Accreditation Board for Laboratories
NJJM	National Jal Jeevan Mission
NRDWP	National Rural Drinking Water Programme
NTU	Nephelometric Turbidity Unit
RC	Residual Chlorine
O&M	Operation and Maintenance
ODF	Open Defecation Free
OHT	Over Head Tank
PHED	Public Health Engineering Department
PPS	Population Proportionate to Size
PSU	Primary Sampling Unit
PWS	Piped Water Supply
QC	Quality Control
SBM	Swachh Bharat Mission

SC	Scheduled Caste
SDG	Sustainable Development Goals
ST	Scheduled Tribes
SVS	Single Village Scheme
ToT	Training of Trainers
TN	Tamil Nadu
UP	Uttar Pradesh
UT	Union Territories
VAP	Village Action Plan
vs	Versus
VWSC	Village Water and Sanitation Committee
WB	West Bengal
WQMIS	Water Quality Monitoring and Information System
w.r.t	With regards to

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 of prescribed quality on regular basis, as presented:

Definitions	Fully functional	Partially functional	Non-functional
Quantity	>= 55 LPCD	> 40 to < 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 Regularity –** 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 (as given in the Har Ghar Jal Operational Guideline):

Parameters for potable water tested in the survey		Unit	Acceptable Limit	**Permissible Limit** in the absence of alternative sources
i.	pH (tested on-site)	-	6.5 to 8.5	No relaxation
ii.	Free residual chlorine (tested on-site)	Mg/litre	0.2	1
iii.	Turbidity	NTU	1	5
iv.	Total hardness	Mg/litre	200	600
v.	Total alkalinity	Mg/litre	200	600
vi.	Chloride	Mg/litre	250	1000
vii.	Ammonia	Mg/litre	0.5	No relaxation
viii.	Phosphate	Mg/litre	0.3	1
ix.	Iron (in hotspots only)	Mg/litre	1	No relaxation
x.	Nitrate	Mg/litre	45	No relaxation
xi.	Sulphate	Mg/litre	200	400
xii.	Total dissolved solids	Mg/litre	500	2000
xiii.	Fluoride	Mg/litre	1	1.5
xiv.	Arsenic (in hotspots only)	Mg/litre	0.01	No relaxation
xv.	Bacteriological test for Total coliform bacteria and E. coli or thermotolerant coliform bacteria		Shall not be detectable in any 100 ml sample	

12. **Sampling** – Selection of a subset of individuals from within a statistical population to estimate water service delivery among the population. In the current study, households have been sampled to estimate the representation of the village and subsequently of the district as well as of the state.

13. **Types of schemes**: Following are the piped water supply schemes that were assessed
    a. Mini-solar based piped water supply scheme in isolated/tribal hamlets
    b. Single Village Scheme (SVS) in villages having adequate groundwater that needs treatment (having adequate groundwater/ spring water/ local or surface water source of prescribed quality)
    c. Retrofitting of ongoing schemes taken up under erstwhile National Rural Drinking Water Programme (NRDWP) for the last mile connectivity/ retrofitting of completed rural water supply schemes to make it JJM compliant
    d. 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 building, and government buildings.
18. **Working tap connection –** Working Tap Connections is the households (HHs) which received water through FHTC at least once in the last 7 days preceding the 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 August 15th, 2019, by the Hon'ble Prime Minister of India, taking a community approach to water, thereby making it everyone's priority. JJM envisions providing safe and adequate drinking water regularly through individual household tap connections by 2024 to all rural households in India. As part of its annual monitoring for the financial year 2021-22, the National Jal Jeevan Mission, Government of India (GoI) engaged HTA-Kantar Public to conduct the 'Assessment of the Functionality of Household Tap Connections (FHTC)' at households as well as village-level public institutions[1].

Assessment Design and Components:

Functionality assessment followed a cross-section research design wherein, all villages having a piped water scheme (PWS) with 20 or more household tap connections were identified from the Internal Monitoring Information System (IMIS) data as part of the sample frame. Using the sampling method of population proportionate to size (PPS) a sample of 13,303 villages of which 5,298 were Har Ghar Jal (HGJ) villages (40 percent) and 2,98,377 households were randomly selected. Additionally, 22,596 public institutions from the selected villages were covered as part of this assessment. Nationally, the assessment spanned 712 rural districts from 33 states and UTs (excluding Delhi, Chandigarh, and Lakshadweep).

The assessment included two components – a) village-level interviews with service providers and members of the village water, and sanitation committees (VWSCs) and water quality testing of public institutions and b) household (HH) interviews with adult members (across the head, mid, and tail end HHs under piper water schemes [PWS]), including measurement of water quantity and water quality, both on-site and off-site. On-site testing of water quality measured pH and residual chlorine. Water samples from HHs were collected and sent to the nearest NABL[2] accredited district labs (off-site) for testing the twelve critical quality parameters, i.e., turbidity, total hardness, total alkalinity, chloride, ammonia, iron, nitrate, sulphate, total dissolved solids, bacteriological test, arsenic, and fluoride.

The findings from this FHTC assessment, 2022 are summarized in the following sub-sections.

Current Status of Tap Connections:

Nationally, 86 percent of the HH tap connections were found to be working on the day of the survey. Out of which more than four out of five HHs (85 percent) received adequate quantity, i.e., more than 55 Litres per capita per Day (LPCD), fully regular supply (80 percent), and potable (87 percent) water. The intersection of these parameters of adequate quantity (>55 LPCD of water), full regularity, and quality (potability) are taken to define the functionality of the HH tap water connection. The assessment finds that 62 percent of the HHs receive fully functional tap water connections within the premises.

Supply of water: Close to three-fourths of the HHs (74 percent) received water all 7 days a week. Out of the remaining 26 percent, 4 percent received water for 5-6 days in a week, 14 percent received at least 3-4 days in a week, and the balance 8 percent received water only

[1] Public institution such as schools, Anganwadi Centres (AWCs), gram panchayat buildings, public health facilities

[2] National Accreditation Board for Testing and Calibration Laboratories (NABL) is an accreditation body, with its accreditation system established in accordance with ISO/ IEC 17011. NABL has been established with the objective of providing the Government, Industry Associations, and Industry in general with a scheme of Conformity Assessment Body's accreditation which involves third-party assessment of the technical competence of testing, including medical and calibration laboratories, proficiency testing providers, and reference material producers.

once a week. The average duration per day supply has been found to be three hours. Four out of five (80 percent) households reported that their daily requirements of water are being met by the HH tap connections.

Water quality testing: Water samples from 2,59,151 households and 16,148 public institutions were collected (based on the availability of water from the HH tap connection on the day of the survey) and sent to the district-level NABL accredited laboratories (labs) for testing of water quality. Nationally these labs could provide the results only for 83 percent of the submitted samples. The district-level labs currently have a capacity to test 30-40 samples within 24 hours given the shortage of trained technicians and unavailability of necessary reagents. On average, for most of the water samples submitted the turnaround time for testing quality parameters was more than 48 hours. A hundred percent of the submitted samples could not be tested for this round of assessment. The feedback from the laboratories also confirms their limited scope to take up samples from the public at large on a regular basis.

The on-site testing of water quality for pH shows that 95 percent of the HHs are within acceptable limits of pH values. In more than 96 percent of the public institutions (AWC, HF, schools, etc.), pH was found within acceptable limits.

Overall 93 percent of the water samples were found to be free of bacteriological contamination. However, in about one-fourth (24 percent) of the HHs permissible traces of residual chlorine were found, which could be concerning in the advent of any sudden incident of bacteriological contamination. In most of the AWCs and schools, the traces of residual chlorine were found to be higher than the permissible range indicating inappropriate localized dosing of chlorine for purification, which could be hazardous. The presence of residual chlorine within permissible limits is an indicator of a well-maintained and healthy piped water supply system. Thus, there is a need to monitor the correct dosing of chlorine in the pipe water supply system. It will be good to educate the service providers and the VWSC members on this aspect.

More than 90 percent of the village-level institutions were found to receive potable water.

More than half (57 percent) of the sampled households reported purifying water before drinking. Purifying methods range from boiling, stand and settle, and strain using a cloth to use of alum, treat with chemicals, water filters, and RO treatment. However, no more than 3 percent of the HHs reported using RO treatment for water purification prior to drinking.

Status of Service Delivery Parameters:

Age-wise functionality of the schemes indicates improvement in ‘always functional’ schemes and a decrease in the ‘non-functional scheme’ is observed across states since 2012. A 5-percentage point improvement in a fully functional scheme was seen from 2012 to 18. Since 2019 the same trend has been maintained.

It was found that 38 percent of the villages have constituted a VWSC or a Pani Samiti out of which 40 percent reported inclusion of more than 50 percent female members as mandated in the JJM Operational Guidelines. However, only in 14 percent of the villages, the VWSC/ Pani Samiti was found to be responsible for the operation and maintenance (O&M) of the pipe water supply.

About 31 percent of villages reported to have identified skilled manpower for O&M of PWS schemes. About 10 percent of villages reported having faced challenges with respect to O&M of PWS schemes in the last year.

The availability of field test kits for measuring water quality is challenging. Just around one-third (30 percent) of the villages reported the availability of field test kits for measuring water quality. And almost one-third of the villages reported having either VWSC/Pani Samiti or Pump Operators trained to use field test kits for testing the quality of water on-site.

Slightly more than one-third (35 percent) HHs reported paying service delivery charges for receiving water through FHTC. Overall, 71 percent of HHs reported their awareness of a grievance redressal mechanism with respect to HH tap water supplied through PWS. Yet only 5 percent HHs have reported having filed a complaint in the last year, and just 3 percent had their complaints resolved. Among those who reported complaints (i.e., 5 percent HHs), a majority (62 percent) did so to the pump operators besides other reporting channels. There is low awareness and use of the national helpline for reporting complaints.

Perceived Impact of FHTC:

Nationally more than four out of five HHs (83 percent) reported being satisfied with the regularity of supply, quality (82 percent), colour (84 percent), and the taste (83 percent) of the water received through the tap connection.

About 2 percent HHs reported having any incidence(s) of water-borne diseases in the last year.

Since the installation of a functional HH tap connection, almost one-third (31 percent) HHs reported that there had been a positive change in the number of employment days of the adult HH members.

Out of the HHs (i.e., 1,98,428) where female members used to fetch water prior to the installation of the HH tap connection, more than three-fourths (79 percent) reported a reduction in drudgery in the collection of water after the installation of the tap connections.

More than one-fourth (26 percent) of the HHs reported that since the installation of a functional HH tap connection the attendance of the girls going to school increased.

About two-thirds (66 percent) of the HHs reported that since getting a functional HH tap connection, their income had directly benefitted.

Functionality Status for Har Ghar Jal (HGJ) Villages:

Under the Har Ghar Jal villages, 91 percent of the HHs were found to have a working tap connection on the day of the survey, which is relatively higher than the overall national proportion (86 percent). Out of which 88 percent received adequate quantity (>55 LPCD of water), 84 percent received a fully regular supply, and 90 percent received potable water through household tap connections. Overall, 69 percent of the households were found to have fully functional tap connections, which is relatively higher than the overall national proportion (62 percent).

Functionality Status of Aspirational Districts:

Among the aspirational districts covered in this assessment, 78 percent of the households were found to have a working tap connection on the day of the survey, which is relatively lower than the overall national proportion (86 percent). Out of which 85 percent received adequate quantity (>55 LPCD of water), 77 percent received a fully regular supply, and 88 percent received potable water through household tap connections. Overall, 62 percent of the households were found to have fully functional tap connections.

Functionality Status of JE-AES Districts:

Among the JE-AES districts covered in this assessment, 79 percent of households were found to have a working tap connection on the day of the survey, which is relatively lower than the overall national proportion (86 percent). Out of which 95 percent received adequate quantity (>55 LPCD of water), 80 percent received a fully regular supply, and 89 percent received potable water through household tap connections. Overall, 69 percent of the households were found to have fully functional tap connections, which is relatively higher than the overall national proportion (62 percent).

Recommendations:

To further strengthen the coverage and implementation of the FHTC, the following recommendations emerge from the findings of the current round of assessment.

- There is a need to strengthen community involvement by scaling-up participation of VWSCs/ Pani Samitis, and capacities, especially in the management of O&M across all States and UTs.
- O&M needs to be addressed seriously and streamlined and strengthened, especially in the context of sustainability. Possibly, a good monitoring system would be useful. Focused efforts to identify and train people for O&M of pipe water supply schemes across all States and UTs on priority to ensure improved upkeep of services on the ground. This may need the development of panels of such skilled persons at the village/district level. Demand creation through community involvement would be ideal and focusing on IEC / SBCC would help in the scheme's sustainability in the longer run.
- Water quality issues viz. Turbidity, Bacteriological contamination, Iron, Nitrate, fluoride, and Arsenic have been found in HH-level water samples. Urgent remedial action for the same must be taken to keep people's support for the scheme and to improve the overall potability of water supplied under FHTC. These efforts need to be highlighted as part of on-the-ground communication, for people to know that tap water is safe for drinking. Continuous evaluation of communication will ensure better uptake. Proper and regular review at the district/ panchayat level would strengthen the system.
- Regular and correct chlorination arrangements are to be ensured for a bacteriologically free water supply. Provide regular availability of field test kits and training of service providers to ensure regular on-site testing of the water quality supplied.
- Strengthen the district-level lab infrastructure as per the mandate to be able to regularly monitor the quality of water.

The functional household tap connections scheme is a solution to provide adequate, regular, and safe water to all rural households and to significantly improve the quality of life, particularly of women and children, and assist in open defecation-free sustainability (ODF+) as water is important to sustain Swachh Bharat Mission's gains.

Chapter-1: National Factsheet

1. National Factsheet

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

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

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

[3] Regularity is receiving water for 12 months daily basis or as per schedule

[4] 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.

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

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

Functionality status of tap connection at households in JE-AES Districts	India
Working tap connections- HHs which received water through tap connection at least once in last 7 days (%)	79
Quantity of water received by households	
Adequate quantity (>55 LPCD) (%)	95
Partially adequate quantity (> 40 LPCD - < 55 LPCD) (%)	2
Inadequate quantity (<40 LPCD) (%)	3
Regularity of water received by households	
Fully Regular Supply (as per schedule) (%)	80
Partially Regular Supply (not as per schedule) (%)	13
Irregular Supply (less than 9 months' supply) (%)	7
Potable (Quality) water received by households (%)	89
Overall functionality (%)	69

Table 1: State wise functionality status of tap connection at households					
State/UT	Working tap connections (HHs which received water through FHTC at least once in the last 7 days) (% HH)	Adequate Quantity (% HH)	Full Regular Supply (% HH)	Potable (Quality) (% HH)	Overall (% HH)
Base (HHs)	3,01,389[6]	2,59,151[7]	2,59,151	2,59,151	2,59,151
INDIA	**86**	**85**	**80**	**87**	**62**
A&N Islands	100	48	85	90	40
Andhra Pradesh	98	92	79	90	68
Arunachal Pradesh	96	98	85	93	79
Assam	81	78	73	91	58
Bihar	89	97	84	94	78
Chhattisgarh	55	89	85	89	71
DNH & DD	100	89	89	100	78
Goa	100	97	93	90	81
Gujarat	99	87	88	89	71
Haryana	98	82	83	76	55
HP	97	95	87	98	82
J&K	97	84	70	86	53
Jharkhand	49	83	70	86	55
Karnataka	99	82	84	80	58
Kerala	99	97	76	53	40
Ladakh	64	78	80	97	59
MP	65	66	67	96	47
Maharashtra	93	68	75	81	43
Manipur	100	62	57	92	40
Meghalaya	95	94	93	87	77
Mizoram	100	66	79	94	47
Nagaland	97	68	81	93	55
Odisha	68	84	69	88	54
Puducherry	100	100	99	89	88
Punjab	95	96	82	94	77
Rajasthan	100	59	66	82	38
Sikkim	100	92	89	57	48
TN	100	94	93	97	86
Telangana	100	92	93	95	80
Tripura	100	96	94	44	41
UP	59	88	67	91	57
Uttarakhand	82	93	71	92	63
WB	100	97	90	76	68

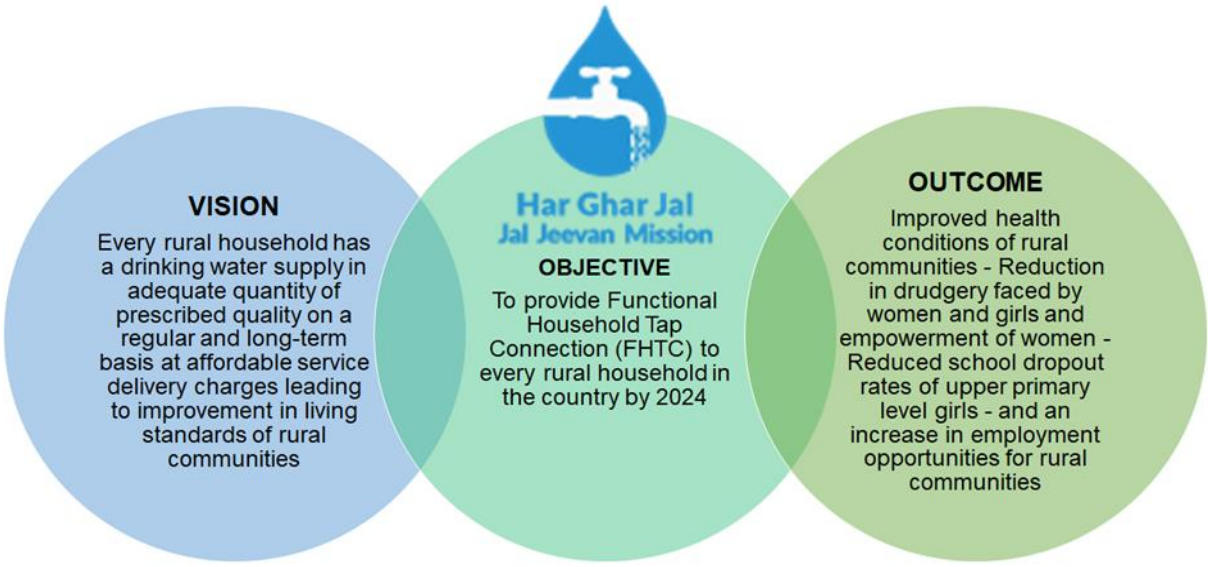
[6] All households covered in the survey
[7] Households where water was found on the day of survey

Chapter-2: Context

2. Context

Jal Jeevan Mission (JJM) was launched on August 15th, 2019, by the Hon'ble Prime Minister of India, taking a community approach to water, thereby making it everyone's priority. JJM envisions providing safe and adequate drinking water regularly through individual household tap connections by 2024 to all rural households in India.

Figure 1. Har Ghar Jal (HGA)



In accordance with the overall objectives in the Operational Guidelines[8] for the implementation of the National Jal Jeevan Mission (NJJM), Government of India (GoI) carried out a sample survey to assess the functionality of household tap connections. And 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, Anganwadi Centers (AWCs), gram panchayat buildings, public health facilities, and wellness centres in all the rural districts for the financial year 2021-22.

2.1 National snapshot

National Status – JJM as per Integrated Monitoring Information System (IMIS), as on 1st Dec 2021:

- 712 rural districts (117 aspirational districts, 61 JE/AES affected districts, 315 SC/ST dominated* districts, 333 districts with iron contamination, 127 arsenic and 250 fluorides affected districts
- About 1.26 Lakh (19 percent) 'Har Ghar Jal' villages in 83 HGJ districts (having 100 percent HH coverage) across 11 states
- 50 percent, i.e., 3.02 lakh villages have PWS schemes
- 46 percent, i.e., 2.79 lakh villages have equal to, or more than 20 functional household tap connections (FHTCs)
- 45 percent of the total 19.22 crore rural households, i.e., 8.60 crores, have functional tap connections

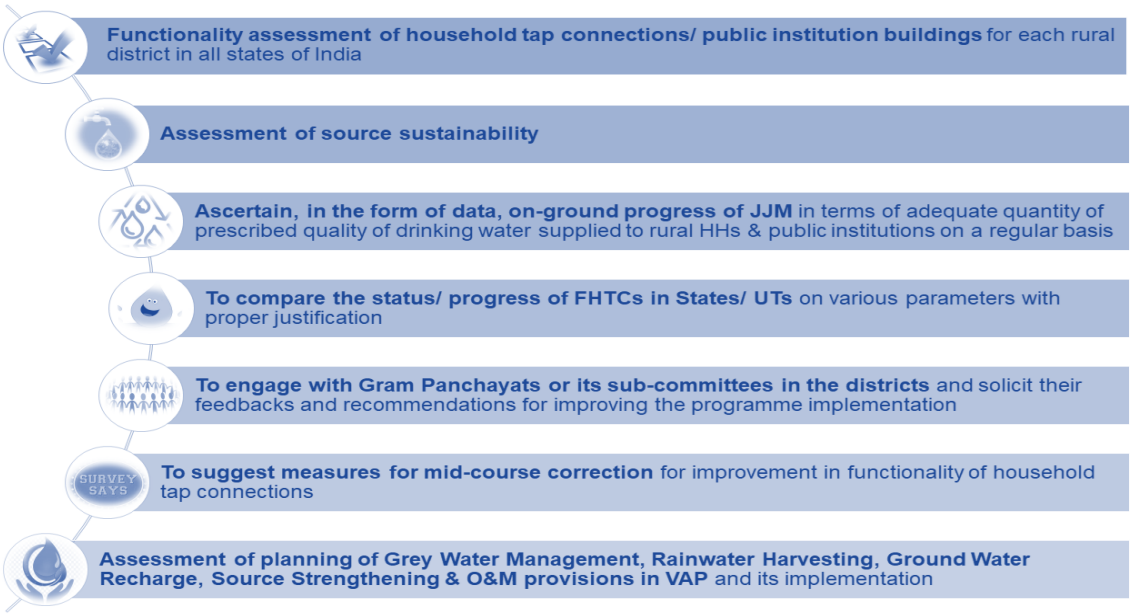
*Districts having ≥25 percent SC/ST population

[8] https://jaljeevanmission.gov.in/guidelines

2.2 FHTC Assessment Objectives

The overall objectives of the FHTC assessment are as presented:

Figure 2. Objectives of the assessment 2022

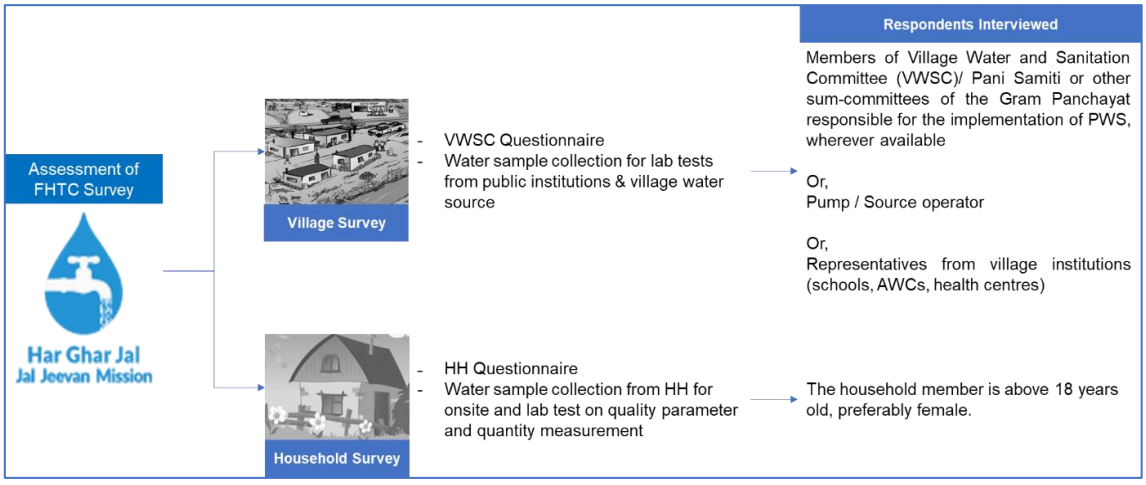


2.3 Assessment Methodology

A cross-section research design has been used for this functionality assessment study (2022). Quantitative data were collected from villages and households across all states/UTs using the CAPI (Computer Assisted Personal Interviewing) mode. 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 or 18 households were sampled to achieve the desired sample at the district level.

A Central Advisory Group (CAG) was formed by the Department of Drinking Water and Sanitation (DDWS) to provide guidance to the overall research team. The CAG provided advice and approvals on the overall research design, questionnaires for the survey, and the reports.

Figure 3. Survey components & respondents



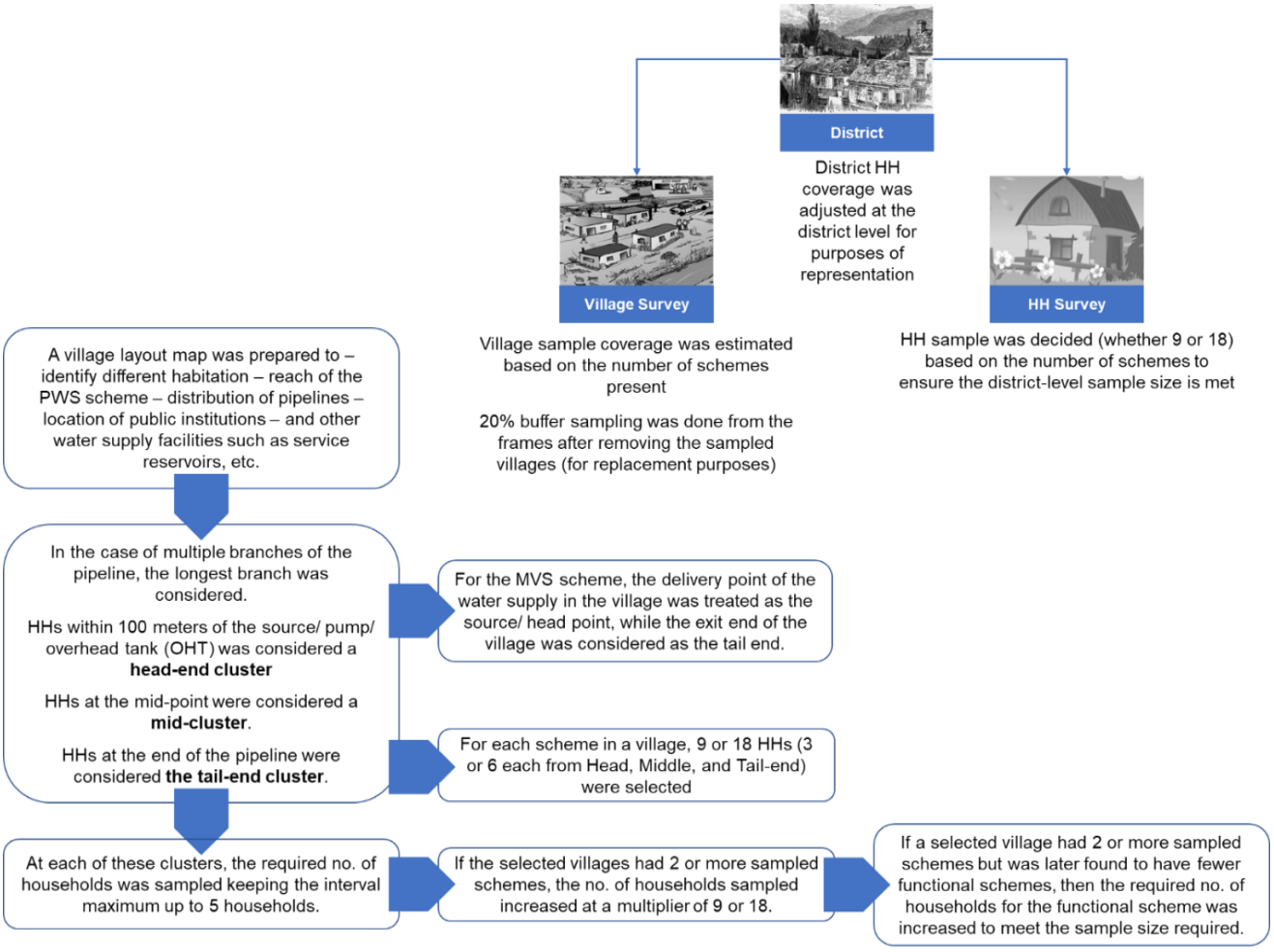
2.3.1 Sampling methodology

As per the design, approved by the CAG, 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 as presented:

Figure 4. Steps for village sampling

The key considerations for the village and household sampling were:

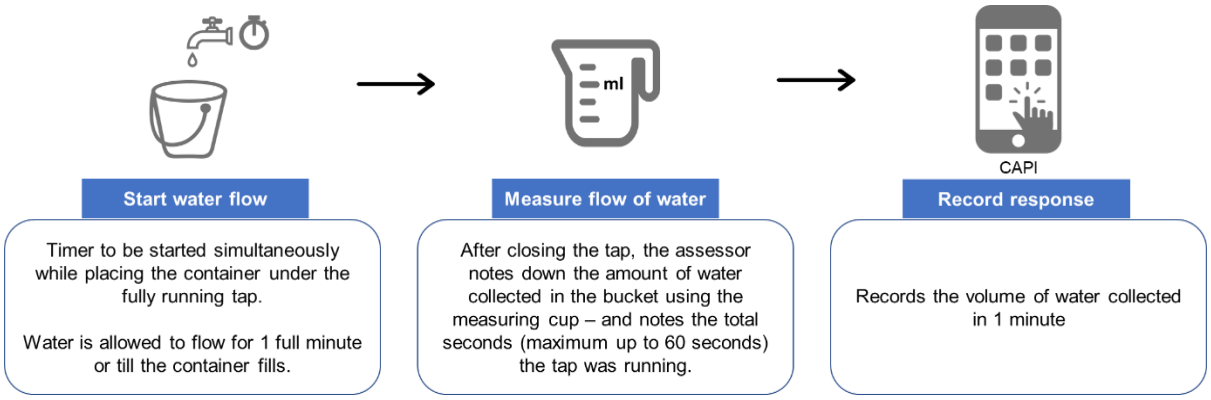
Figure 5. Sampling considerations – village & households



The record of all district-wise village replacements was maintained, and the list is presented in the annexure.

2.3.2 Methodology for water quantity measurement at households

Figure 6. Steps for measuring flowrate from supply-tap at HHs



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 described in Figure 6.

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

Step 1: Assessor first asked the village-level respondent and recorded length, breadth, and height of the storage tank.

Step 2: 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.

Step 3: The assessor then opened the valve of the connection and allowed the water to flow inside the storage for 10 minutes.

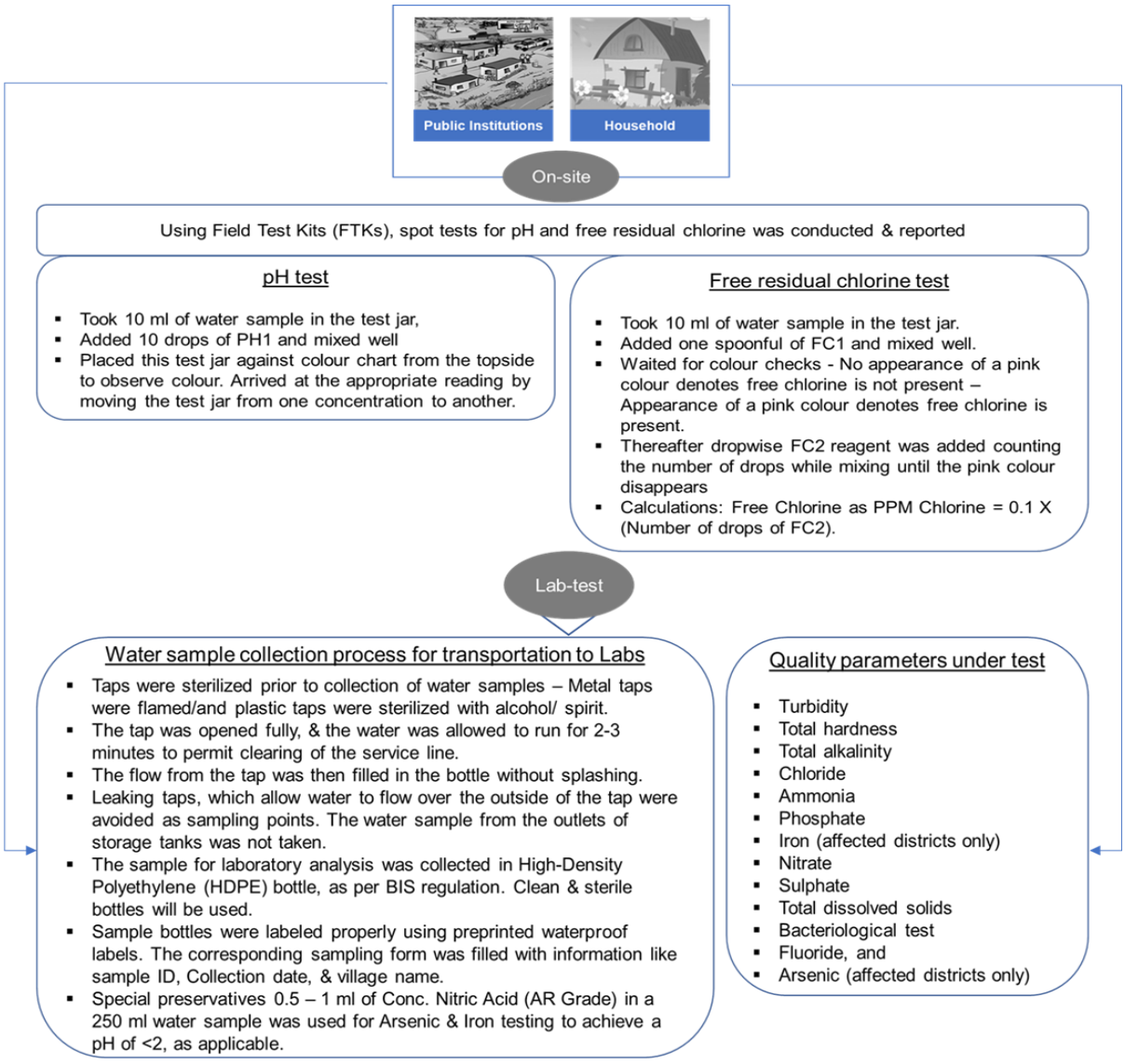
Step 4: After 10 mins, the valve was closed, and the assessor again dipped the rod and recorded the new height of the water inside the tank. Based on this new 'height', CAPI calculated the changed volume.

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.

2.3.3 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 centres, 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 as specified in Figure 7.

Figure 7. On-site & laboratory-based quality test



JJM, with the support of the Bio-medical Informatics (BMI) Division of Indian Council of Medical Research (ICMR), enabled a new interface on the Water Quality Monitoring Information Systems (WQMIS) portal for “Functionality Assessment (FA) Users” to enable seamless harmonization of water sample registration, and sample submission for testing, including sharing of results as per the applicable quality parameters. This meant that the assessment team collecting water samples on ground could using the unique identification access the WQMIS portal to register the water samples online and thereafter submit the physical samples in the district labs. And also, the test results for the registered samples, once ready, was uploaded and accessible by the assessment team.

2.3.4 Sample size

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

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

The overall sample coverage, as per the plan is as presented:

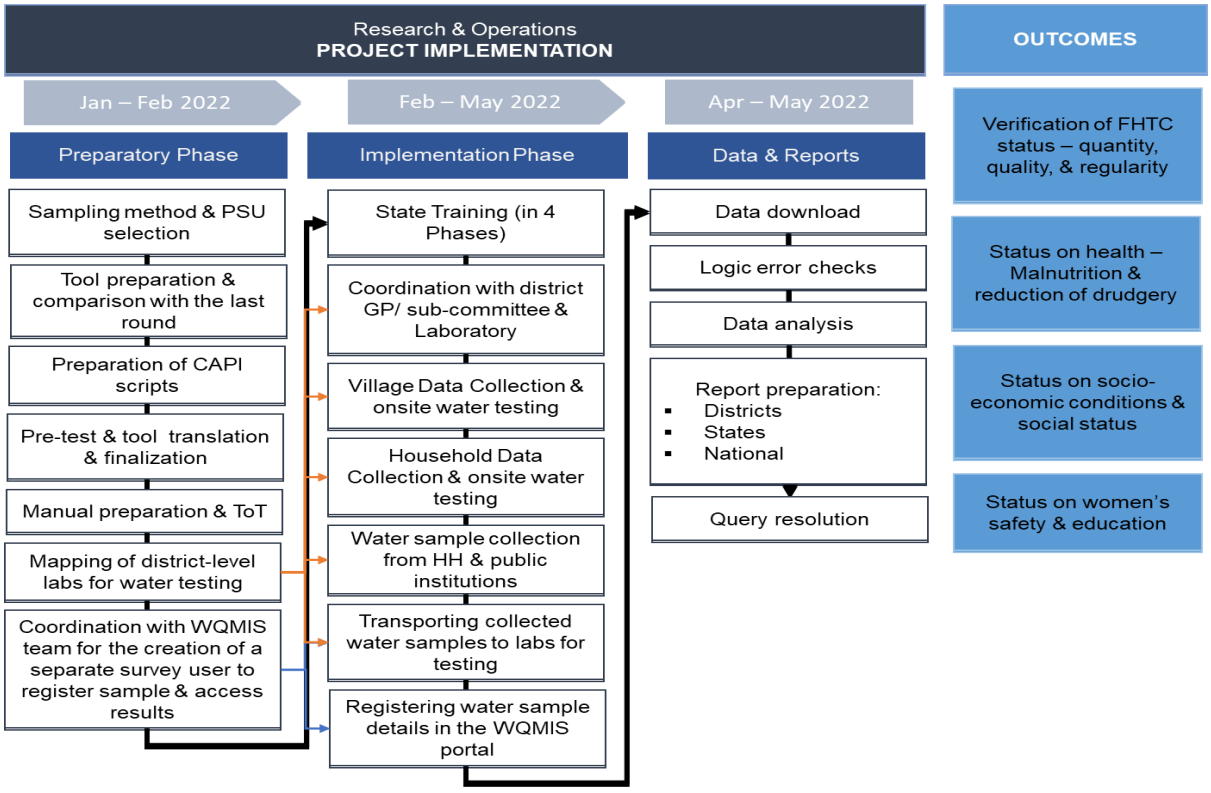
Table No. 1: Targeted sample distribution

States	# Districts	# Sampled villages			# Sampled HHs
		Total	SC/ST dominated	Har Ghar Jal	
India (total)	**712**	**13,303**	**4,506**	**5,298**	**2,98,377**
A&N Islands	3	144	33	144	1,548
Andhra Pradesh	13	374	65	50	8,739
Arunachal Pradesh	25	343	321	203	8,433
Assam	33	440	121	87	12,735
Bihar	38	812	78	599	16,308
Chhattisgarh	28	383	201	7	10,611
D&NH and D&D	3	77	53	77	1,422
Goa	2	189	22	189	2,790
Gujarat	33	384	98	293	13,104
Haryana	22	363	45	363	9,009
Himachal Pradesh	12	374	158	276	6,597
Jammu & Kashmir	20	359	66	81	7,641
Jharkhand	24	369	197	31	9,594
Karnataka	30	389	70	55	11,619
Kerala	14	296	3	6	6,471
Ladakh	2	99	99	13	1,692
Madhya Pradesh	52	847	296	214	20,025
Maharashtra	34	1034	160	320	14,400
Manipur	16	318	216	39	6,174
Meghalaya	11	324	317	172	4,122
Mizoram	8	185	185	107	2,916
Nagaland	11	219	218	91	4,032
Odisha	30	504	201	149	11,817
Puducherry	2	150	35	150	1,863
Punjab	23	446	217	374	9,351
Rajasthan	33	490	99	43	13,176
Sikkim	4	198	107	82	4,095
Tamil Nadu	36	413	95	45	13,887
Telangana	32	409	76	409	12,393
Tripura	8	283	172	4	7,128
Uttar Pradesh	75	1321	234	450	30,204
Uttarakhand	13	366	85	72	5,904
West Bengal	22	401	163	103	8,577

2.4 Project implementation

A broad overview of the project implementation is as presented:

Figure 8. Broad project implementation framework



A total of **271 teams** (comprising 271 supervisors, 1680 assessors, and 271 water collection assistants) were recruited, trained, and deployed to complete the survey across the 33 states and UTs. One survey team covered approximately 2 – 3 districts. The state-wise team deployment and fieldwork dates were as presented:

Table No. 2: State-wise team deployment and data collection start & end dates

States	Teams deployed	Start date	End date	Total data collection days
India	**271**	**11-Feb**	**18-May**	97
A&N Islands	2	17-Mar	14-Apr	29
Andhra Pradesh	10	22-Feb	25-Apr	63
Arunachal Pradesh	5	4-Mar	10-Apr	38
Assam	10	21-Feb	8-Apr	47
Bihar	15	18-Feb	2-Apr	44
Chhattisgarh	8	28-Feb	20-Apr	52
D&NH and D&D	3	7-Mar	16-Mar	10
Goa	5	5-Mar	1-Apr	28
Gujarat	10	15-Feb	25-Mar	39
Haryana	6	16-Feb	30-Mar	43
Himachal Pradesh	8	19-Feb	22-Apr	63
J&K	10	10-Mar	15-Apr	37

Table No. 2: State-wise team deployment and data collection start & end dates				
States	Teams deployed	Start date	End date	Total data collection days
Jharkhand	15	1-Mar	12-Apr	43
Karnataka	9	17-Feb	15-Apr	58
Kerala	6	18-Feb	6-Apr	48
Ladakh	2	2-Apr	22-Apr	21
Madhya Pradesh	22	17-Feb	4-Apr	47
Maharashtra	10	17-Feb	17 June	120
Manipur	5	7-Mar	20-Apr	45
Meghalaya	6	25-Feb	10-Apr	45
Mizoram	3	24-Mar	19-Apr	27
Nagaland	5	4-Mar	29-Mar	26
Odisha	8	20-Feb	10-Apr	50
Puducherry	6	26-Feb	9-Mar	12
Punjab	9	14-Feb	5-Apr	51
Rajasthan	14	17-Feb	30-Mar	42
Sikkim	4	5-Mar	31-Mar	27
Tamil Nadu	6	9-Mar	7-Apr	30
Telangana	10	22-Feb	10-Apr	48
Tripura	6	1-Mar	2-Apr	33
Uttar Pradesh	16	13-Feb	10-Apr	57
Uttarakhand	9	2-Mar	18-Apr	48
West Bengal	8	11-Feb	31-Mar	49

Quality Control: 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. Secondly, 5 percent of the total samples were accompanied by the supervisors. Thirdly, sub-targeted QC was done by the state field managers (5 percent) and the central project management team (5 percent). Finally, the central research team (based out of New Delhi) monitored the data trend and as per requirement debriefed data collection teams to improve quality.

2.5 Lessons learned

This section contains suggestions for subsequent rounds of FHTC assessment surveys, based on the lessons learnt during data collection and analysis conducted during 2022, which was in fact the second round. The assessment was also carried out in 2021.

Unit	2020-21*	2021-22
State covered	31	33
Districts covered	704	712
No of villages covered	6,992	13,299
No. of HHs covered	87,123	3,01,389
No. of HH water samples tested (through FTK)	6,101	2,59,151
No. of HH water test results made available (Lab)	-	2,19,564
Survey period	Nov- Dec 2020	Feb – April 2022

1. The operational guideline mandated water sample collection from all households to be covered under the survey. However, the district level NABL accredited government labs had limited capacity of handing more than 30 samples in a day, lower than the required capacity. Hence it is imperative that for a large-scale survey the timeline is longer, especially, to ensure water sample testing is supported more effectively by the labs.
2. As an alternative to lab-based testing of water samples, use of more advanced Field-test-kits (FTK) could be planned for the water quality monitoring since many labs have limited capacity in terms of testing of required quality parameters.
3. Given the scale of the assessment, in terms of geography and other aspects, it would be appropriate, to conduct the fieldwork in a phased manner, wherein a state's fieldwork is completed within a span of 30 – 45 days. So that the total data collection ends in around 3-4 months, to avoid any seasonal effect in the data.
4. The ideal survey period is post-monsoon season (November to January), where the hilly regions need to be covered in the month of November before the setting in of the winter cold and snow.
5. The sample coverage for smaller states and UT's need to be restricted to 10 percent of the total FHTC coverage of the respective state/UT to improve efficiencies.
6. The tools should now be standardized with scope for limited iterations now after round 2, which can save a lot of time in finalizing the indicators and tools and it will also ensure efficiency (including CAG approvals) in survey process.

2.6 Sample coverage for FHTC

The functional assessment study covered 13,299 villages having a functional PWS schemes with at least 20 FHTC in the village as per the status on IMIS (as on April 30th 2021).

The following table presents the achievement of village, scheme, and household samples.

Table No. 3: State-wise achieved sample coverage

States	# Sampled villages			# Sampled HHs	# Sampled Public Institutions
	Total	SC/ST dominated	Har Ghar Jal		
India (total)	**13,299**	**3,797**	**5,346**	**3,01,389**	**16,148**
A&N Islands	144	32	144	1,557	31
Andhra Pradesh	374	28	50	8,827	849
Arunachal Pradesh	343	318	208	8,507	152
Assam	440	87	86	12,786	102
Bihar	812	40	597	16,404	318
Chhattisgarh	383	190	7	10,711	312
D&NH and D&D	77	48	77	1,586	142
Goa	189		189	2,834	639
Gujarat	384	93	293	13,716	1,018
Haryana	363	30	363	9,064	1,043
Himachal Pradesh	374	145	278	6,753	404
J&K	359	54	81	7,828	674
Jharkhand	369	179	35	9,293	46
Karnataka	389	45	54	11,770	443
Kerala	296		6	6,583	245
Ladakh	99	99	13	1,711	62
Madhya Pradesh	847	226	229	20,164	744
Maharashtra	1,033	77	325	14,465	3,227

Table No. 3: State-wise achieved sample coverage

States	# Sampled villages			# Sampled HHs	# Sampled Public Institutions
	Total	SC/ST dominated	Har Ghar Jal		
Manipur	318	204	42	6,180	80
Meghalaya	324	317	176	4,179	300
Mizoram	185	185	107	2,947	85
Nagaland	219	219	98	4,047	122
Odisha	504	159	156	11,652	266
Puducherry	150		150	1,872	242
Punjab	446	219	372	9,550	431
Rajasthan	490	73	40	13,332	615
Sikkim	198	94	82	4,113	5
Tamil Nadu	413	69	45	13,922	987
Telangana	409	42	409	12,570	1,676
Tripura	283	172	4	7,138	140
Uttar Pradesh	1,319	174	456	30,723	497
Uttarakhand	366	42	72	6,030	188
West Bengal	400	137	102	8,575	63

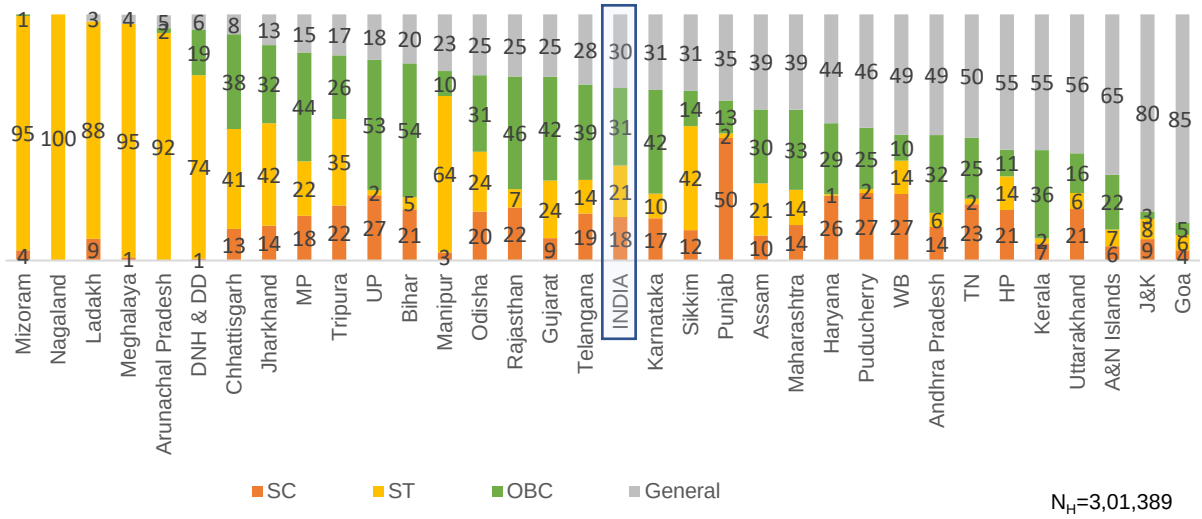
2.7 Profile of sampled village and household

Sampled villages	Sampled households
Total no. of villages covered – 13,299 Percentage of SC dominated villages – 11 percent Percentage of ST dominated villages – 23 percent **Interviews:** In 48 percent of the villages pump operators were interviewed followed by Sarpanch in 23 percent villages 341 villages reported to have historical incidence of water contamination	Total no. of households covered – 3,01,389 **Interviews:** Respondents: Male 44 percent & Female 56 percent Proportion of SC-HH: 18 percent, ST-HH 21 percent, OBC-HH 31 percent and General-HH: 30 percent, 26 percent of the HH tap connections are under the name of a female member Average household size – 5.4

2.7.1 Household profile

18 percent of the covered households belonged to Scheduled Caste (SC) category and 21 percent belonged to Scheduled Tribe (ST) categories. Considering high sample coverage from North-eastern states, the percentage of ST households was higher than the national population proportions.

Figure 9. State wise percentage of HHs - social category of respondent HH

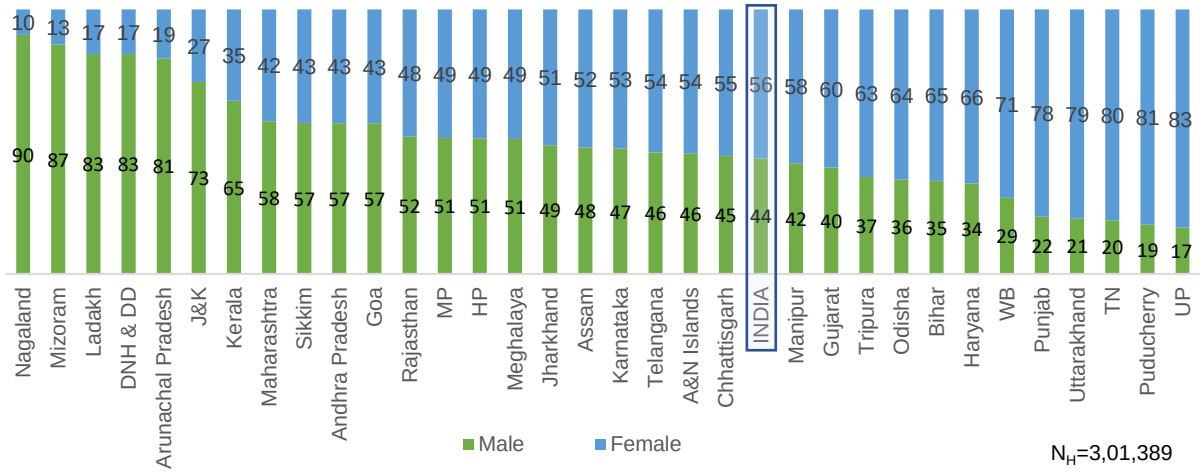


N_H=3,01,389

2.7.2 Profile of the respondents

More than half of the respondents were females (56 percent) while 44 percent respondents were males.

Figure 10. State wise percent - gender of the respondents



N_H=3,01,389

Chapter-3: Findings

3. Findings

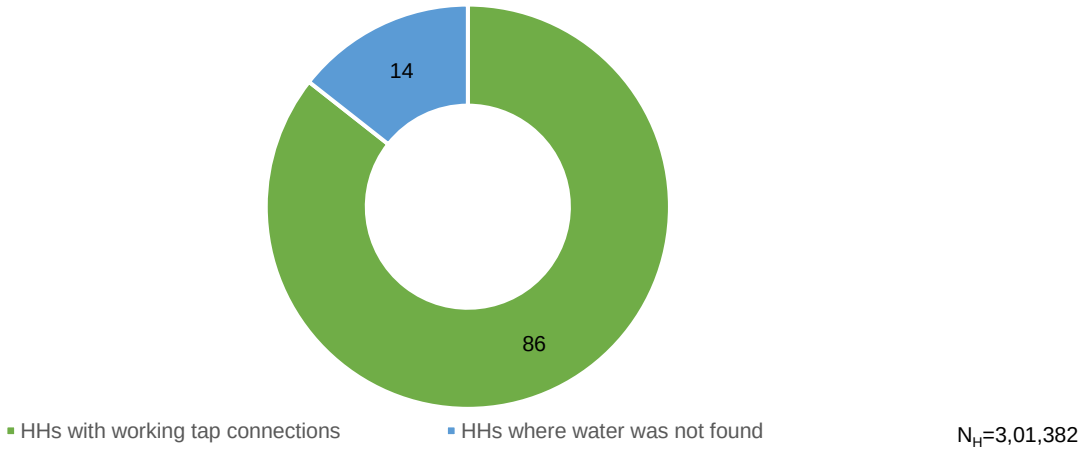
3.1 Functionality status of FHTC at household level

Functionality of household tap connections is defined under JJM as household taps having infrastructure for providing water in adequate quantity (at least 55 LPCD), of prescribed quality (parameters within acceptable or permissible range for up to 14 parameters selected as per NJJM guidelines), on regular basis (continuous supply on long-term basis and adherence to supply schedules). Thus, in the following sub-sections, a combined analysis of quantity, regularity and quality of water service has been presented leading to assessing the proportion of tap connections estimated to be functional at household levels.

3.1.1 Working household tap connection

At national level 86 percent of HHs are estimated to have a working tap connection while 14 percent of HHs were estimated to be without a working tap connection (i.e., did not receive water supply in last 7 days).

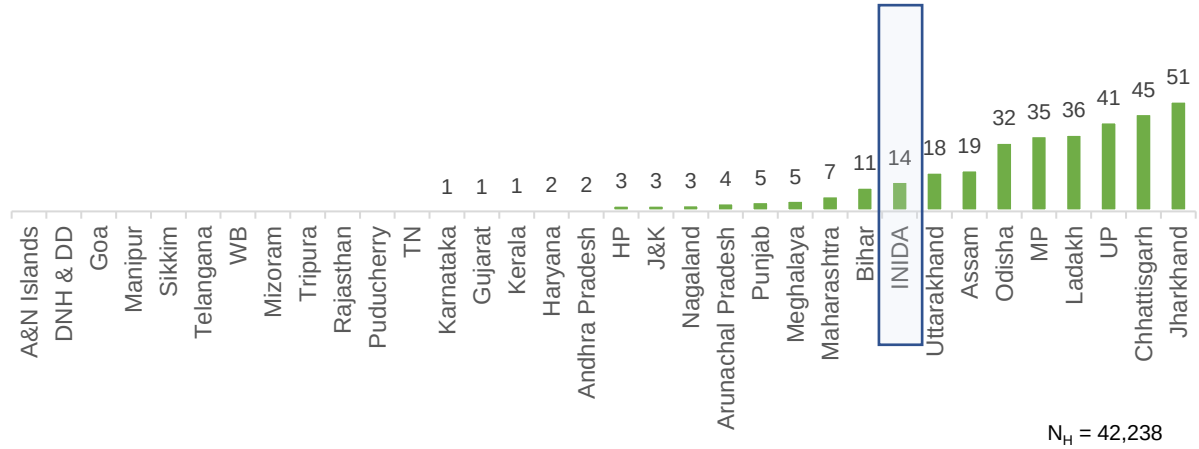
Figure 11. Working tap connections (HHs which received water through FHTC at least once in the last 7 days)



State wise percentage of households without working tap connection

Among the HHs without working tap connections, 8 states namely, Jharkhand, Chhattisgarh, and Uttar Pradesh (name all states /UTs) had a higher proportion of HHs wherein water was not available. At least 6 states where more than 30 percent HHs did not have water in their taps in last 7 days.

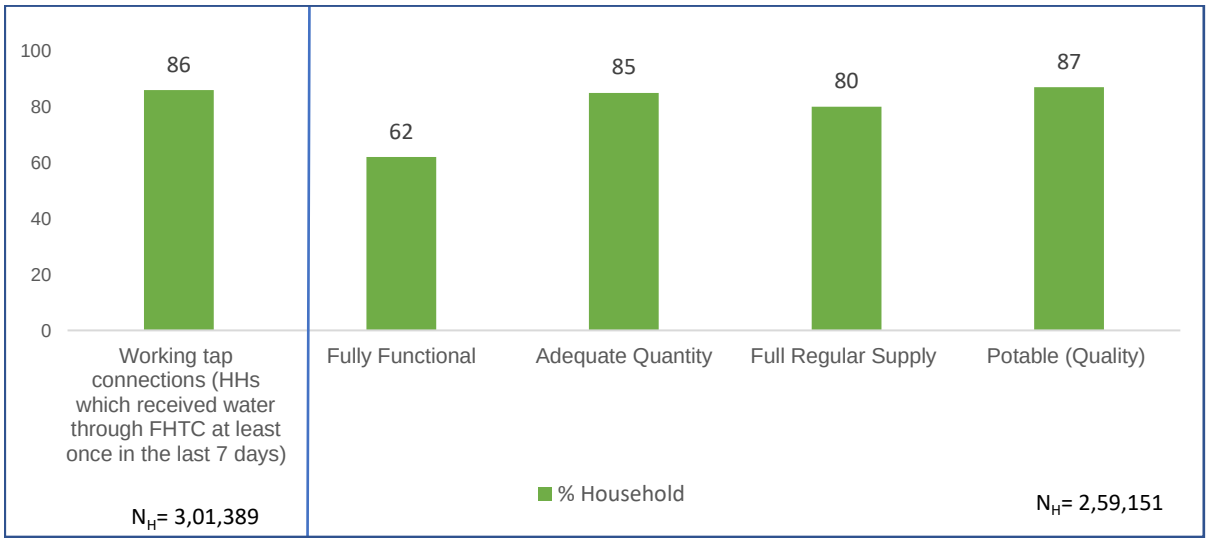
Figure 12. Households without working tap connection



Out of the 3,01,389 HHs sampled for the FHTC assessment, water was not available in 42,238 households on the day of the survey.

3.1.2 Fully Functional* HH Tap Connections (% households)

Figure 13. Functionality of tap connection



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

Please note: Henceforth, N_H=2,59,151 implies all HHs where water was found on the day of the survey.

It has been found that 86 percent of the sampled HHs (N=3,01,389) had working tap connections. However, out of those having water on the day of the survey, more than 4 out of 5 households (85 percent) received adequate quantity (>=55 LPCD) water supply and 4 out of 5 received regular supply (80 percent) of water. The on-site testing and lab test results of the water indicates that more than 4 out of 5 households (87 percent) of the sampled households in the state received potable water.

Table No. 4: Quantity, Regularity, and Quality of FHTC at the state level (% HHs)					
S. No.	District	Working tap connections (HHs which received water through FHTC at least once in the last 7 days) (% HH)	Adequate Quantity (% HH)	Full Regular Supply (% HH)	Potable (Quality) (% HH)
1.	**INDIA**	**86**	**85**	**80**	**87**
2.	A&N Islands	100	48	85	90
3.	Andhra Pradesh	98	92	79	90
4.	Arunachal Pradesh	96	98	85	93
5.	Assam	81	78	73	91
6.	Bihar	89	97	84	94
7.	Chhattisgarh	55	89	85	89
8.	DNH & DD	100	89	89	100
9.	Goa	100	97	93	90
10.	Gujarat	99	87	88	89
11.	Haryana	98	82	83	76
12.	HP	97	95	87	98
13.	J&K	97	84	70	86
14.	Jharkhand	49	83	70	86
15.	Karnataka	99	82	84	80
16.	Kerala	99	97	76	53
17.	Ladakh	64	78	80	97
18.	MP	65	66	67	96
19.	Maharashtra	93	68	75	81
20.	Manipur	100	62	57	92
21.	Meghalaya	95	94	93	87
22.	Mizoram	100	66	79	94
23.	Nagaland	97	68	81	93
24.	Odisha	68	84	69	88
25.	Puducherry	100	100	99	89
26.	Punjab	95	96	82	94
27.	Rajasthan	100	59	66	82
28.	Sikkim	100	92	89	57
29.	TN	100	94	93	97
30.	Telangana	100	92	93	95
31.	Tripura	100	96	94	44
32.	UP	59	88	67	91
33.	Uttarakhand	82	93	71	92
34.	WB	100	97	90	76

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

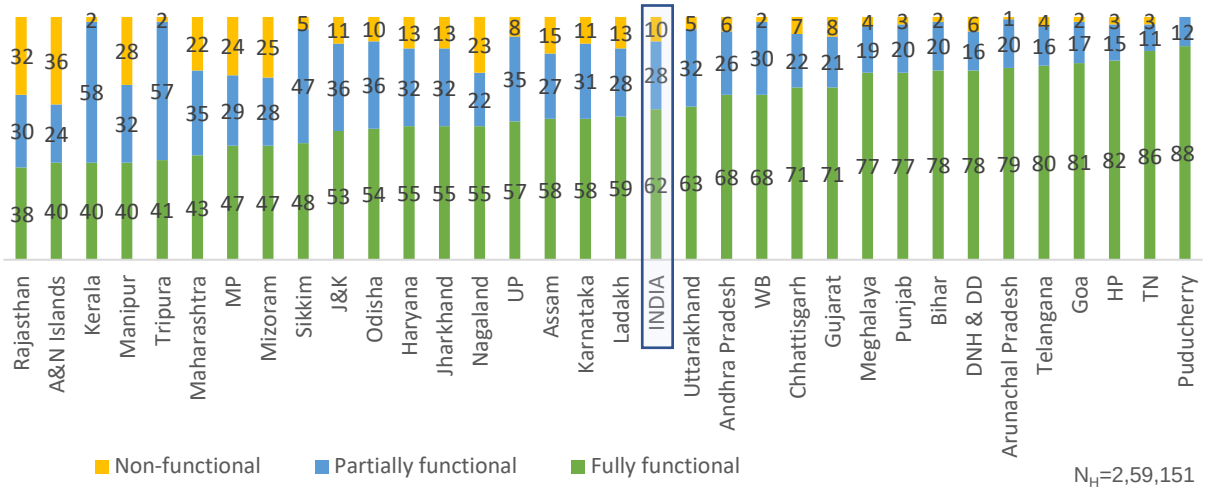
Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical, and bacteriological as given in Table 10 parameters (within acceptable/ permissible range) and onsite testing of pH. The details of laboratory test are mentioned in the table given above in the glossary.

The state/ UT of Punjab, Tripura, Bihar, Goa, Kerala, WB, Arunachal Pradesh, and Puducherry were found to provide more than 55 LPCD of water in more than 95 percent HHs.

More than 90 percent HHs in the states/UTs of Goa, Meghalaya, TN, Telangana, Tripura, and Puducherry reported to regularly receive water through FHTC. Only Manipur was found to regular supply of water is less than 60 percent.

Potability of water was found to be more than 90 percent in the states/UTs of DNH & DD, Himachal Pradesh, Tamil Nadu, Ladakh and Madhya Pradesh. Whereas in the states of Tripura, Kerala, and Sikkim the potability of water was found less than 60 percent.

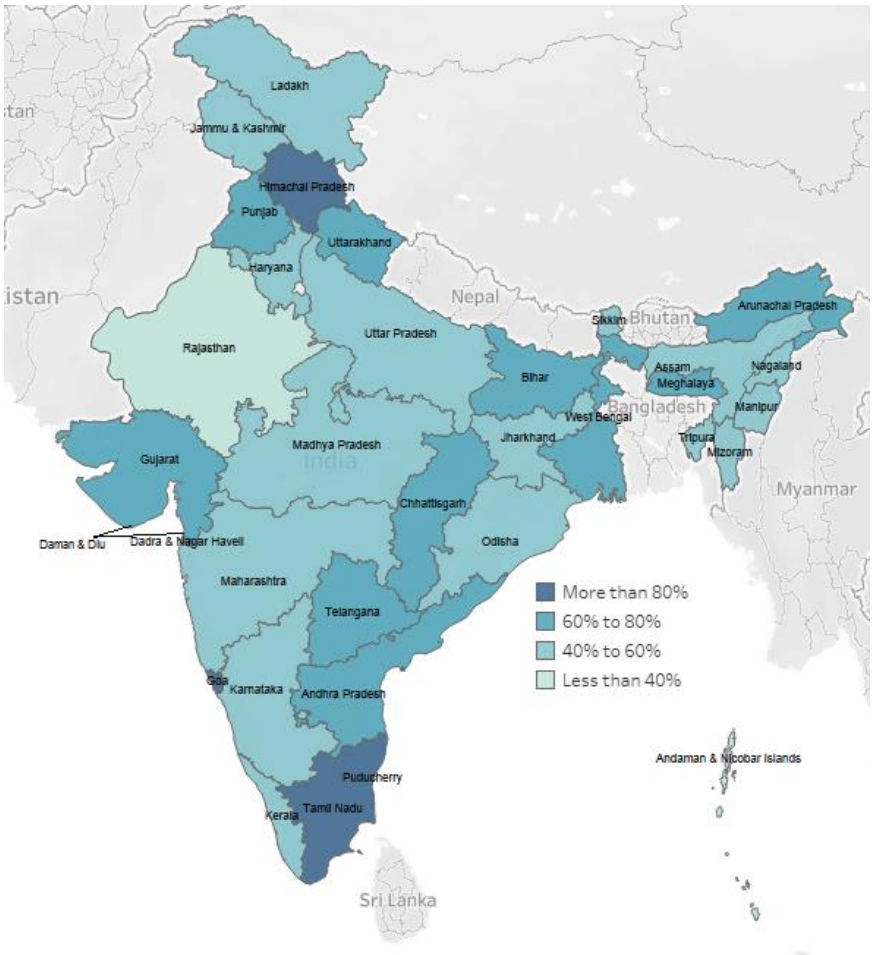
Figure 14. Functionality* at HHs level - considering quantity, quality, & regularity



** '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., 2,59,151 HHs.*

62 percent HHs in the state were found to have functional HH tap water connection. Among the states/ UTs, functionality in Tamil Nadu, Himachal Pradesh Goa and Puducherry, was more than 80 percent (HHs) while in Rajasthan, Kerala, Manipur, Tripura, Maharashtra, Madhya Pradesh, Mizoram Sikkim and A&N Islands, it was less than 50 percent HHs.

State wise performance map- Functionality at HHs level



State-wise comparison of overall functionality between 2020-21 & 2022

Table 2: State-wise comparison of overall functionality between 2020-21 & 2022

R2 Rank	States/ UTs	R1 (2020-21)* (% HHs)	R2 (2022) (% HHs)	Performance (2022)	Change in rank
1	Puducherry	29	88	↑	↑ (24 positions)
2	Tamil Nadu	39	86	↑	↑ (17 positions)
3	Himachal Pradesh	88	82	↓	↓ (2 positions)
4	Goa	54	81	↑	↑ (7 positions)
5	Telangana	76	80	↑	No Change
6	Arunachal Pradesh	77	79	↑	↓ (3 positions)
7	Bihar	69	78	↑	↓ (1 positions)
8	DNH & DD		78		
9	Meghalaya	65	77	↑	↓ (1 positions)
10	Punjab	52	77	↑	↑ (4 positions)
11	Chhattisgarh	30	71	↑	↑ (12 positions)
12	Gujarat	32	71	↑	↑ (10 positions)
13	Andhra Pradesh	50	68	↑	↑ (3 positions)
14	West Bengal	27	68	↑	↑ (13 positions)
15	Uttarakhand	83	63	↓	↓ (13 positions)
16	Ladakh		59		
17	Assam	44	58	↑	↑ (1 positions)
18	Karnataka	27	58	↑	↑ (10 positions)
19	Uttar Pradesh	64	57	↓	↓ (9 positions)
20	Haryana	48	55	↑	↓ (3 positions)
21	Jharkhand	36	55	↑	↓ (1 positions)
22	Nagaland	53	55	↑	↓ (10 positions)
23	Odisha	65	54	↓	↓ (14 positions)
24	Jammu & Kashmir	53	53	No Change	↓ (11 positions)
25	Sikkim	77	48	↓	↓ (21 positions)
26	Madhya Pradesh	24	47	↑	↑ (3 positions)
27	Mizoram	19	47	↑	↑ (3 positions)
28	Maharashtra	29	43	↑	↓ (4 positions)
29	Tripura	27	41	↑	↓ (3 positions)
30	Andaman & Nicobar Islands	36	40	↑	↓ (9 positions)
31	Kerala	50	40	↓	↓ (16 positions)
32	Manipur	69	40	↓	↓ (25 positions)
33	Rajasthan	14	38	↑	↓ (2 positions)

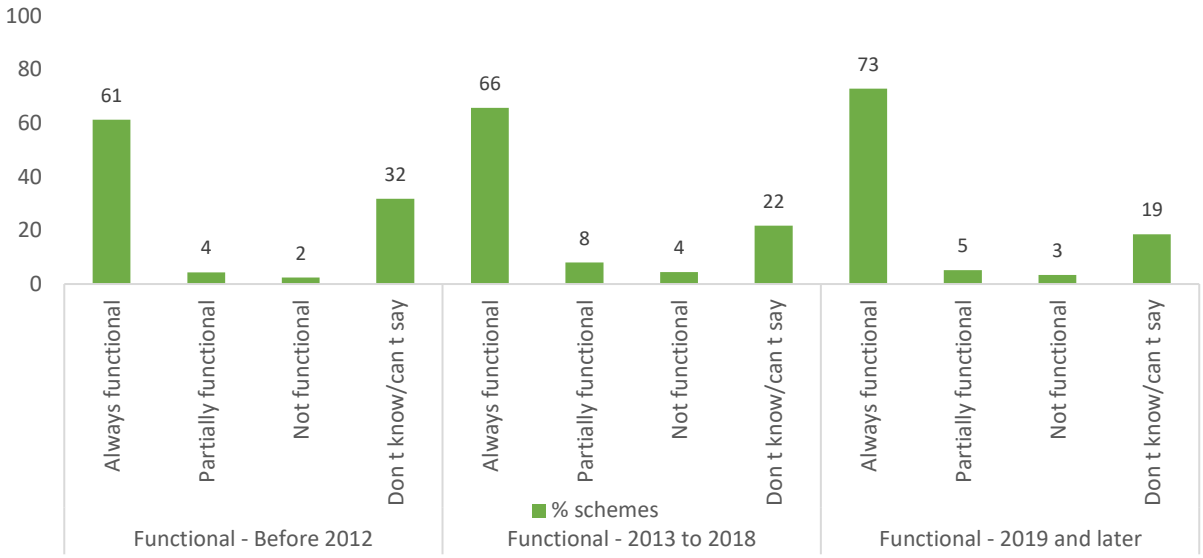
Please Note: The green arrows indicate an increase in either performance or rank and the red arrow indicates a drop for the same.
* Reference "FHTC Assessment FY 20-21_Final Report"

3.1.3 Age vs functionality of schemes in the villages

The functionality of scheme has been defined as the scheme supplying water for more than 15 days a month for all 12 months in last one year preceding the survey. Overall, the functionality of old and new schemes ranged between 61 to 73 percent respectively. About 61 percent of the older schemes, which were installed in 2012 were reported to be functional. It indicates the possibility of better O&M and experience of VWSC etc that could be instrumental in r sustainability of the schemes.

More than 7 out 10 schemes are 'always' functional in 2019 and later period, showing 5-percentage points increase from the period, between 2013 and 2018 and 12 percentage points increase from the period 'before, 2012'.

Figure 1: Age vs functionality of schemes in the villages



3.2 Quantity, Regularity and Quality of Water

As per the JJM operational guidelines, the quantity (in litre) of water supplied per person per day should meet the service level of 55 LPCD. In all completed/ ongoing schemes, states are required to take measures to provide FHTCs to every rural household by retrofitting and making it JJM compliant by 2021.

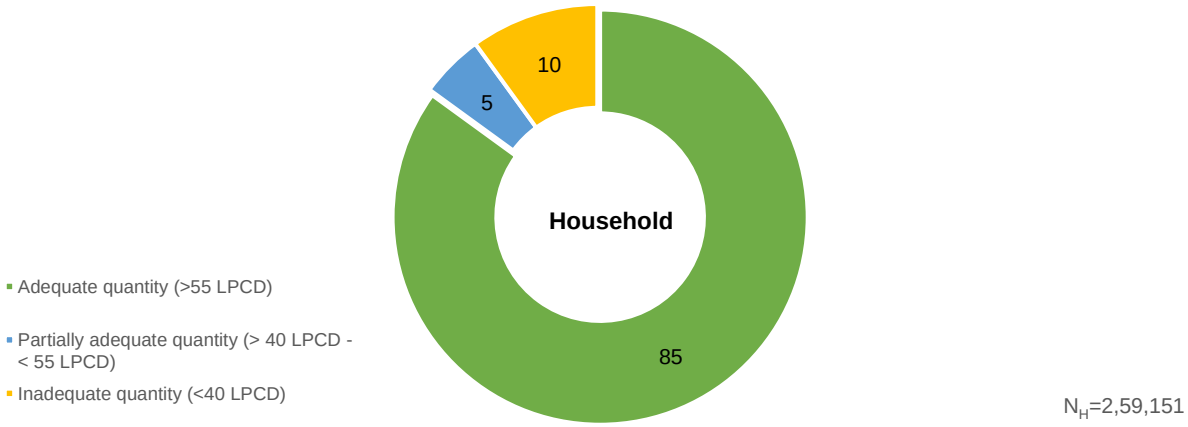
The functionality assessment survey recorded flow rate of water supply. Eventually calculated total quantity of water obtained in a day by multiplying total duration (based on average of the past week) and flow rate. Finally, total number of HH members sharing an FHTC was computed, and hence per capita water received per day has been calculated.

The measurement of quantity of water supplied at village level has been based on some assumptions and reported capacity of the water storage infrastructure. As there could be some under reporting while estimating the average supply (r quantity). it was ensured to look at adequacy of water supplied through PWS from the lens of household based measured quantity.

3.2.1 Water quantity measured as LPCD (Litres per Capita per Day)

85 percent HHs were found to receive adequate quantity of water (more than 55 LPCD of water). This estimate had been based on such households where water flow rate could be measured at the time of survey.

Figure 2: Quantity of water received by households



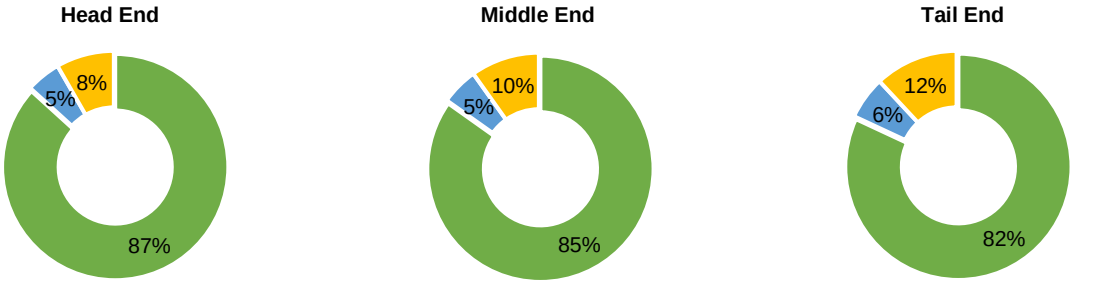
N_H=2,59,151

Quantity of water received across head, middle, and tail end

The quantity of water received across the HHs from head to the tail end was observed during the assessment and found to have declined, and about four-fifth (85 percent) of the sampled households received water in adequate quantity, i.e., greater than or equal to 55 LPCD.

While at the Head End, 87 percent HHs received water, at the Tail End, slightly lesser percentage of HHs (82 percent) received water.

Figure 3: Quantity of water received across head, middle and tail end households

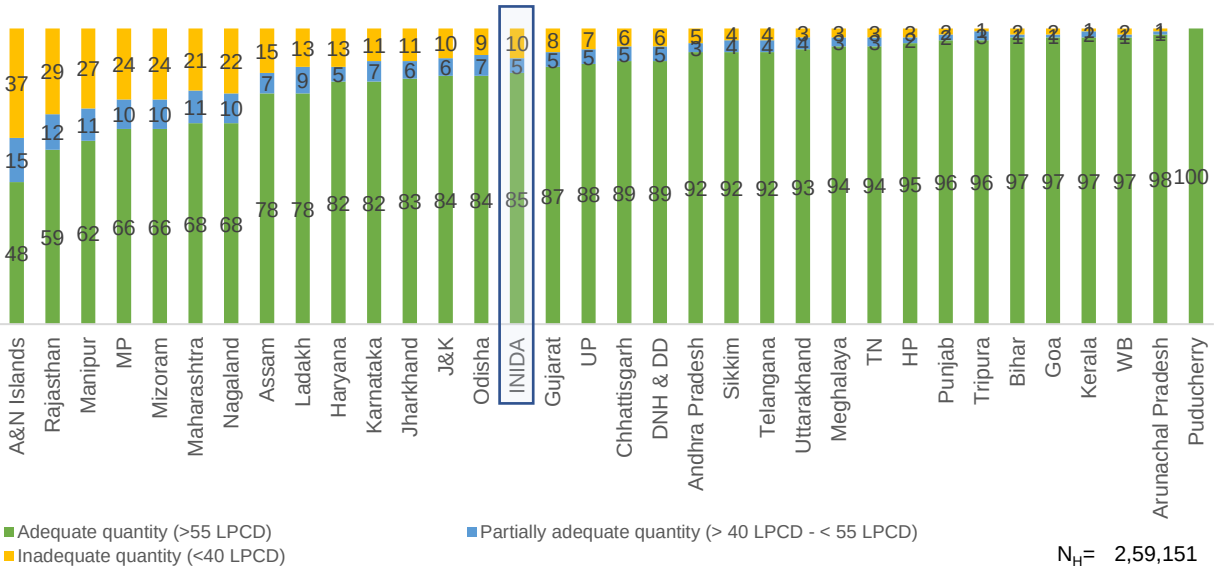


N_H=2,59,151

State wise quantity of water received at household (HHs) level (more than 55 LPCD of water)

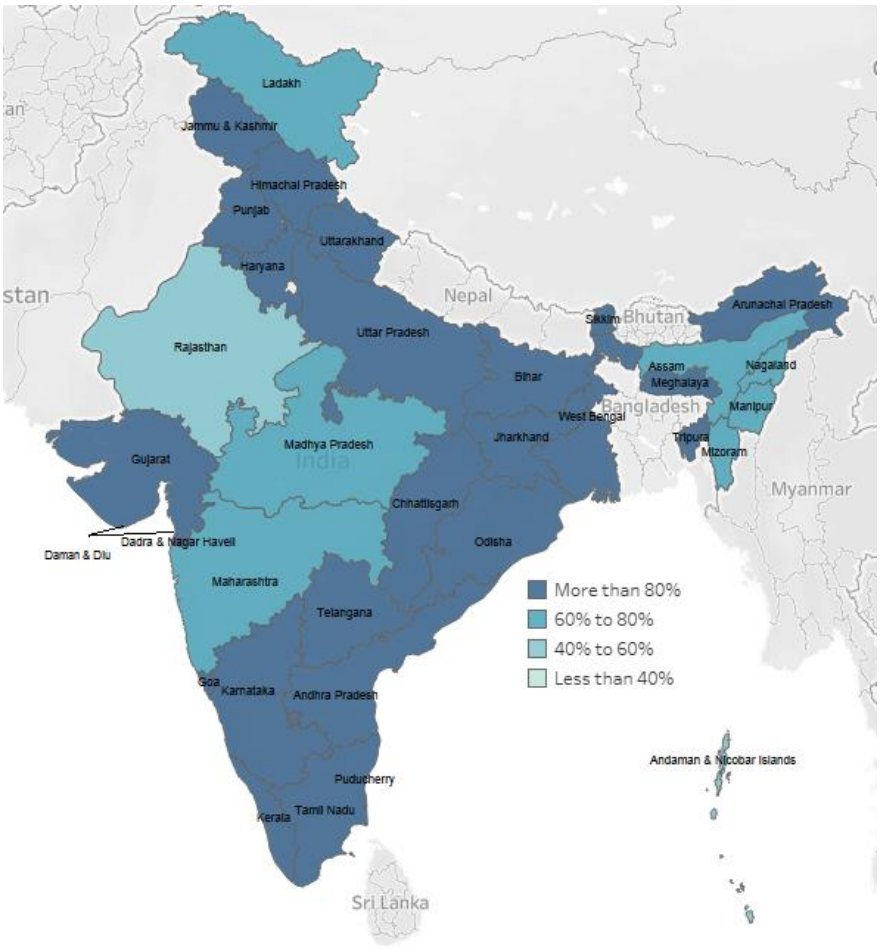
Nationally, 19 States/ UTs were supplying adequate quantity of water (more than 55 LPCD of water) to more than 85 percent HHs while 7 States/ UTs - were supplying adequate quantity of water (more than 55 LPCD of water) to less than 75 percent HHs.

Figure 4: State wise quantity of water received at household (% HHs) level (more than 55 LPCD of water)



N_H= 2,59,151

State wise performance map- Quantity of water received at household



State-wise comparison between FTHC 2020-21 & 2022 for quantity of supply

Table 3: State-wise comparison between FTHC 2020-21 & 2022 for quantity of supply

R2 Rank	States/ UTs	R1 (2020-21)* (% HHs)	R2 (2022) (% HHs)	Performance (2022)	Change in rank
1	Puducherry	100	100	No Change	No Change
2	Arunachal Pradesh	99	98	↓	↑ (1 positions)
3	Bihar	97	97	No Change	↑ (1 positions)
4	Goa	96	97	↑	↑ (3 positions)
5	Kerala	95	97	↑	↑ (5 positions)
6	West Bengal	96	97	↑	↑ (2 positions)
7	Punjab	96	96	No Change	↓ (1 positions)
8	Tripura	92	96	↑	↑ (6 positions)
9	Himachal Pradesh	95	95	No Change	No Change
10	Meghalaya	97	94	↓	↓ (5 positions)
11	Tamil Nadu	88	94	↑	↑ (7 positions)
12	Uttarakhand	94	93	↓	No Change
13	Andhra Pradesh	91	92	↑	↑ (2 positions)
14	Sikkim	100	92	↓	↓ (12 positions)
15	Telangana	91	92	↑	↑ (1 positions)
16	Chhattisgarh	81	89	↑	↑ (7 positions)
17	DNH & DD		89		
18	Uttar Pradesh	88	88	No Change	↓ (1 positions)
19	Gujarat	84	87	↑	↑ (3 positions)
20	Jammu & Kashmir	85	84	↓	↓ (1 positions)
21	Odisha	93	84	↓	↓ (8 positions)
22	Jharkhand	59	83	↑	↑ (8 positions)
23	Haryana	77	82	↑	↑ (1 positions)
24	Karnataka	85	82	↓	↓ (4 positions)
25	Assam	85	78	↓	↓ (4 positions)
26	Ladakh		78		
27	Maharashtra	71	68	↓	↓ (1 positions)
28	Nagaland	94	68	↓	↓ (17 positions)
29	Madhya Pradesh	64	66	↑	↓ (1 positions)
30	Mizoram	63	66	↑	↓ (1 positions)
31	Manipur	77	62	↓	↓ (6 positions)
32	Rajasthan	43	59	↑	↓ (1 positions)
33	Andaman & Nicobar Islan	69	48	↓	↓ (6 positions)

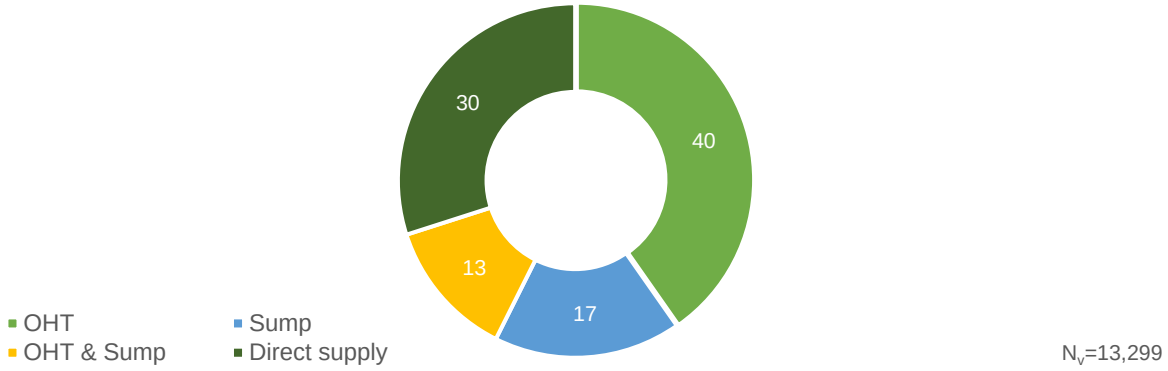
Please Note: The green arrows indicate an increase in either performance or rank and the red arrow indicates a drop for the same.

* Reference "FHTC Assessment FY 20-21_Final Report"

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

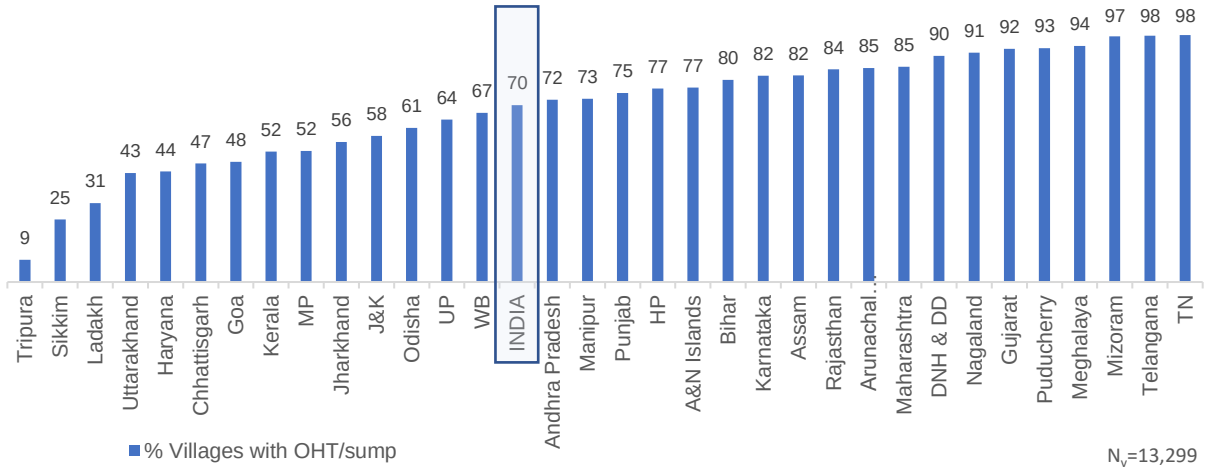
Almost one out of three respondents across states/UTs reported water being directly supplied. And in 13 percent reported water being stored in sump and overhead tanks.

Figure 5: Pipe water supply storage available in village



State wise water storage arrangements reported

Figure 6: State wise water storage arrangements at village level (percent villages with OHT/ Sump)



70 percent villages in the state have either an OHT or a sump for storing water for supplying to the households. Tamil Nadu, Telangana and Mizoram reported to have either an OHT or a sump to store water for supplying to the households in more than 95 percent villages.

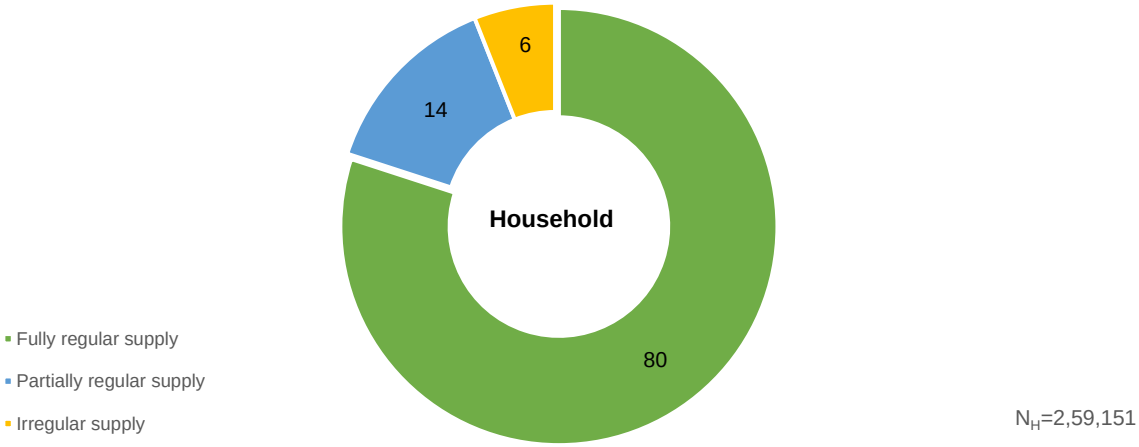
7 states namely Tripura, Sikkim, Ladakh, Uttarakhand, Haryana, Chhattisgarh, and Goa reportedly to have OHT and/or sumps for water storage in less than 50 percent villages.

3.2.2 Regularity of water supply to households

The regularity of the water supply service, as per JJM operational guidelines, is defined as water supply for all 12 months in a year or on daily basis. If the tap supplies water between 9 to 12 months, and the supply is not as per schedule, the tap is considered, according to the definition, partially functional system. It was asked to the respondents, how many months in the last one year, preceding the survey, the households received supply for less than 15 days in a month. Households that had responded 'never', have been considered to have received regular supply in last one year.

Nationally, 80 percent HHs received regular supply of water, as per the agreed definition (as per agreed schedule).

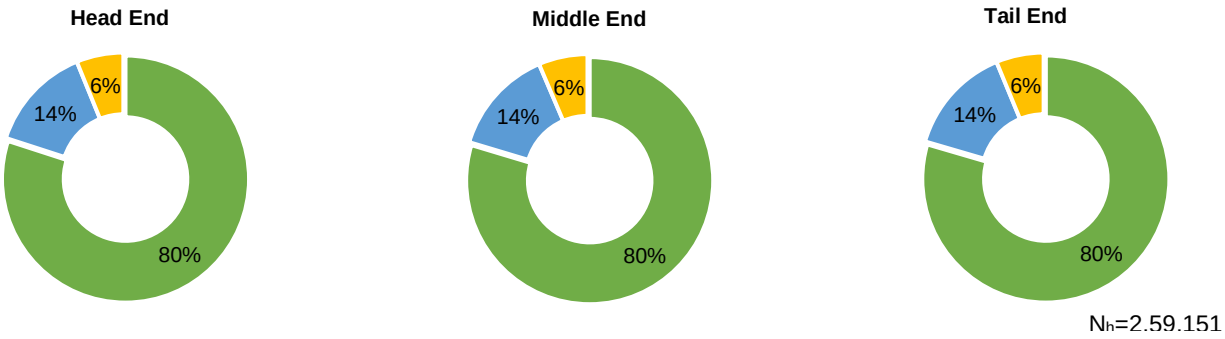
Figure 7: Regularity of water received by households



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

Eighty percent HHs received water regularly, across head, middle and tail ends of the HHs using the PWS.

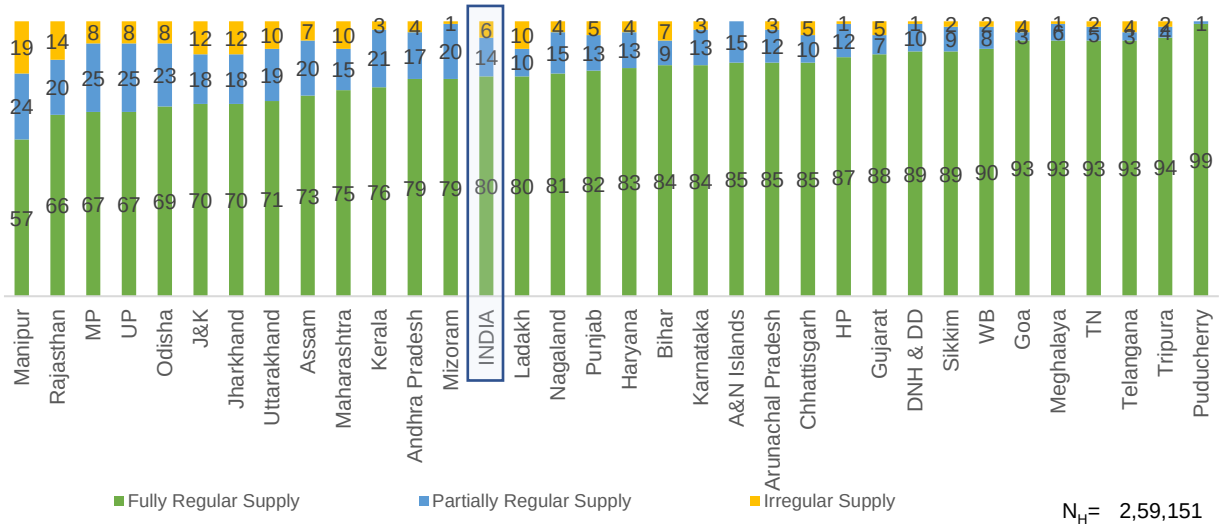
Figure 8: Regularity of water received across head, middle and tail end households



State wise regularity of water supply at HHs level i.e. daily basis/ as per schedule

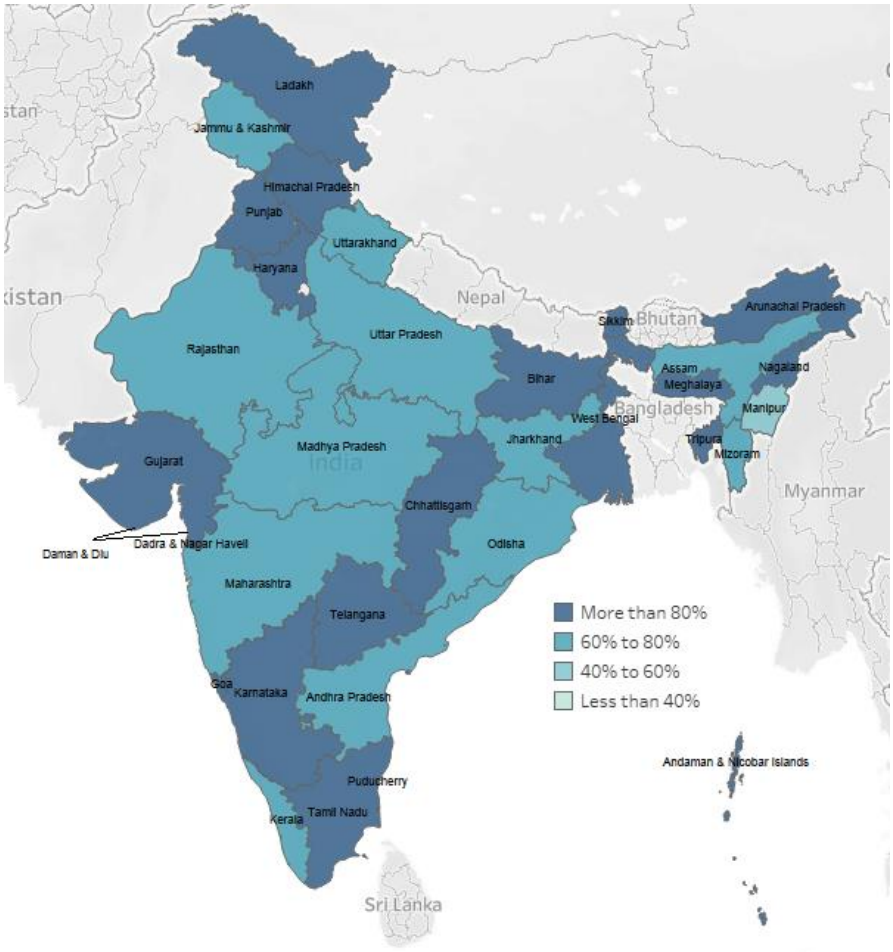
Nationally, 7 States/ UTs namely Puducherry, Tripura, Telangana, TN, Meghalaya, Goa and WB had reported regularly receiving water for 12 months or daily basis as per schedule in more than 90 percent HHs.

Figure 9: State wise regularity of water supply at HHs level i.e. daily basis/ as per schedule



N_H= 2,59,151

State wise performance map- Regularity of water supply at HHs level



State-wise comparison between FTHC 2020-21 & 2022 for regularity of supply

Table 4: State-wise comparison between FTHC 2020-21 & 2022 for regularity of supply

R2 Rank	States/ UTs	R1 (2020-21)* (% HHs)	R2 (2022) (% HHs)	Performance (2022)	Change in rank
1	Puducherry	99	99	No Change	No Change
2	Tripura	88	94	↑	↑ (17 positions)
3	Goa	86	93	↑	↑ (18 positions)
4	Meghalaya	92	93	↑	↑ (7 positions)
5	Tamil Nadu	84	93	↑	↑ (20 positions)
6	Telangana	96	93	↓	↓ (3 positions)
7	West Bengal	95	90	↓	↓ (1 positions)
8	DNH & DD		89		
9	Sikkim	97	89	↓	↓ (7 positions)
10	Gujarat	74	88	↑	↑ (19 positions)
11	Himachal Pradesh	93	87	↓	↓ (3 positions)
12	Andaman & Nicobar Islands	85	85	No Change	↑ (11 positions)
13	Arunachal Pradesh	95	85	↓	↓ (8 positions)
14	Chhattisgarh	90	85	↓	↑ (1 positions)
15	Bihar	93	84	↓	↓ (6 positions)
16	Karnataka	89	84	↓	No Change
17	Haryana	86	83	↓	↑ (5 positions)
18	Punjab	94	82	↓	↓ (11positions)
19	Nagaland	91	81	↓	↓ (5 positions)
20	Ladakh		80		
21	Andhra Pradesh	91	79	↓	↓ (8 positions)
22	Mizoram	23	79	↑	↑ (9 positions)
23	Kerala	81	76	↓	↑ (4 positions)
24	Maharashtra	79	75	↓	↑ (4 positions)
25	Assam	84	73	↓	↓ (1 positions)
26	Uttarakhand	95	71	↓	↓ (22 positions)
27	Jammu & Kashmir	89	70	↓	↓ (10 positions)
28	Jharkhand	72	70	↓	↑ (2 positions)
29	Odisha	91	69	↓	↓ (17 positions)
30	Madhya Pradesh	82	67	↓	↓ (4 positions)
31	Uttar Pradesh	88	67	↓	↓ (13 positions)
32	Rajasthan	87	66	↓	↓ (12 positions)
33	Manipur	92	57	↓	↓ (23 positions)

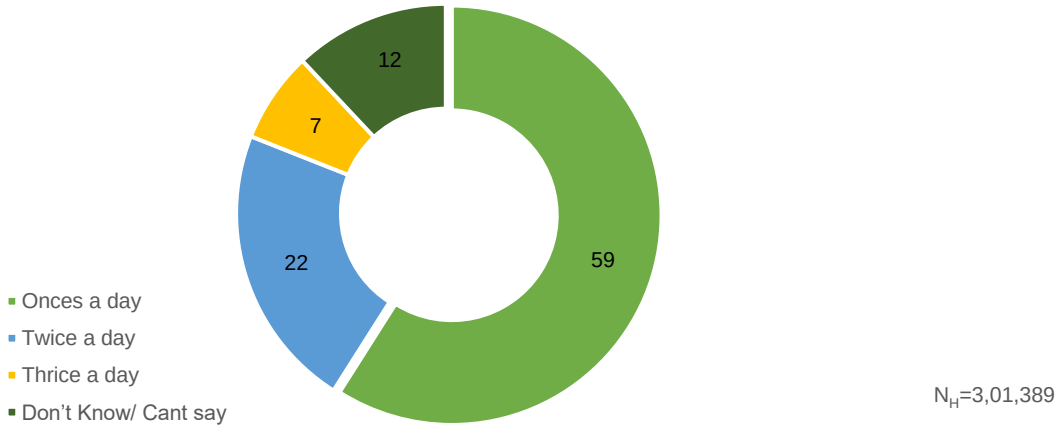
Please Note: The green arrows indicate an increase in either performance or rank and the red arrow indicates a drop for the same.

* Reference "FHTC Assessment FY 20-21_Final Report"

Average no. of times water is supplied in a day to households

Nationally, 59 percent HHs reported to receive water at least once a day from PWS. Nationally the average duration of water supplied was reported to be 3 hours per day.

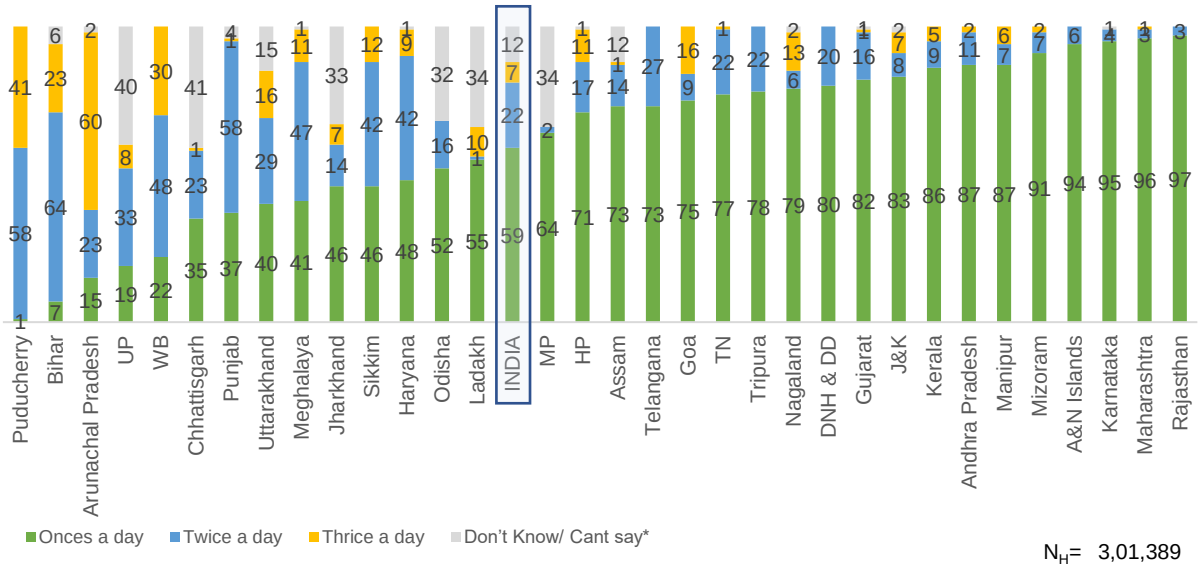
Figure 10: Average no. of times water is supplied in a day



State wise average no. of times water is supplied in a day to households

Overall, 5 States/ UTs namely Rajasthan, Maharashtra, Karnataka, A&N Islands and Mizoram had reported that more than 90 percent HHs receive water at least once a day.

Figure 11: State wise average no. of times water is supplied in a day to households

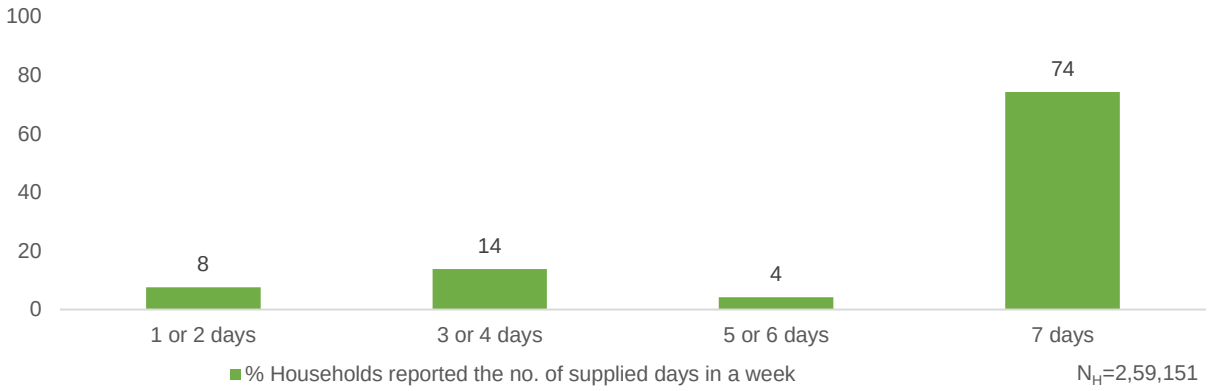


* Don't Know/ Can't say was considered when the respondent wasn't aware of the no. of times water was supplied in a day

Average water supply days in a week to households

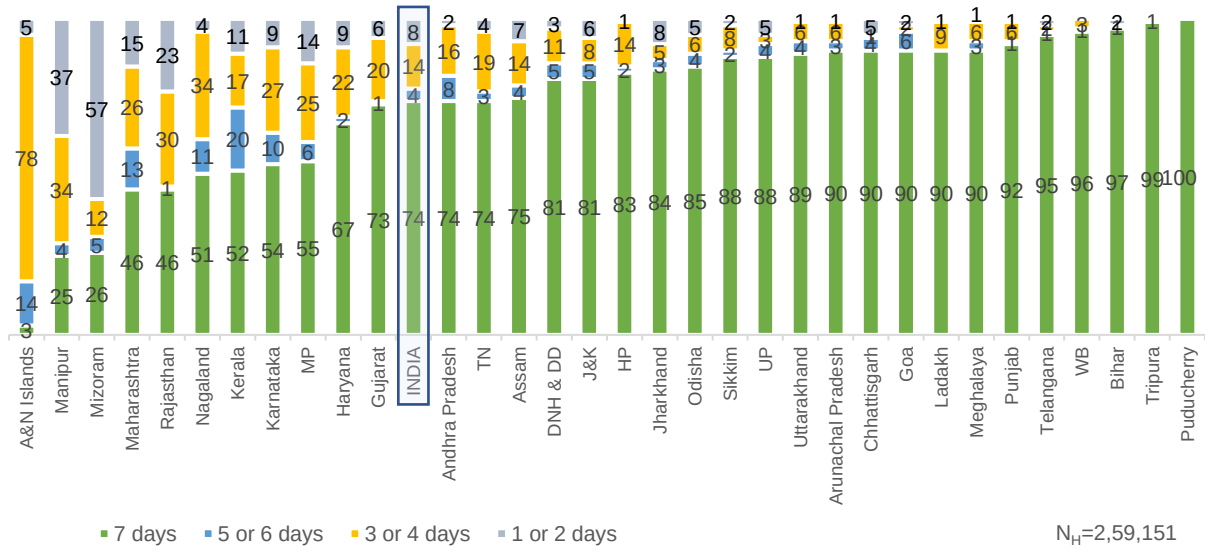
74 percent of the households reported to receive water on daily basis

Figure 12: Average number of days households receive water supply in a week (in %t)



Overall, 6 States/ UTs namely Puducherry, Tripura, Bihar, West Bengal, Telangana and Punjab had reported to receive water at least once a day per week in more than 90 percent HHs.

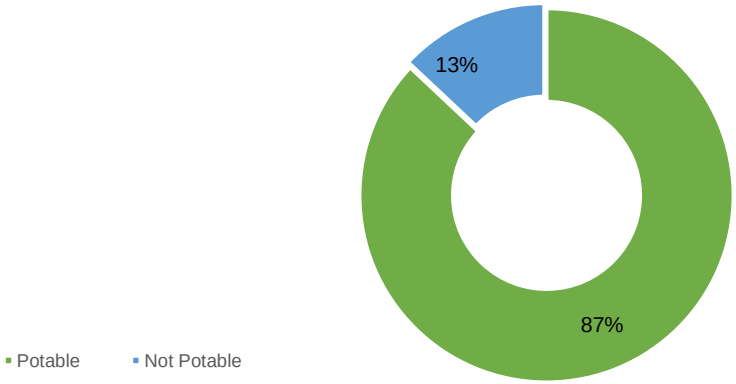
Figure 13: State wise percent of HHs - No. of days of water supply in a typical week



3.2.3 Potability Water – Quality

This analysis has been based on the households where water quantity measurement and quality testing could be carried out during FHTC survey. Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical and bacteriological as given in Table 10 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.

Figure 14: Potable water received by households



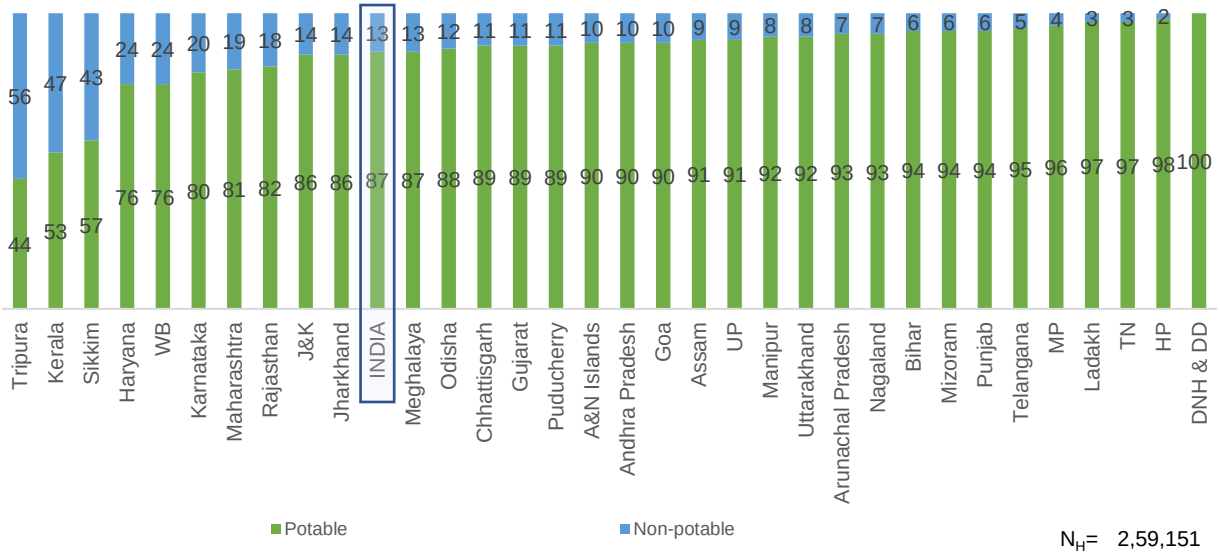
N_H=2,59,151

Among the sampled households where water was found on the day of the survey, the potability of water was found to be 87 percent.

State wise potability of water supply at HHs level

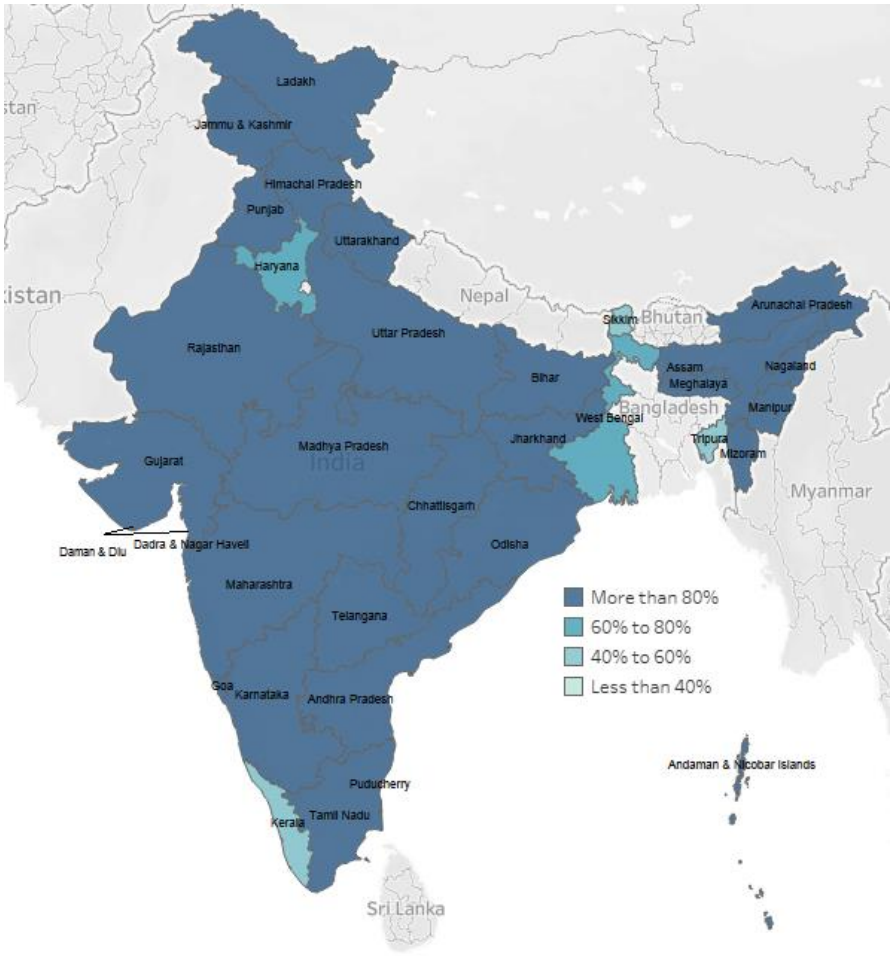
Overall, DNH & DD, Himachal Pradesh, Tamil Nadu, Ladakh and Madhya Pradesh had received potable water in more than 90 percent HHs while Tripura, Kerala and Sikkim had received potable water in less than 60 percent HHs.

Figure 15: State wise potability of water supply at HHs level



N_H= 2,59,151

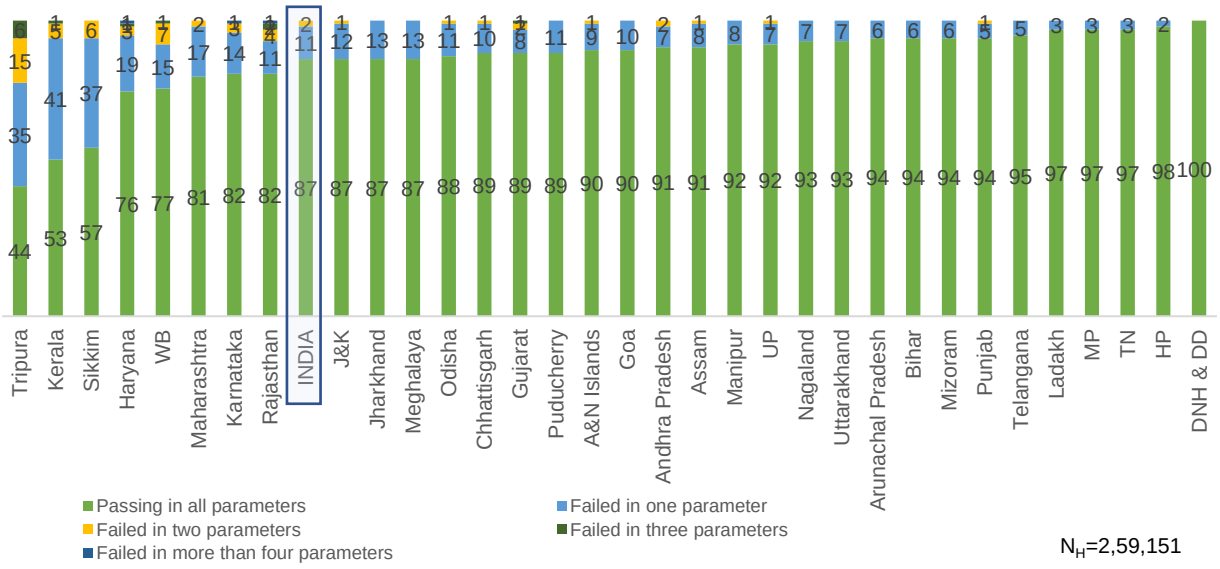
State wise performance map- Potability of water supply at HHs level



Non-potable samples break-up

Among the HHs at national level who failed in potability, 11 percent HHs failed in only one quality parameter while 2 percent HHs failed in more than two quality parameters. Across states, Tripura, Kerala and Sikkim in which more than 40 percent HHs failed in at least one parameter.

Figure 16: State wise non-potable samples break-up



State-wise comparison for potability of water supply between 2020-21 & 2022

Table 5: State-wise comparison for potability of water supply between 2020-21 & 2022

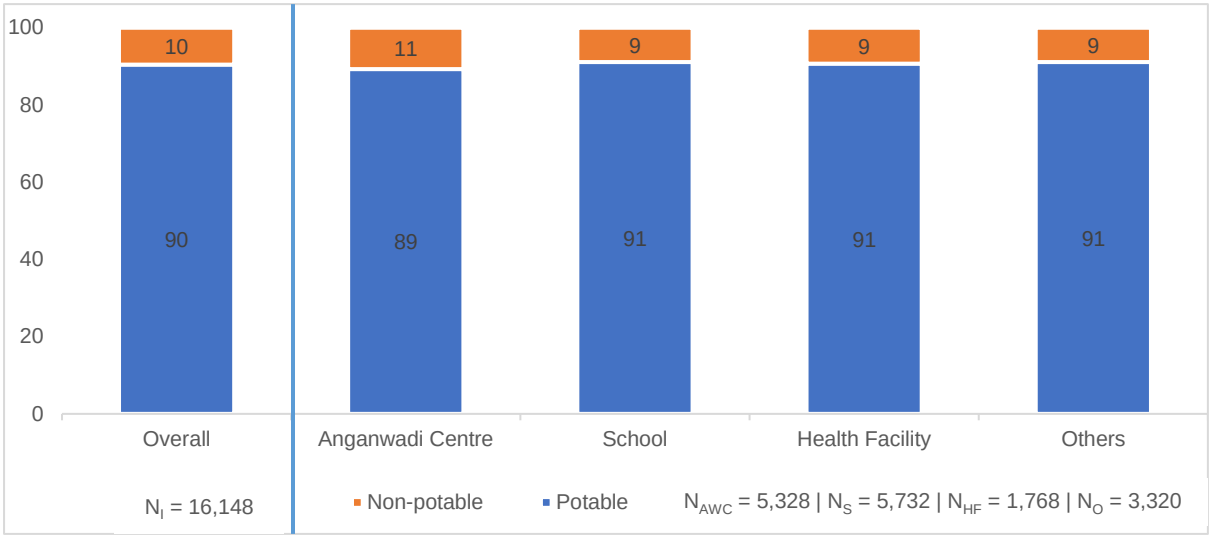
R2 Rank	States/ UTs	R1 (2020-21)* (% HHs)	R2 (2022) (% HHs)	Performance (2022)	Change in rank
1	DNH & DD		100		
2	Himachal Pradesh	98	98	No Change	↓ (1 positions)
3	Ladakh		97		
4	Tamil Nadu	54	97	↑	↑ (18 positions)
5	Madhya Pradesh	42	96	↑	↑ (21 positions)
6	Telangana	86	95	↑	↓ (1 positions)
7	Bihar	76	94	↑	↑ (4 positions)
8	Mizoram	89	94	↑	↓ (4 positions)
9	Punjab	59	94	↑	↑ (11 positions)
10	Arunachal Pradesh	83	93	↑	↓ (4 positions)
11	Nagaland	66	93	↑	↑ (2 positions)
12	Manipur	95	92	↓	↓ (10 positions)
13	Uttarakhand	92	92	No Change	↓ (10 positions)
14	Assam	63	91	↑	↑ (2 positions)
15	Uttar Pradesh	77	91	↑	↓ (5 positions)
16	Andaman & Nicobar Islands	62	90	↑	↑ (2 positions)
17	Andhra Pradesh	63	90	↑	No Change
18	Goa	73	90	↑	↓ (6 positions)
19	Chhattisgarh	43	89	↑	↑ (6 positions)
20	Gujarat	50	89	↑	↑ (4 positions)
21	Puducherry	30	89	↑	↑ (9 positions)
22	Odisha	78	88	↑	↓ (14 positions)
23	Meghalaya	65	87	↑	↓ (8 positions)
24	Jammu & Kashmir	58	86	↑	↓ (3 positions)
25	Jharkhand	78	86	↑	↓ (16 positions)
26	Rajasthan	34	82	↑	↑ (1 positions)
27	Maharashtra	50	81	↑	↓ (4 positions)
28	Karnataka	33	80	↑	No Change
29	Haryana	61	76	↑	↓ (10 positions)
30	West Bengal	30	76	↑	↑ (1 positions)
31	Sikkim	80	57	↓	↓ (24 positions)
32	Kerala	66	53	↓	↓ (18 positions)
33	Tripura	33	44	↑	↓ (4 positions)

Please Note: The green arrows indicate an increase in either performance or rank and the red arrow indicates a drop for the same.

* Reference "FHTC Assessment FY 20-21_Final Report"

Potability of water supply at Public Institutions

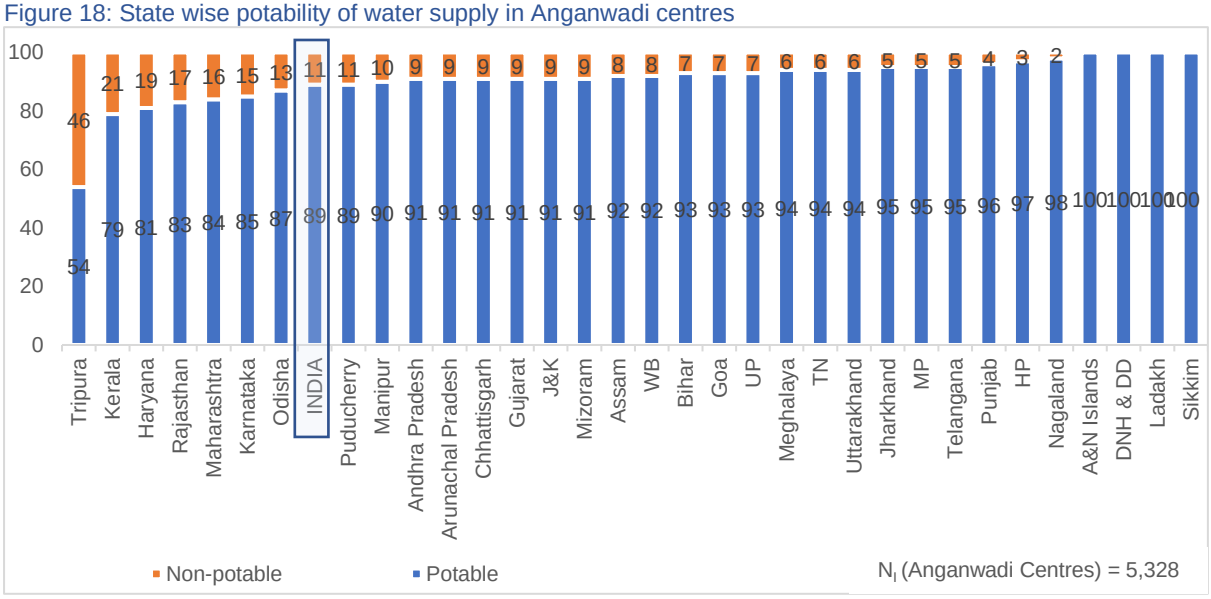
Figure 17: Potability of water supply across various public institutions



A. State wise potability of water supply in Anganwadi centres

Overall, 89 percent AWCs were found to have potable water supply. States/ UTs such as Sikkim, Ladakh, DNH & DD and A&N Islands had received potable water in 100 percent AWC while Tripura and Kerala had received potable water in less than 80 percent AWC.

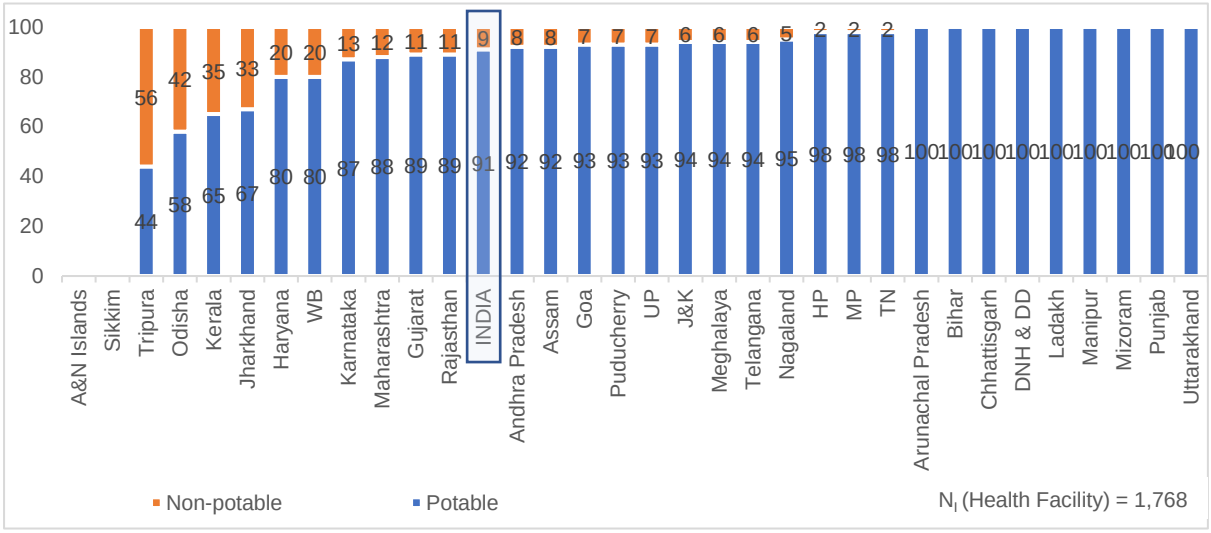
Figure 18: State wise potability of water supply in Anganwadi centres



B. State wise potability of water supply in Health Facility

Overall, 91 percent health facilities were found to have potable water supply. States/ UTs such as Uttarakhand, Punjab, Mizoram, Manipur, Ladakh, DNH & DD, Chhattisgarh, Bihar and Arunachal Pradesh had received potable water in 100 percent health facilities while Tripura and Odisha had received potable water in less than 60 percent health facilities.

Figure 19: State wise potability of water supply in health facility



C. State wise potability of water supply in Schools

Overall, 91 percent schools were found to have potable water supply. States/ UTs such as Ladakh, Jharkhand, Himachal Pradesh, DNH & DD and A&N Islands had received potable water in 100 percent schools while only Tripura had received potable water in less than 60 percent schools.

Figure 20: State wise potability of water supply in schools

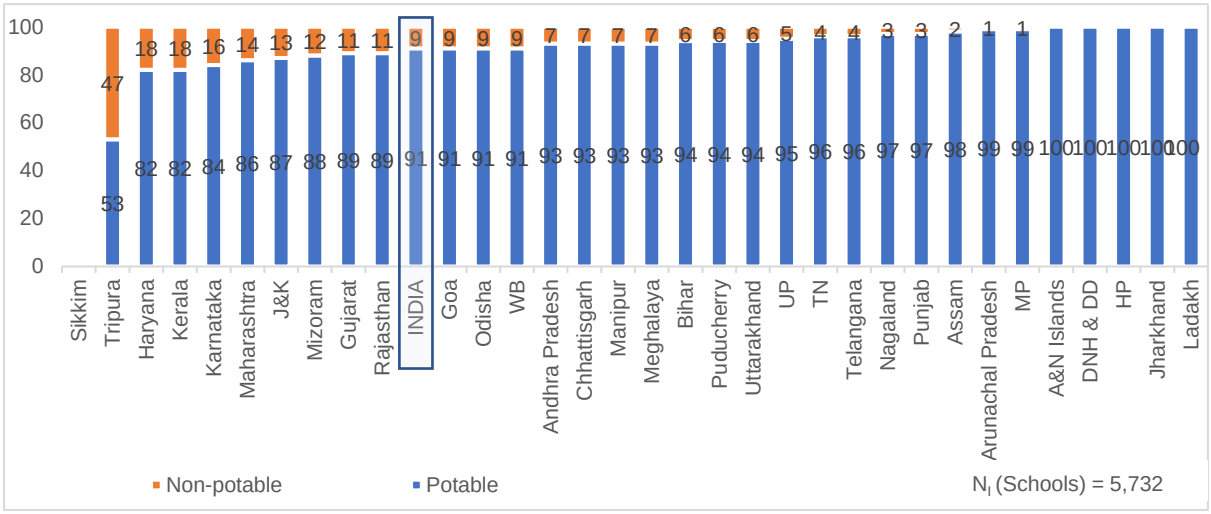


Table 6: Village quality parameters reported within permissible range (% sample within permissible range)

Quality Parameters (N_v=11,599)	% of Water Samples Tested from Public Institutes							
	Anganwadi Centre		Health Facility		Schools		Others	
	No of water samples tested	% Samples within permissible range	No of water samples tested	% Samples within permissible range	No of water samples tested	% Samples within permissible range	No of water samples tested	% Samples within permissible range
pH (on-site)	5,328	96	1,768	96	5,732	96	3,320	96
Turbidity	3,178	99	943	100	3,107	99	1,648	99
Total Hardness	3,158	98	965	99	3,153	99	1,632	99
Total Alkalinity	3,101	99	943	100	3,050	100	1,618	100
Chloride	2,851	100	875	100	2,852	100	1,479	100
Ammonia	65	100	19	100	63	100	41	100
Iron	1,240	99	293	98	1,137	99	595	99
Nitrate	2,560	97	763	98	2,429	98	1,364	98
Sulphate	2,352	99	668	100	2,130	100	1,235	100
Total Dissolved Solids	2,818	99	839	99	2,816	99	1,450	99
Bacteriological Test (Absence)	2,421	93	721	92	2,162	92	1,216	92
Fluoride	950	98	309	97	1,061	100	627	100
Arsenic	107	99	25	100	135	88	43	88

Household water quality parameters reported within permissible range (in % sample within permissible range)

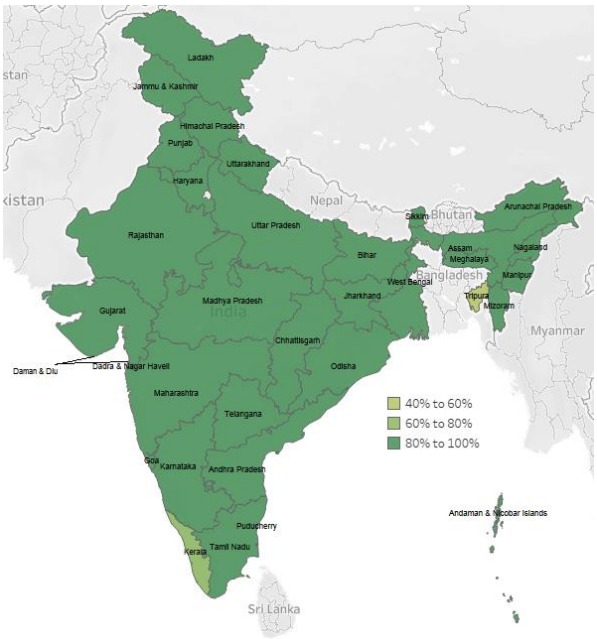
The number of water samples submitted to the laboratory for the calculation of the different parameters was the same as mentioned in the rest of the report (sample size for HH water submitted to labs=2,59,151). However, the below data are presented based on the results received from the laboratories and the respective base sizes are mentioned for each of the parameters separately.

Table 10: Household water quality parameters reported within permissible range (in % sample within permissible range)

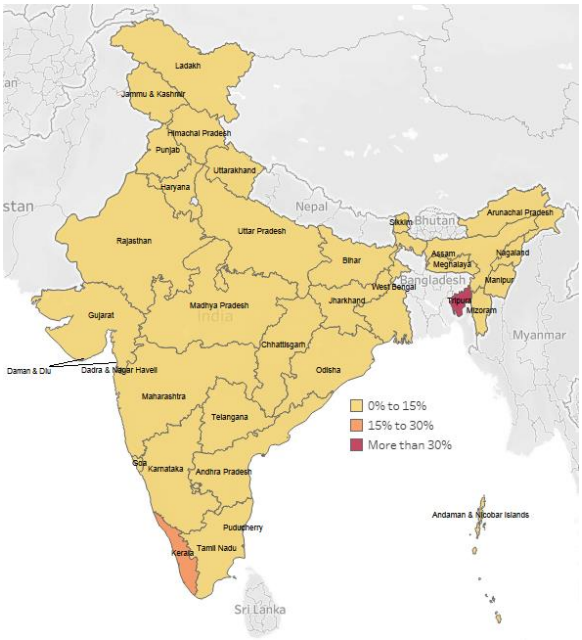
Quality Parameters	No of water samples tested	% Samples within permissible range
pH (on-site)	2,59,151	95
Turbidity	1,91,812	98
Total Hardness	1,97,868	99
Total Alkalinity	1,85,772	99
Chloride	1,61,477	100
Ammonia	2,160	100
Iron	79,666	96
Nitrate	1,36,667	97
Sulphate	1,15,034	100
Total Dissolved Solids	1,77,155	99
Bacteriological Test (Absence)	1,17,861	93
Fluoride	65,412	97
Arsenic	14,930	98

State wise performance in map household water quality parameters- pH (On-Site)

% Samples within permissible range

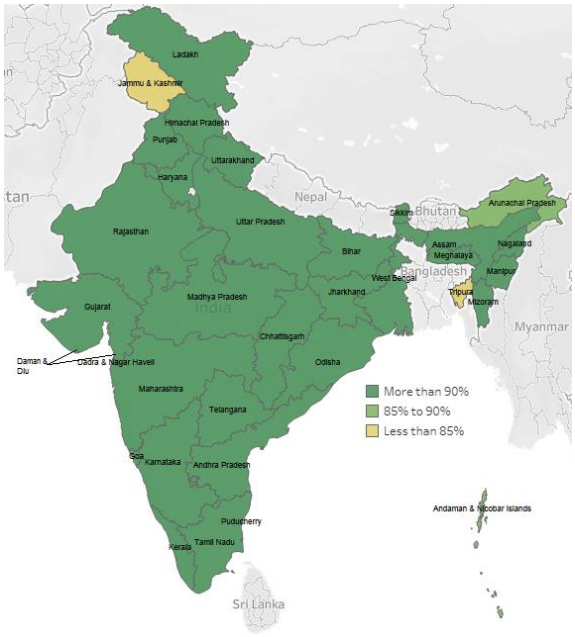


% Samples outside range

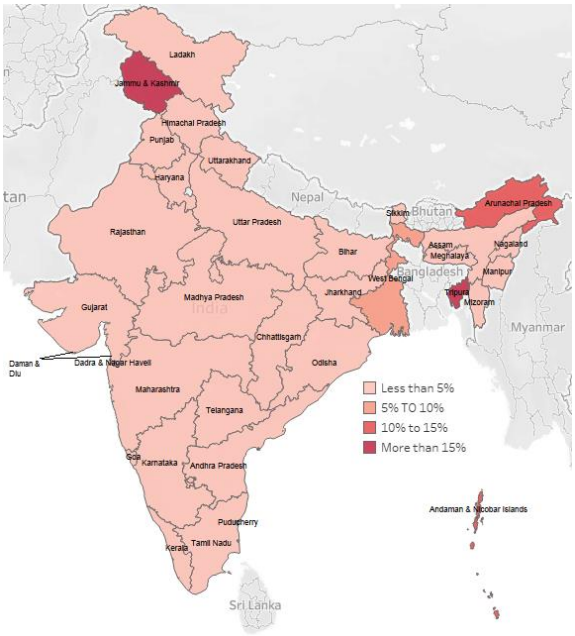


State wise performance in map household water quality parameters- Turbidity

% Samples within permissible range

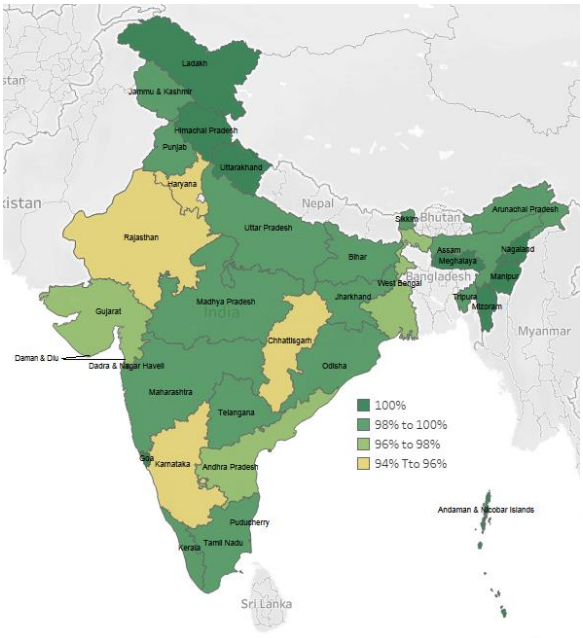


% Samples outside range

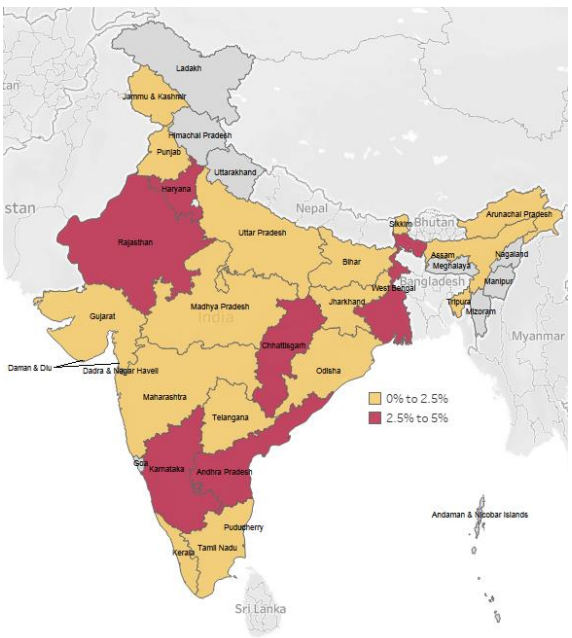


State wise performance in map household water quality parameters- Total Hardness

% Samples within permissible range

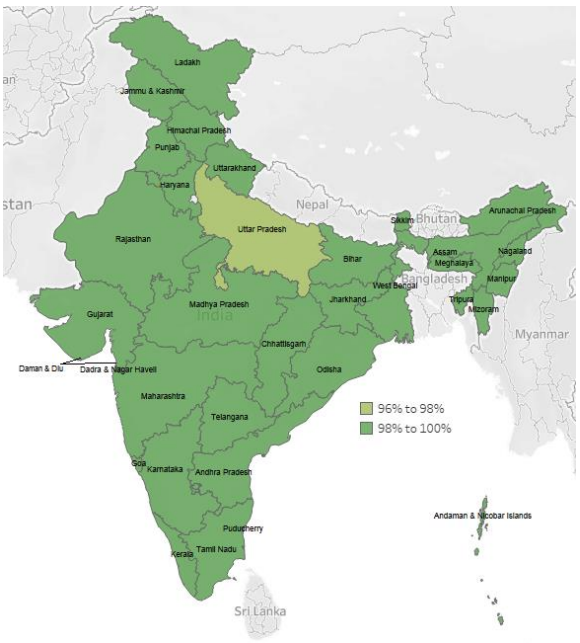


% Samples outside range

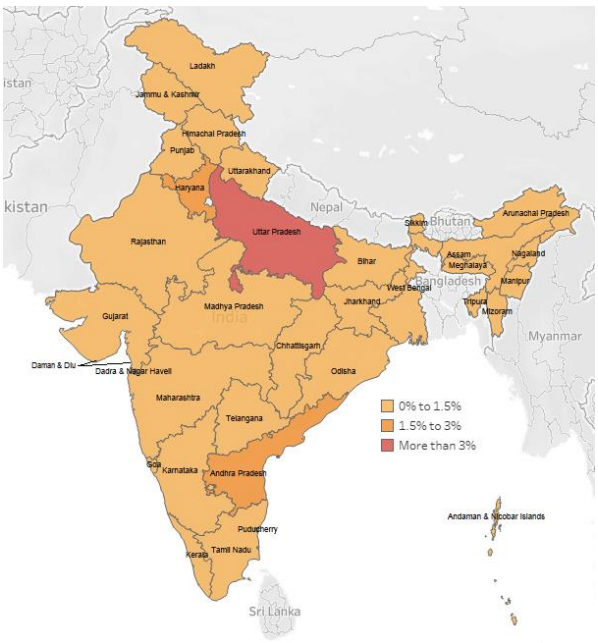


State wise performance in map household water quality parameters- Total Alkalinity

% Samples within permissible range

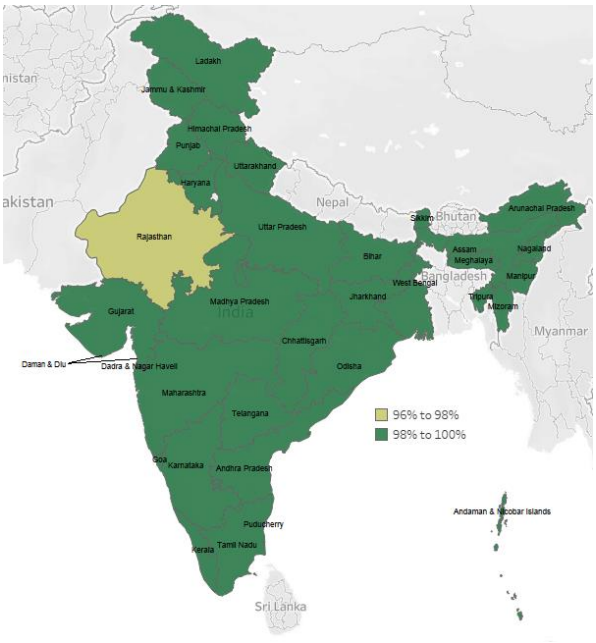


% Samples outside range

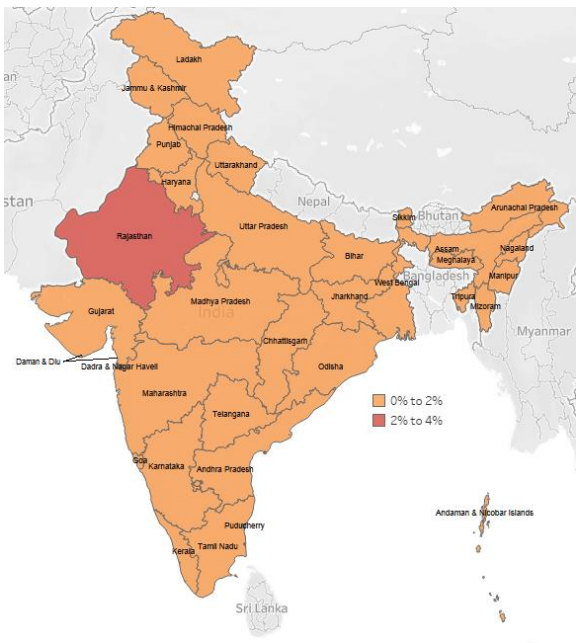


State wise performance in map household water quality parameters- Chloride

% Samples within permissible range

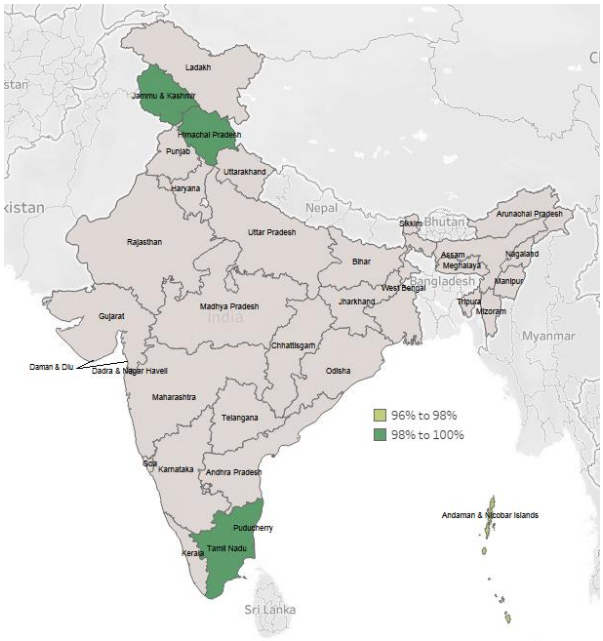


% Samples outside range

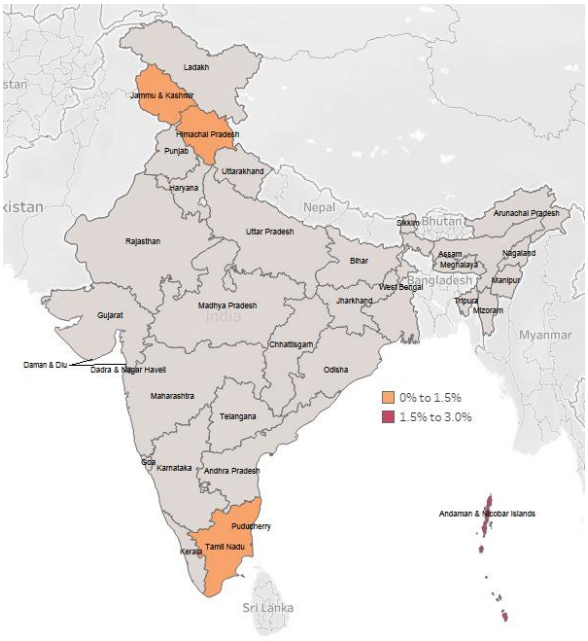


State wise performance in map household water quality parameters- Ammonia

% Samples within permissible range

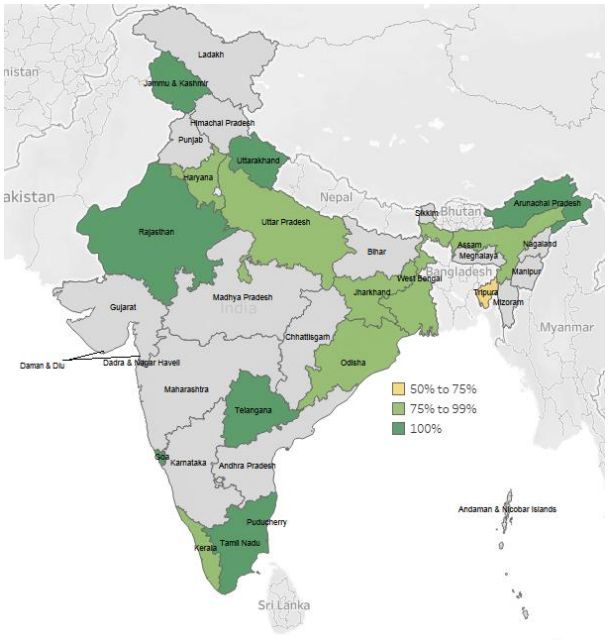


% Samples outside range

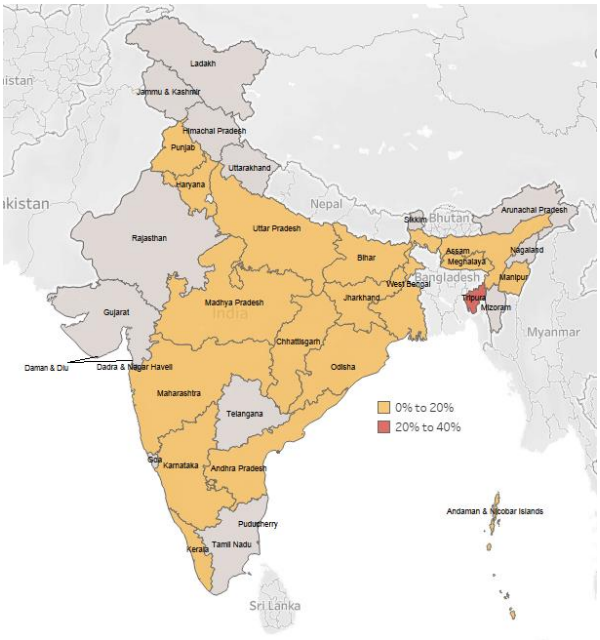


State wise performance in map household water quality parameters- Iron

% Samples within permissible range

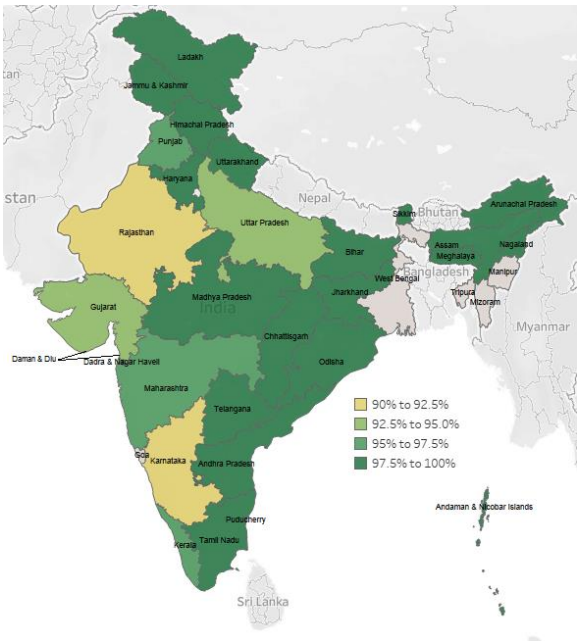


% Samples outside range

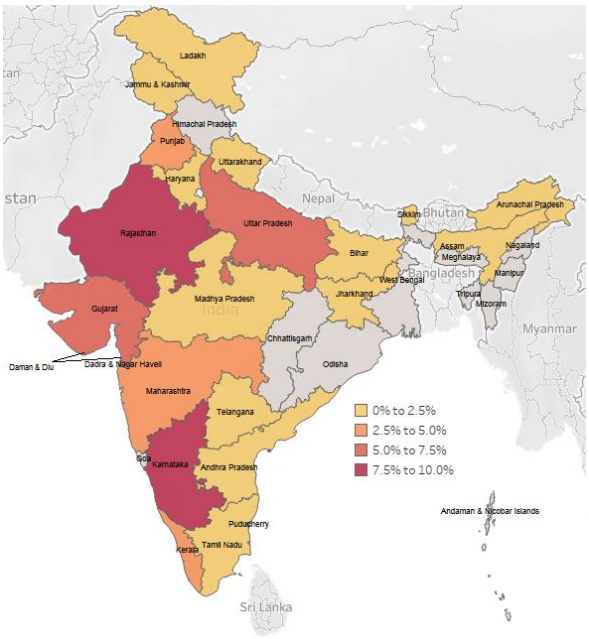


State wise performance in map household water quality parameters- Nitrate

% Samples within permissible range

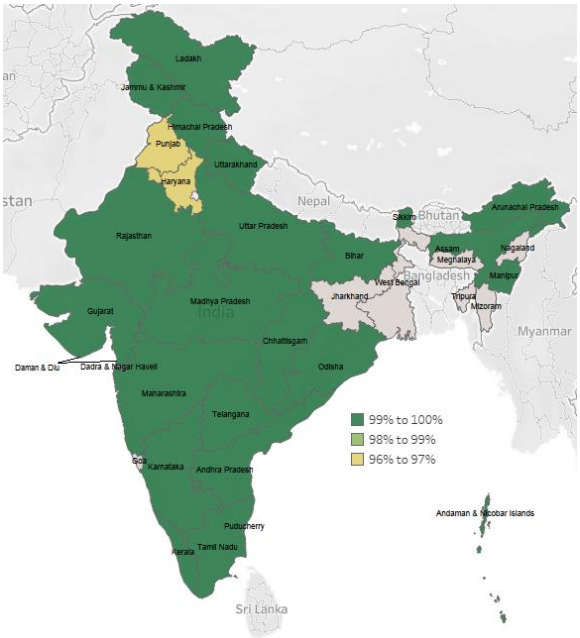


% Samples outside range

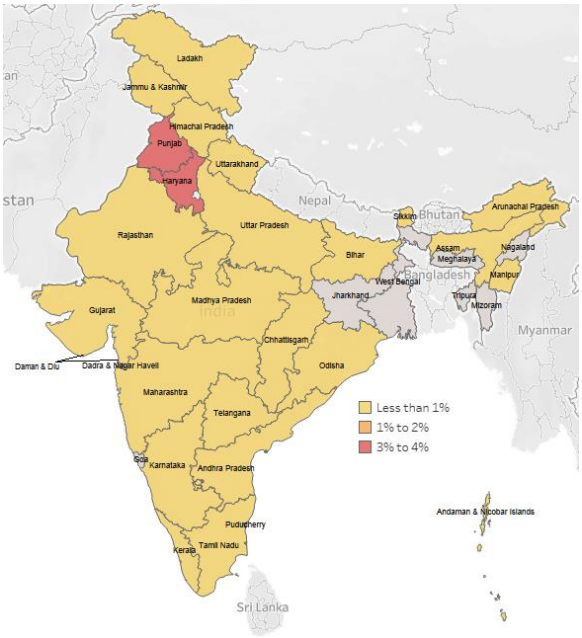


State wise performance in map household water quality parameters- Sulphate

% Samples within permissible range

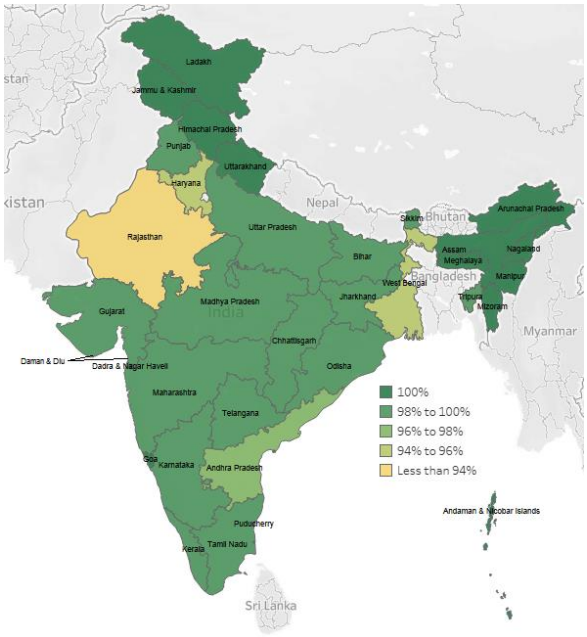


% Samples outside range

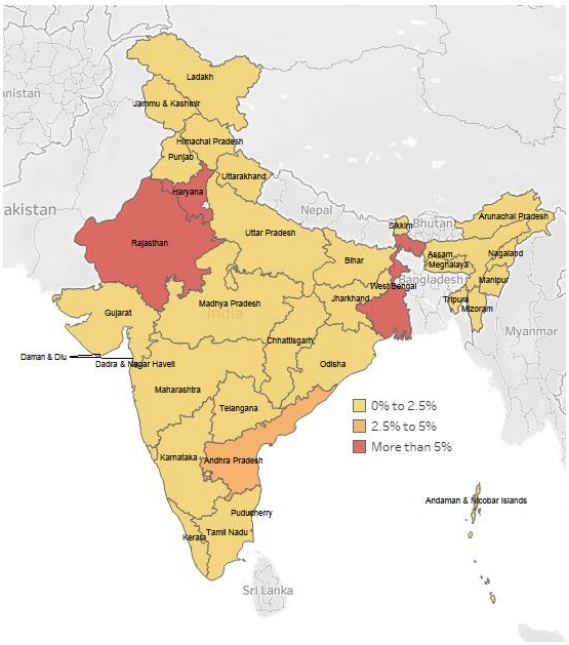


State wise performance in map household water quality parameters- Total Dissolved Solids

% Samples within permissible range

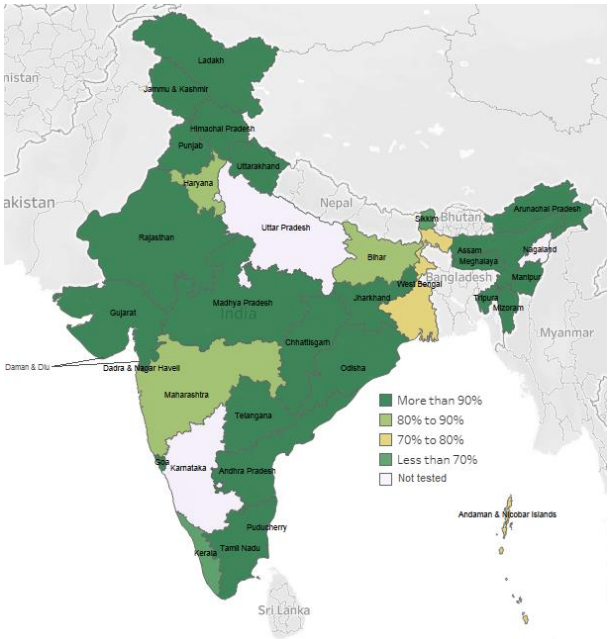


% Samples outside range

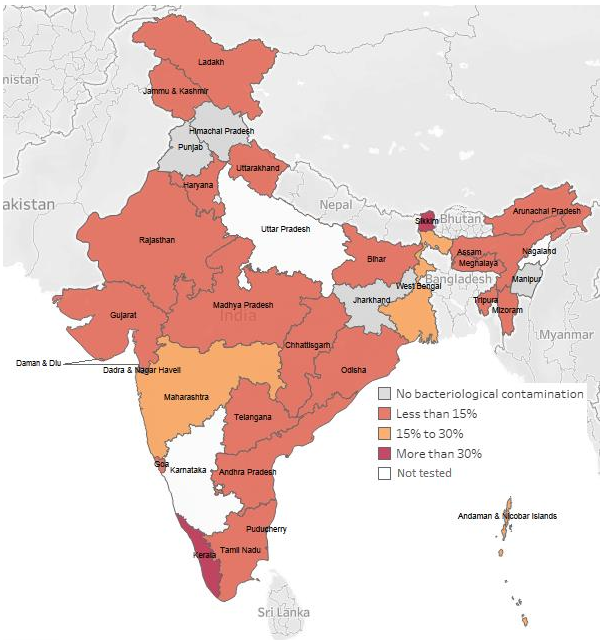


State wise performance in map household water quality parameters- Bacteriological Contamination

% Samples having absence of contamination



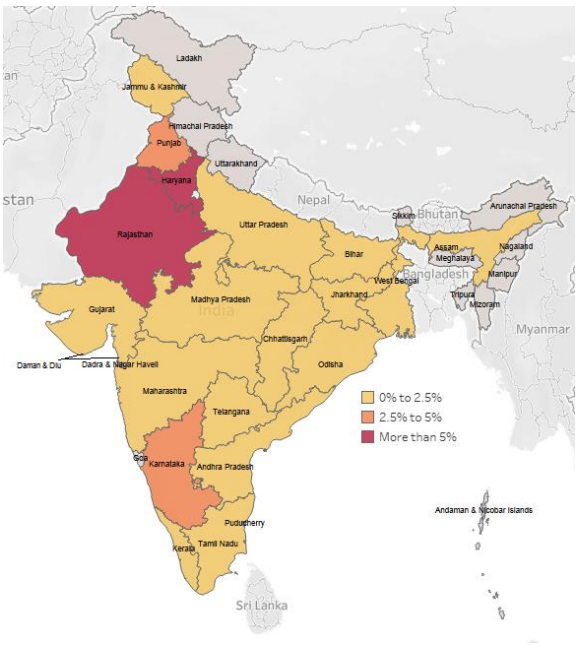
% Samples having presence of contamination



State wise performance in map household water quality parameters- Fluoride

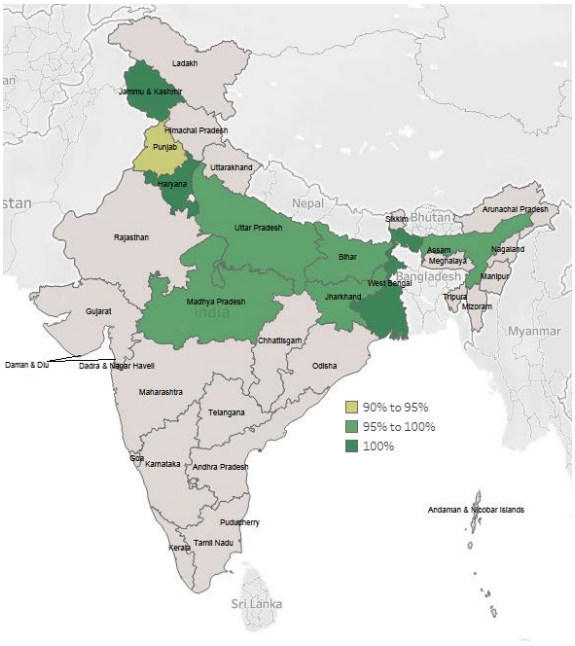
% Samples within permissible range

% Samples outside range

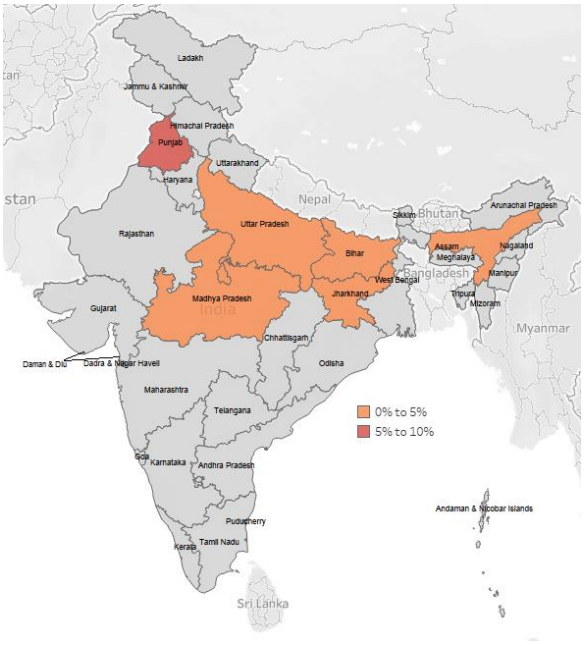


State wise performance in map household water quality parameters- Arsenic

% Samples within permissible range



% Samples outside range



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

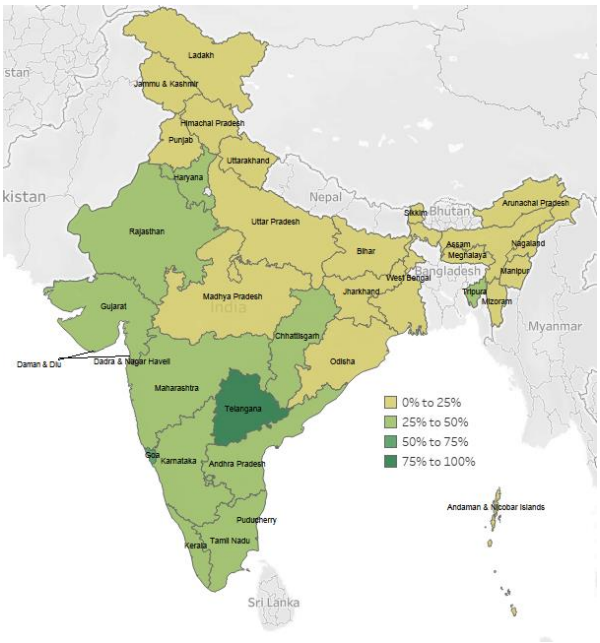
The Residual Chlorine in piped water supply is one of the most important preventive actions to assure quality of water against bacteriological contamination from source to consumption. The presence of residual chlorine within permissible limits is indicator of well-maintained and healthy piped water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

The Residual Chlorine (RC) in supplied water was found in 24 percent samples, at the national level. Out of which 4 percent samples were beyond permissible range whereas 72 percent samples, had no RC. Majority (93 percent) water samples passed the bacteriological contamination test, while in balance 7 percent samples, bacteriological contamination was reported. Out of the total contaminated samples, 24 percent samples had chlorine in permissible range while in 72 percent samples there was no chlorination and in 4 percent RC was outside range.

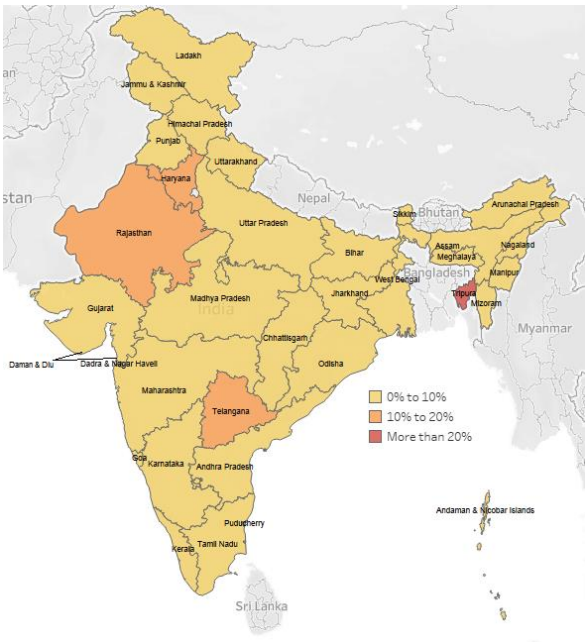
It would be critical to advise that behavioural change communication campaigns on appropriate dosage of residual chlorine are held in villages and monitoring system for chlorine dosing is established. Moreover, the FTK must have residual chlorine testing facility for effective WQM&S.

State wise performance in map household water quality parameters- Residual Chlorine

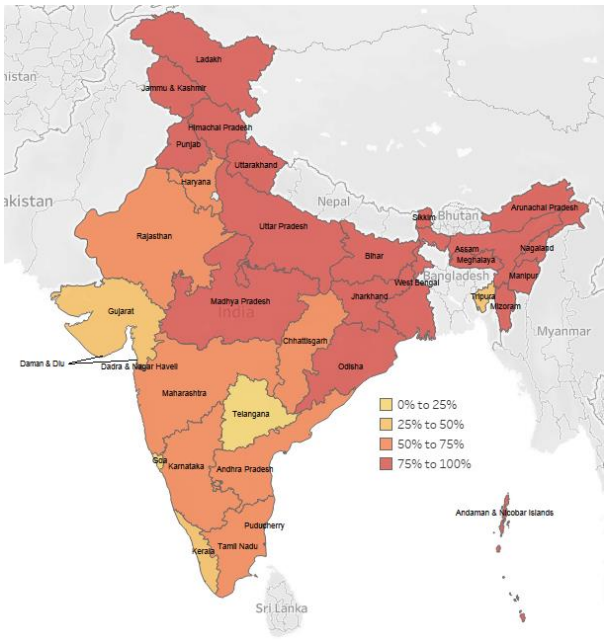
% Samples within permissible range



% Samples outside range



% Samples with no chlorine

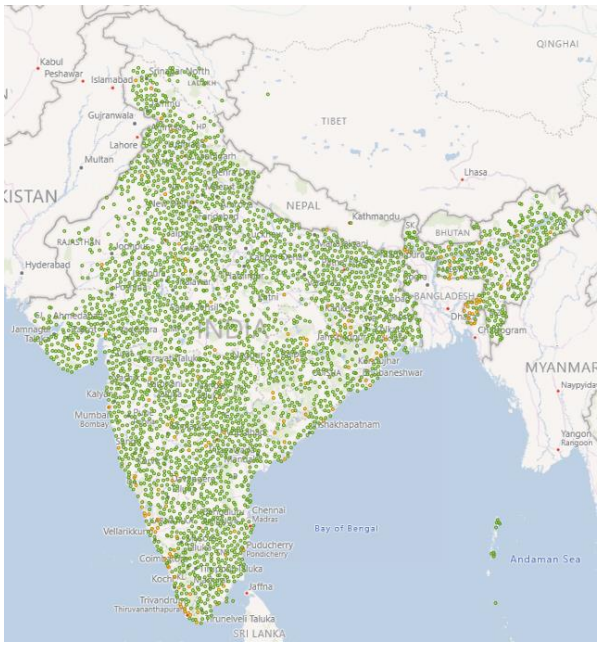


Comment on functioning of District Lab:

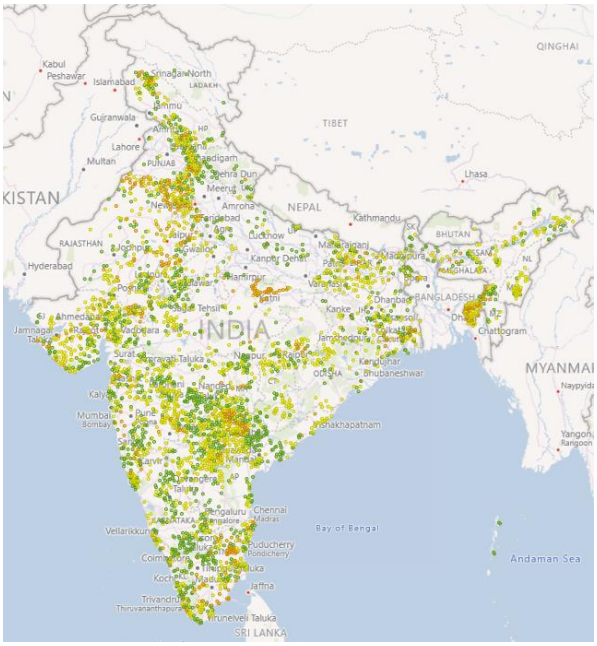
The districts lab tests water samples for 12 water quality parameters, as stated above. Water samples from Village HHs (N=2,75,296) were submitted, and of this, 83 percent (2,29,408) water samples were tested by the labs for which reports were made available. The turnaround time for testing was more than 48 hours in most cases. Given this background, it is important to acknowledge that labs' testing capacity should be enhanced.

State wise performance in map view indicating the distribution of quality parameters

pH

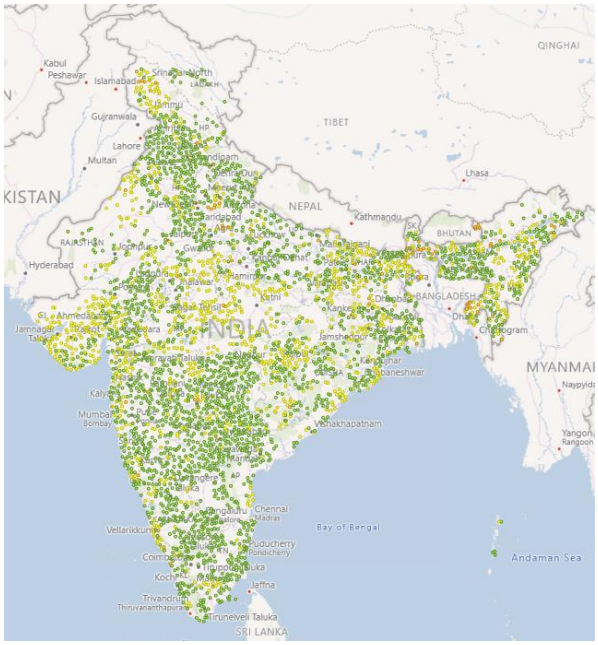


Residual Chlorine

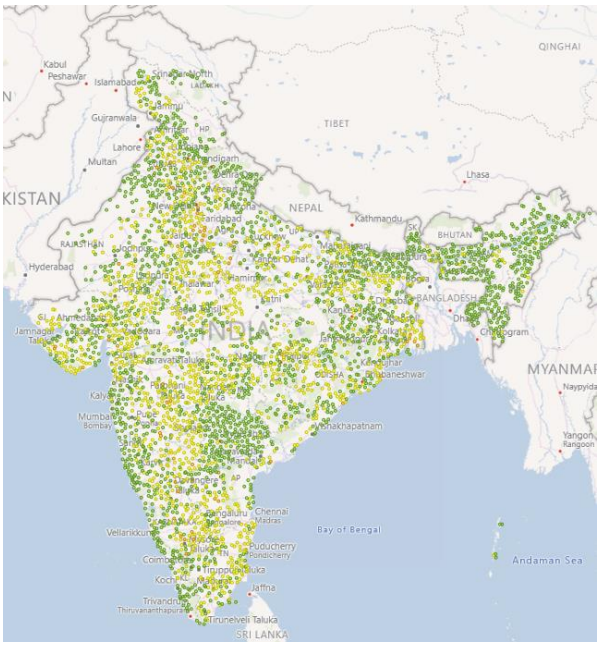


	Permissible		No Chlorine		Out of range

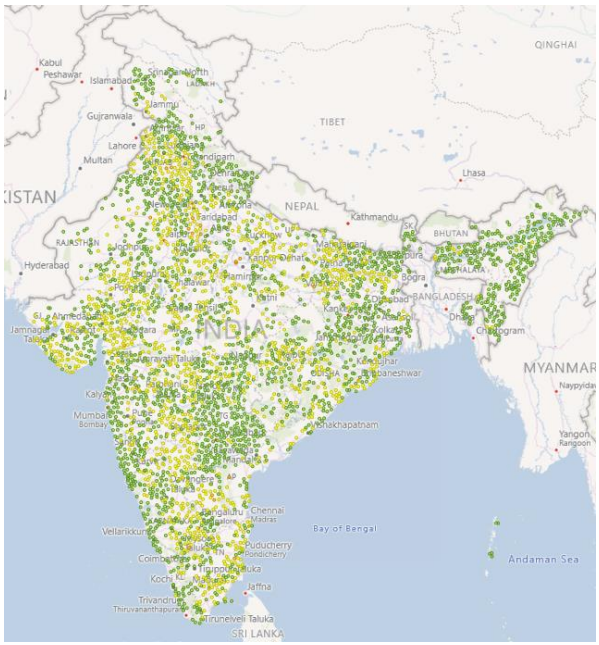
Turbidity



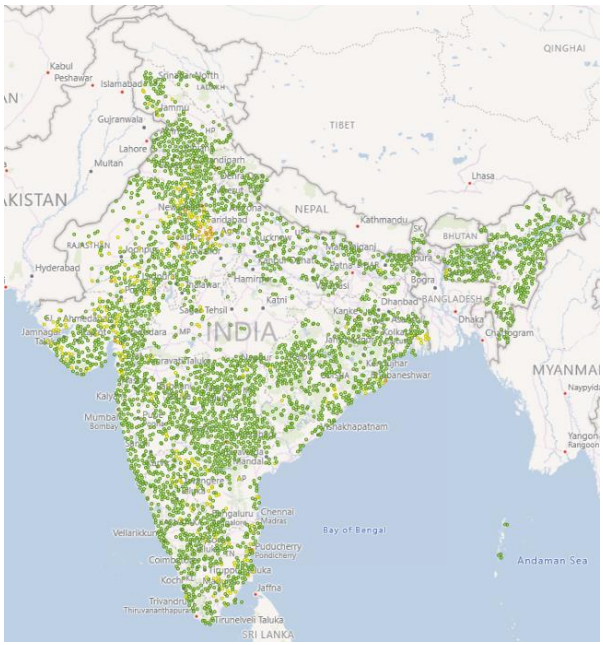
Total Hardness



Total Alkalinity

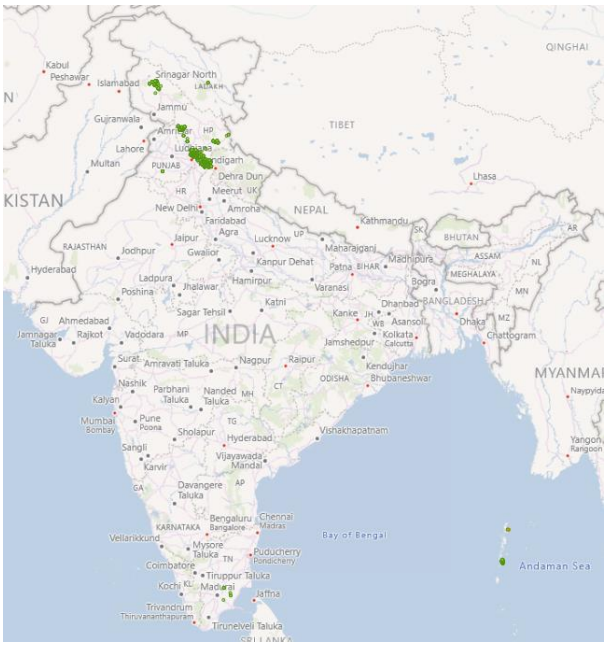


Chloride

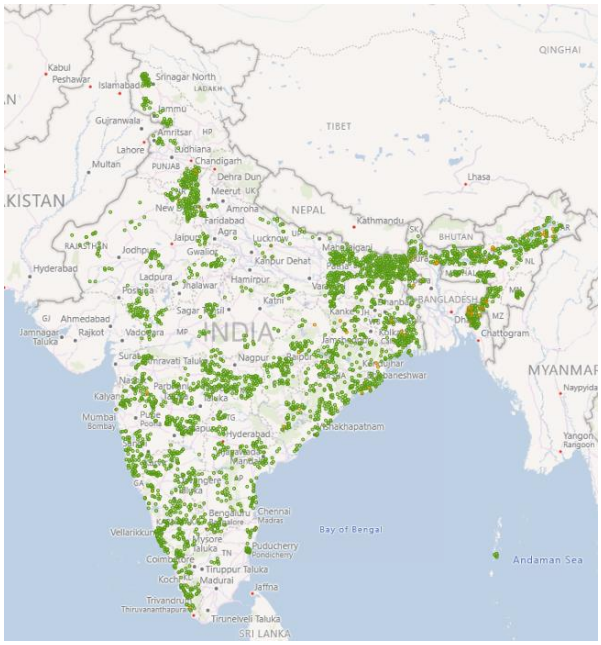


	Acceptable		Permissible		Out of range

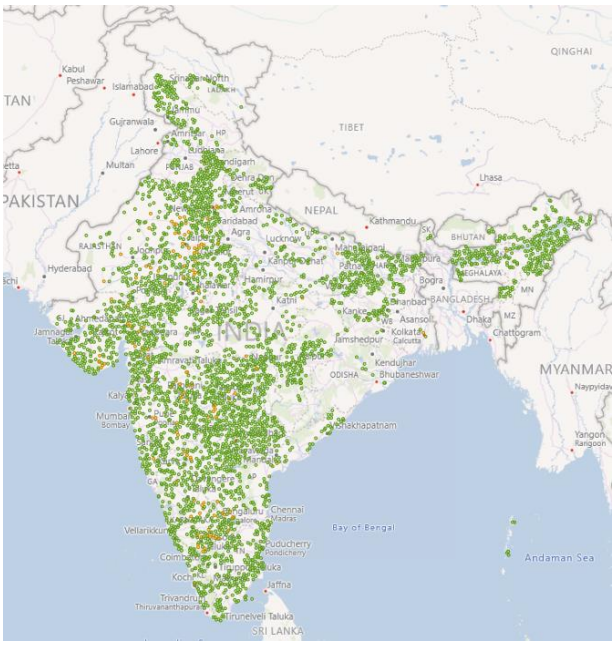
Ammonia



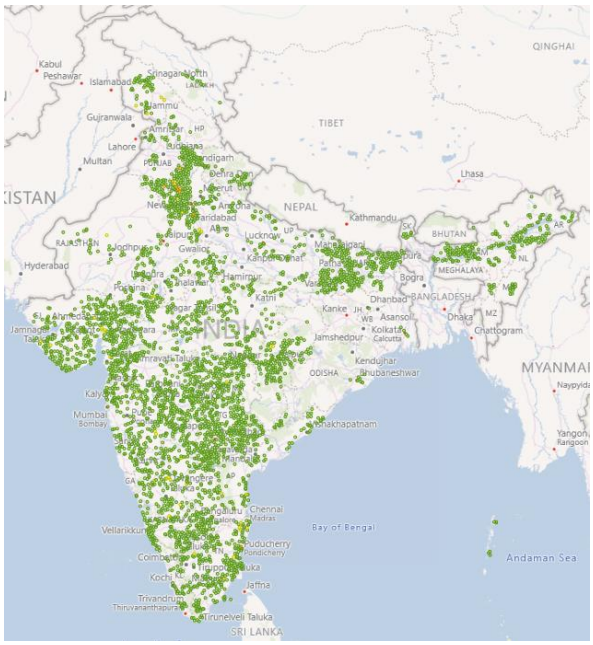
Iron



Nitrate

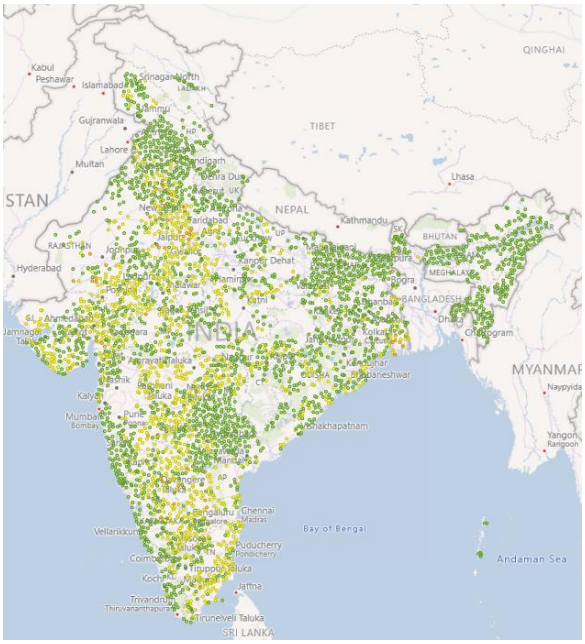


Sulphate

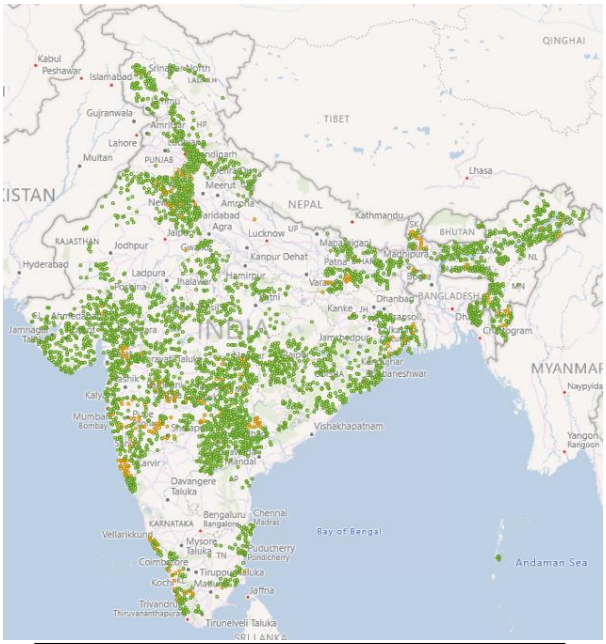


	Acceptable		Permissible		Out of range

Total Dissolved Solids

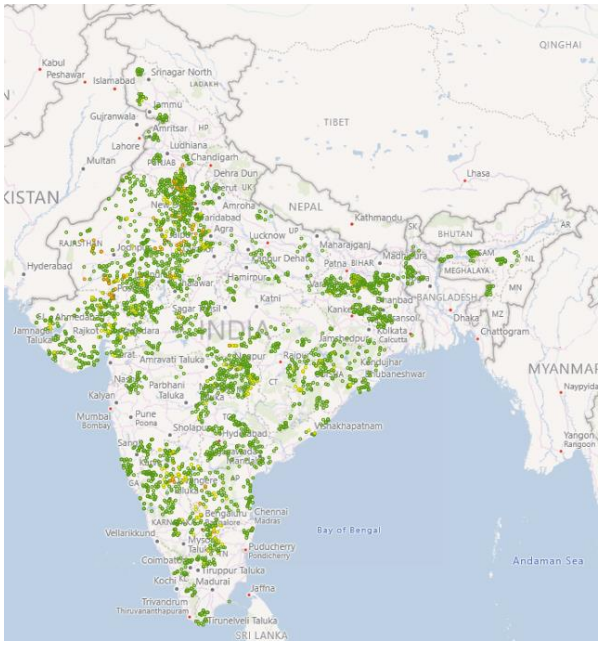


Bacteriological Test



	Absent		Present

Fluoride



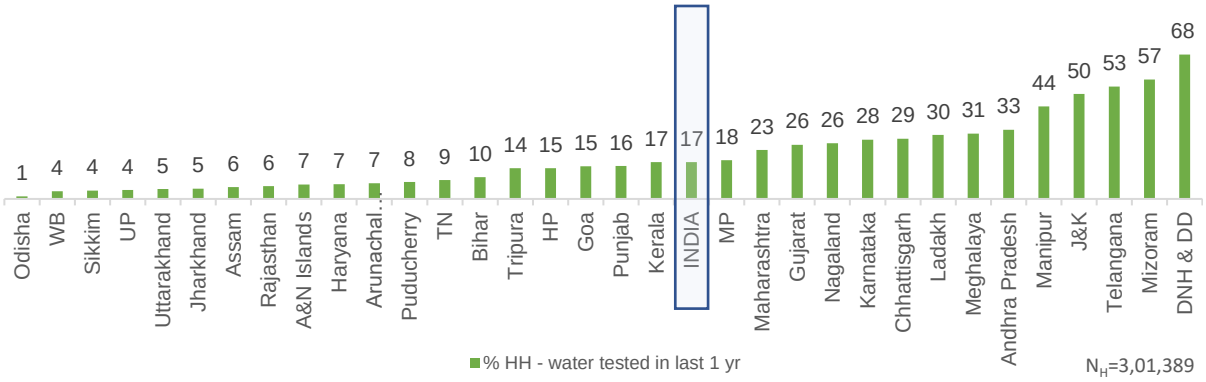
Arsenic

	Acceptable		Permissible		Out of range

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

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

Figure 21:State wise households reported that their HH tap-water was collected and tested in the last one year



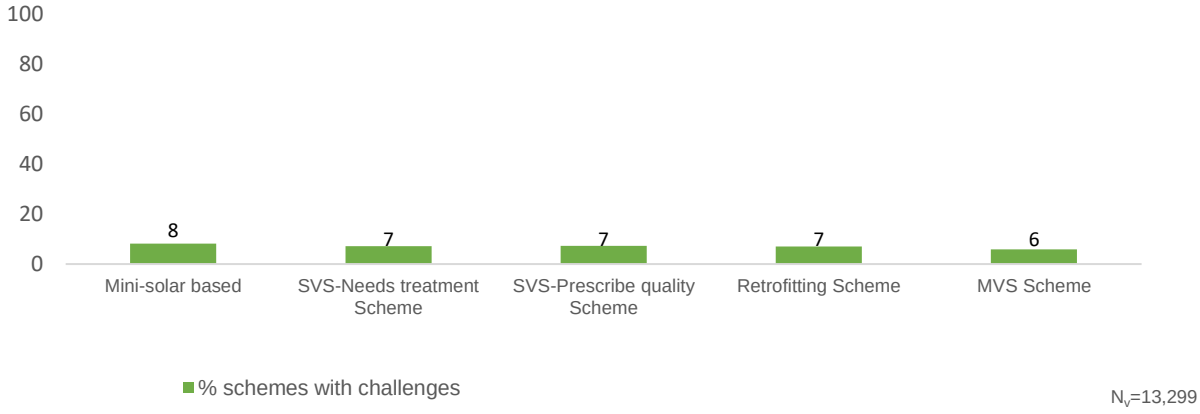
3.3 Operation and maintenance (O&M) of schemes at village level

The village questionnaire captured total number of schemes available in a village. Four types of schemes included in this assessment: (i) mini solar power based piped water supply schemes, (ii) single village schemes (SVS) having adequate ground water that need treatment, (iii) single village schemes (SVS) having a source with prescribed water quality, (iv) multi village piped water supply scheme (MVS) and (v) retrofitted old PWS schemes to make it JJM compliant.

Schemes reported to have faced challenge in village

While challenges were not reported by many, of the 4 schemes, 8 percent) villages reported challenges in mini-solar scheme.

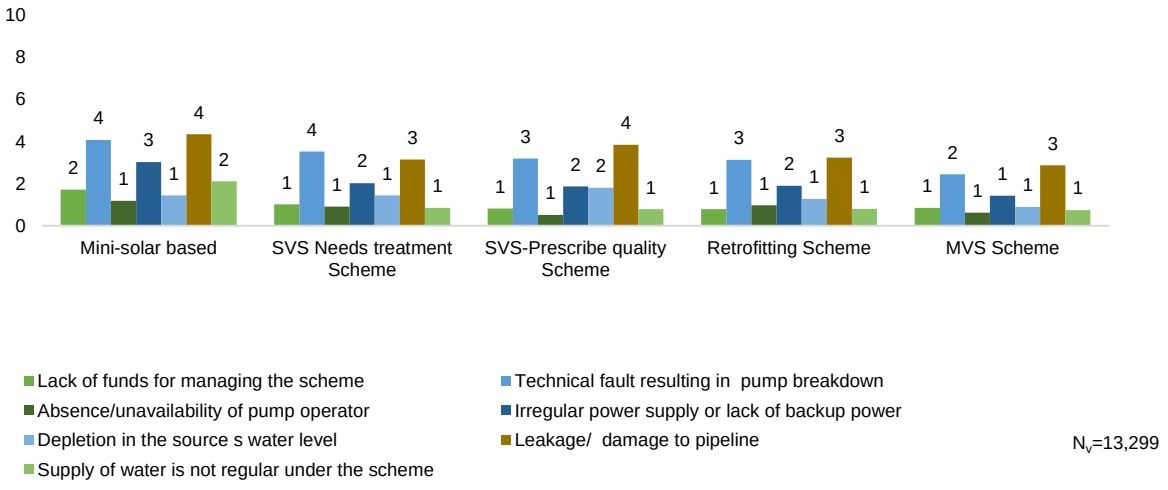
Figure 22: Schemes reported to have faced challenge in village



Type of challenge faced by the schemes

The most faced problem varied from one scheme to another. However, 'leakage/damage to pipeline' is a problem that was reported most

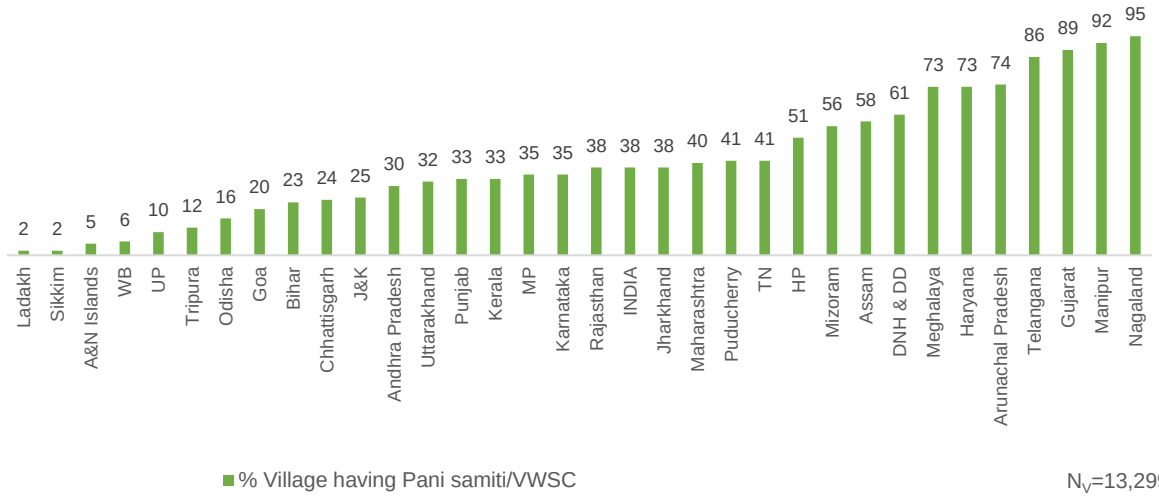
Figure 23: Type of challenge faced by the schemes (% villages)



3.3.1 Villages that reported presence of VWSC/ Pani Samiti

Overall, about a third (38 percent) of villages in the states/ UTs reported to have a VWSC or a Pani Samiti. Manipur and Nagaland reported to have presence of VWCS/ Pani Samiti in more than 90 percent villages while West Bengal, A&N Islands, Sikkim and Ladakh reported lower than 10 percent villages having VWCS/ Pani Samiti.

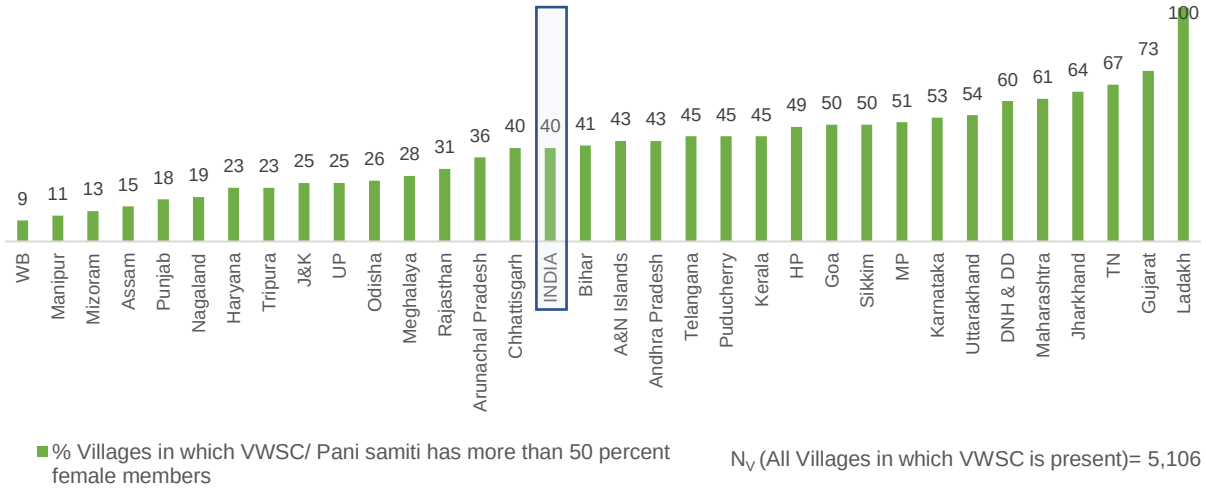
Figure 24: Villages that reported presence of VWSC/Pani samiti



3.3.2 VWSC/ Pani Samiti with more than 50 percent female members

Amongst the villages who had reported presence of VWSC/ Pani Samiti, 40 percent villages reported more than 50 percent female members, at national level. In 12 states / UTs, less than 30 percent villages reported having more than 50 percent female member and to be noted that all villages in Ladakh reporting, more than 50 percent female member.

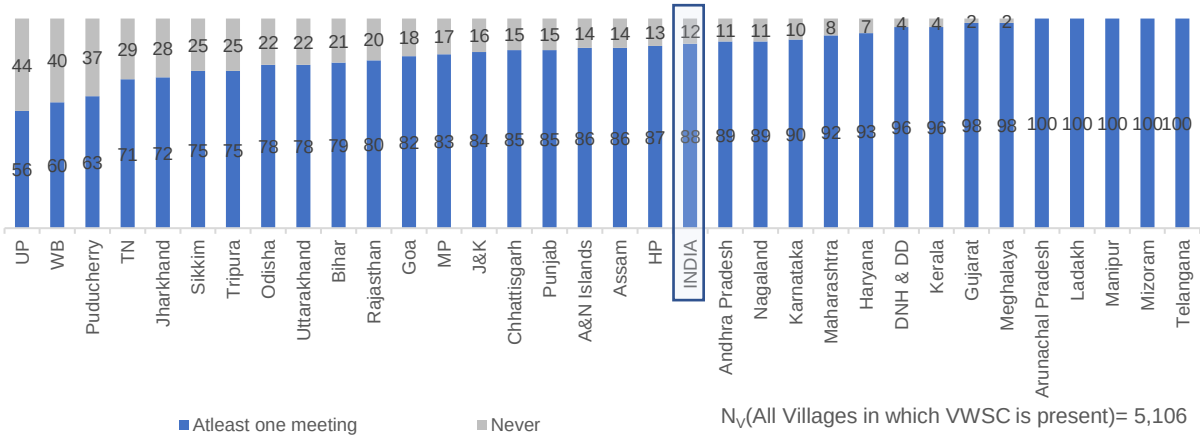
Figure 25: VWSC/ Pani Samiti with more than 50 percent female members



3.3.3 VWSC/Pani Samiti meetings in last 1 year

Out of the villages who reported having a VWSC/ Pani Samiti, at the all India level, 88 percent villages reported to have held atleast one meeting last one year. Arunachal Pradesh, Ladakh, Manipur, Mizoram and Telangana reported to hold at least one meeting, in all villages having VWSC/ Pani Samiti while in UP and WB close to 40 percent villages reporting to have i never held any meetings in the last one year.

Figure 26: VWSC meetings held in last one year



3.4 Utilization of water for drinking and other activities- At household level

The adequacy of water supply was measure in terms of proportion of households' demand met by the HH tap connection. The daily requirement included drinking, cooking, bathing, cleaning, washing, and livestock feeding. Additionally, it was also asked about what the primary source of water for drinking purposes was.

Overall, majority (80 percent) surveyed households fully met all their requirements by water supplied through HH tap connection.

All most all HHs, (97 percent) reported using improved primary source of drinking water, out of which 63 percent HHs reported HH tap water as their primary source. Tube well/borewell, handpumps and public standposts are other improved alternative sources also used as primary source of drinking water. Only 3 percent households had used unimproved sources for drinking purposes.

Quite evidently there is scope for advocating on the suitability of FHTC for drinking purposes as even though a small percent of HHs are using non-HH tap connections their daily water need.

Figure 27: Met need of household's daily requirement of water through FHTC (% HHs)

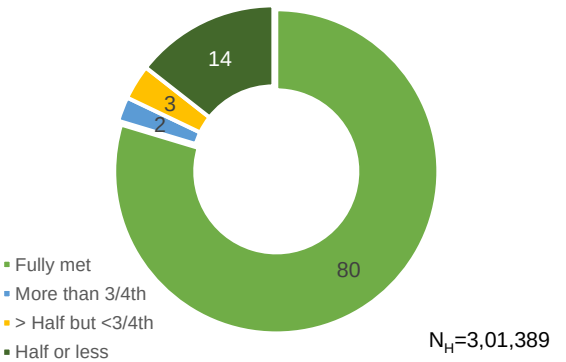
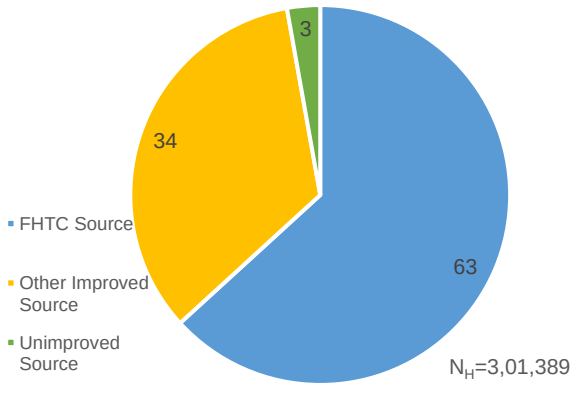


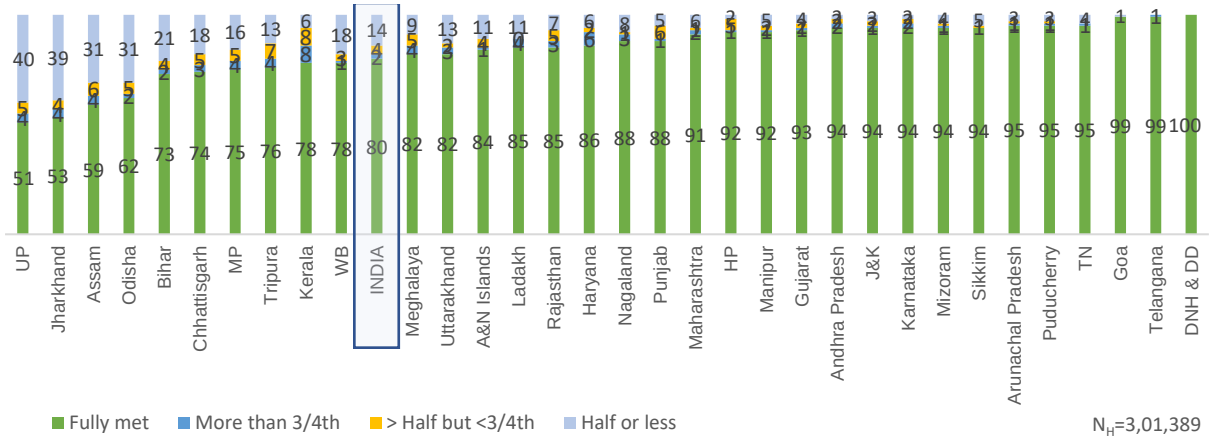
Figure 28: Percent of Households reporting FHTC as primary source of drinking water (% HHs)



A. State wise percentage of daily household's requirement of water being met by FHTC

Across states/ UTs, DNH & DD, Telangana, Goa, Tamil Nadu, Puducherry and Arunachal Pradesh reported that their daily requirement of water was being met by HH tap connections in more than equal to 95 percent HHs.

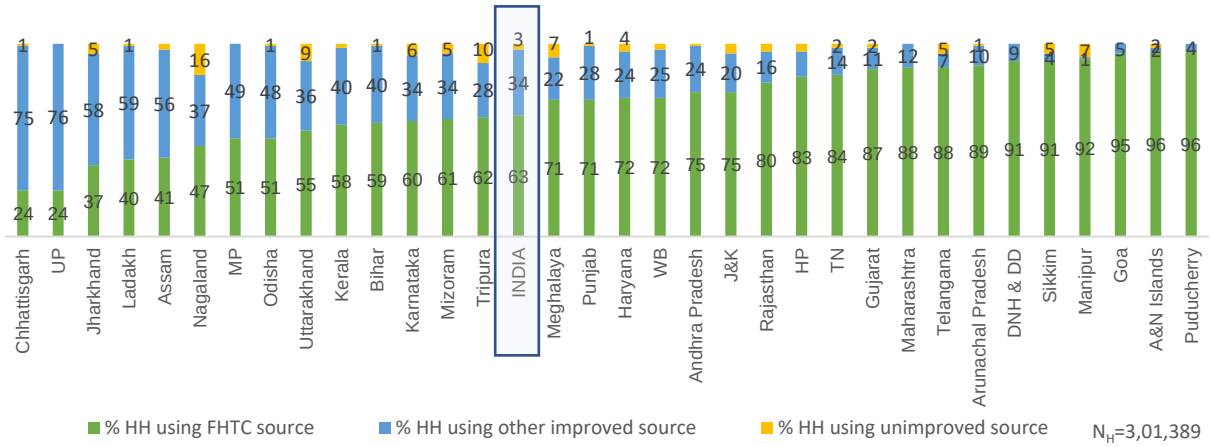
Figure 29: State wise percentage distribution of household's reporting households' requirement of water met by FHTC



B. State wise percentage of household's using FHTC as primary source of drinking water

Nationally, about two-third (63 percent) using FHTC as the primary source for drinking water. Puducherry, A&N Islands and Goa reported that 95percent and above HHs use HH tap water as their primary source while in a few bigger states namely Chhattisgarh and Uttar Pradesh reported that less than 30percent HHs use HH tap water as their primary source.

Figure 30: State wise percentage distribution of household's using FHTC and other sources as primary source of

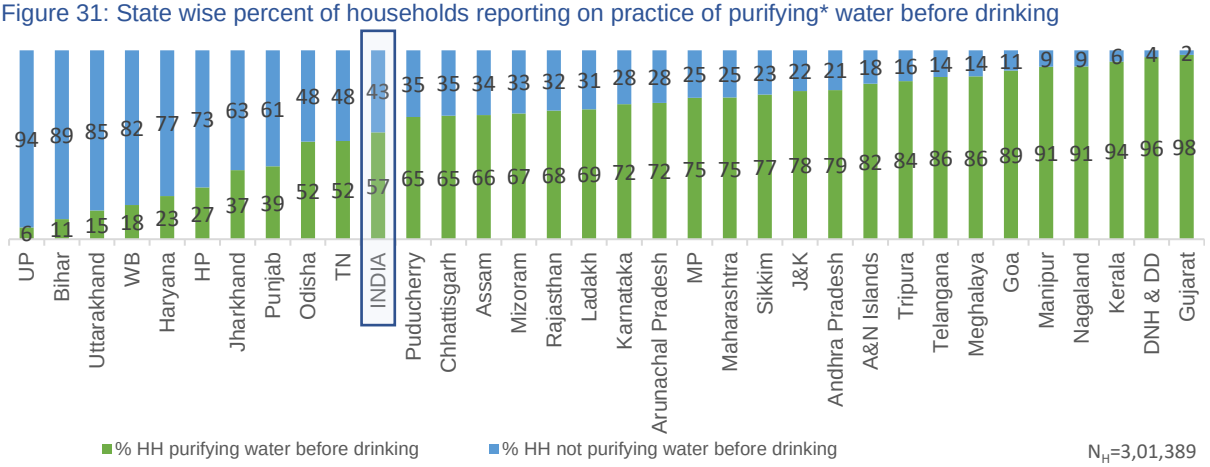


3.4.1 Households who practice of purifying water before drinking

Practice of water purification does not necessarily decrease with higher usage of FHTC for drinking purposes. It can be a cultural practice or may indicate lack of confidence on the quality of water supplied through PWS. Boiling, straining using cloth and water filters are most methods used by respondents for water purification at household level.

More than half (57 percent) of the sampled households adopted some type of water purification measures. Out of those, using FHTC as a primary source, higher percentage HHs (more than 90 percent) reporting purifying water before drinking in Gujarat (98 percent), Manipur, Nagaland, Kerala, and DHN & DD.

Figure 31: State wise percent of households reporting on practice of purifying* water before drinking

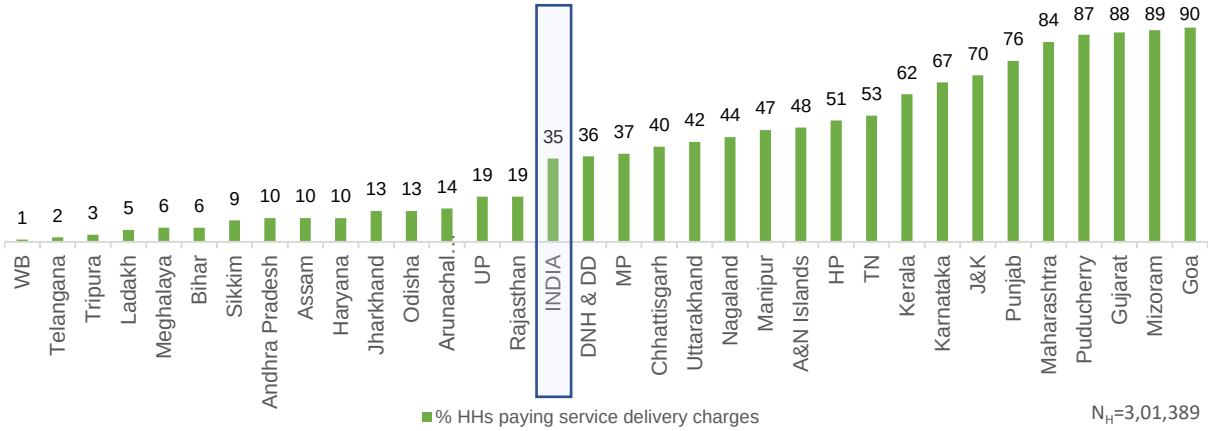


*Practicing purification of water has been considered basis the HHs who reported to use methods such as boil, stand and settle, straining using cloth, use of alum/treating with chemicals, Water filters, RO treatment etc. to clean the water

3.4.2 Households paying water service delivery charges

Nationally, around 35 percent sampled households reported to be paying service delivery charges. There are 15 states / UTs where less 30 percent HHs are paying water charges. In Goa, Mizoram, Gujarat, Puducherry and Maharashtra more than 80 percent HHs paying water charges.

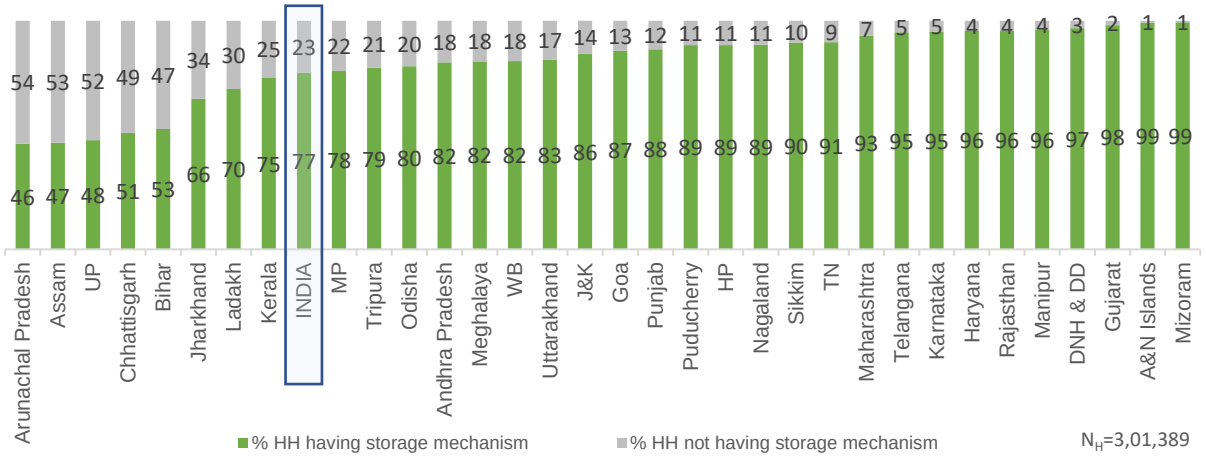
Figure 32: Statewise percent of households paying water service delivery charges



3.4.3 Household's water Storage Mechanism

Overall, three-forth (77 percent) households, across the country were found to use some mechanism to store water in their household. In states of Arunachal Pradesh, Assam, UP, less than 50 percent HHs using some kind of water storage mechanism.

Figure 33: State wise percent of households using some type of storage mechanism

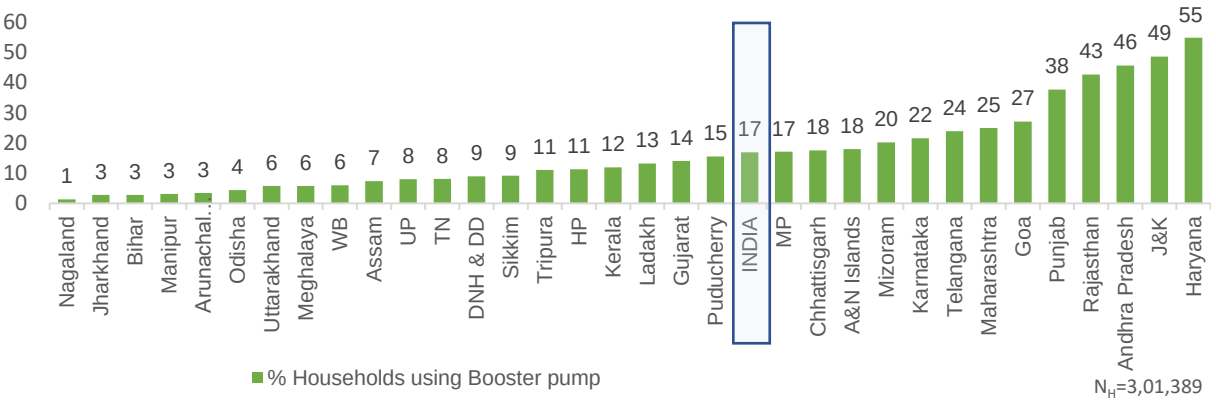


3.4.4 Households using booster pumps

Overall, few HHs (17 percent) HHs reported using booster pumps to maximize the water flow through their piped water connections. Usage of boosting pump was found to have not much association with insufficient water pressure or irregularity of supply in terms of adherence to supply schedule.

In states of Haryana, J&K, Andhra Pradesh, Rajasthan, and Punjab more than one-third of the households reported using booster pumps.

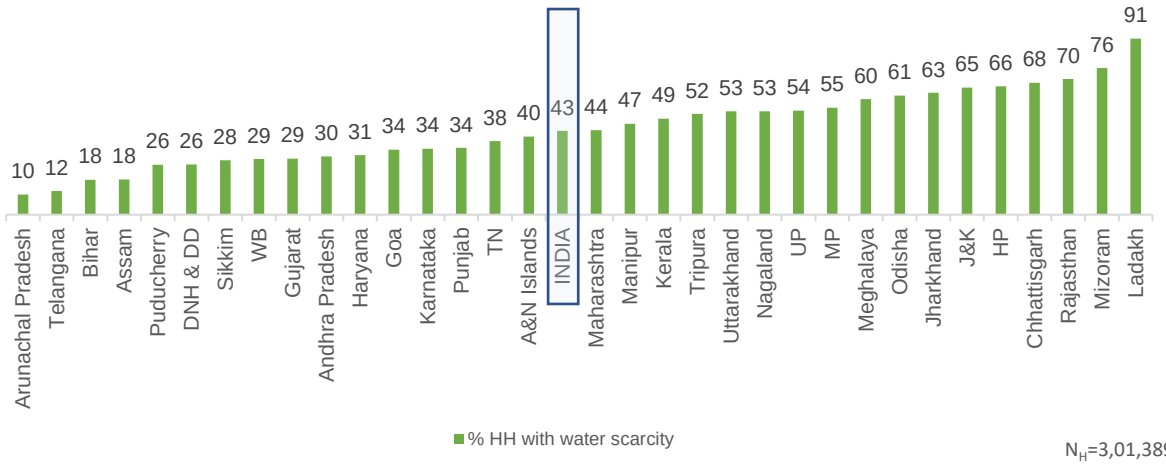
Figure 34: State wise, percent of households reporting on use of booster pumps



3.4.5 Households facing water shortage

About two-fifth (43 percent) HHs, reported to have faced water shortage in supply through piped water, at any time. In states/ UTs of Ladakh, Mizoram, Rajasthan, Chhattisgarh, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Odisha and Meghalaya almost six out of ten households reported to face water shortage.

Figure 35: State wise percent of HHs who reporting, faced water shortage

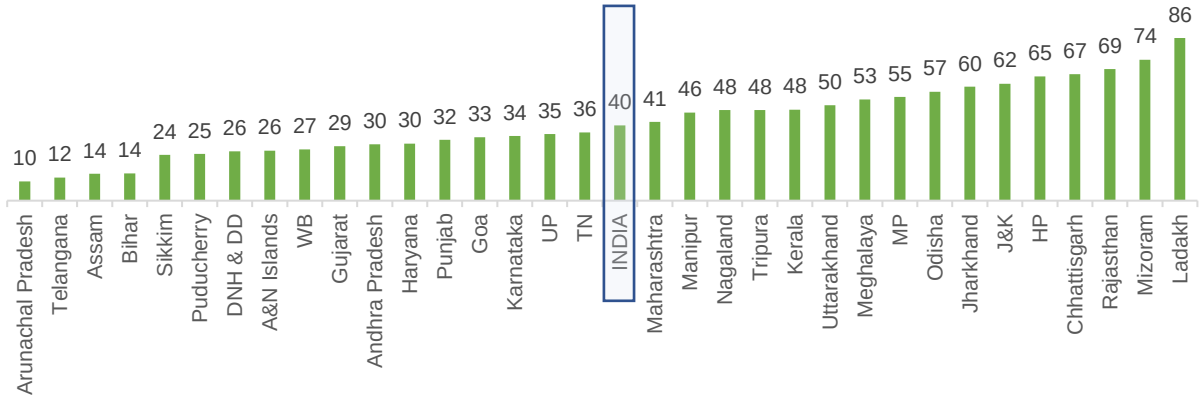


N_H=3,01,389

3.4.6 Household with a mechanism to cope with water shortage

Overall, among the HHs who reported facing shortage, 40 percent HHs reported having some mechanism to cope with water shortage.

Figure 36: State wise percent of households reporting to have some mechanism to cope with scarcity of water



N_H=1,19,414

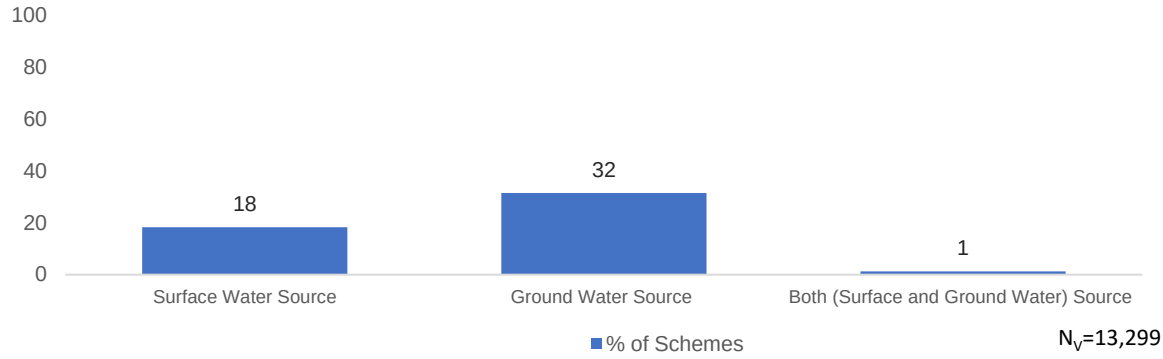
3.5 Water source sustainability at village level

The main aim of source sustainability is to ensure that water supply scheme function throughout its full design period. This is achieved through sustainability measures like rainwater harvesting, artificial recharge, etc. For groundwater-based sources, borewell recharge structures will be part of the intervention.

3.5.1 Schemes based on surface and ground water

Slightly less than one-fifth, (18 percent) of schemes (Four) reported to be based on surface water source while 32 percent of schemes reported to use based of ground water sources.

Figure 37: Percent of Villages with schemes based on surface and ground water (% villages)

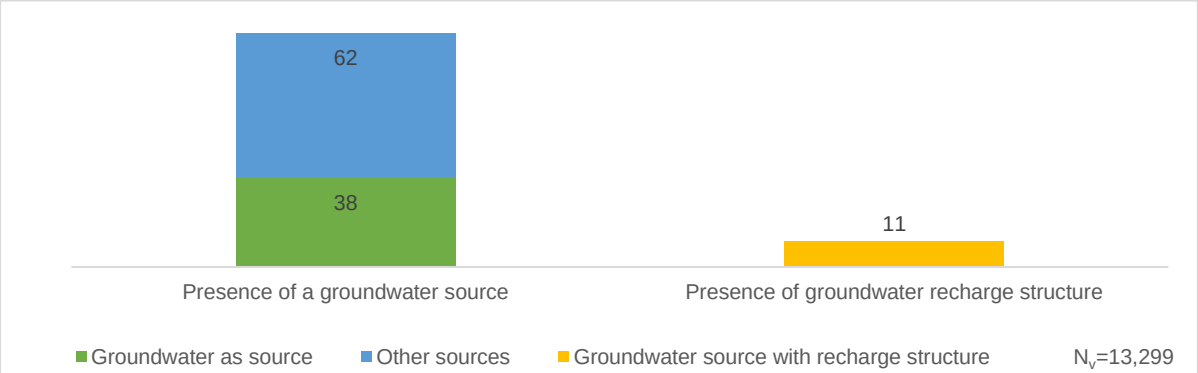


**'Surface Water Source' is Stream, Spring, Glacier, River, lake, pond etc. and Groundwater Source is open well, borewell, tube well, handpump, spring, etc.*

3.5.2 Villages having presence of a groundwater source

Presence of groundwater sources (like improved dug wells and borewells) were reported by 38 percent of sampled villages across the country. And 11 percent villages among those having groundwater resources, reported to have groundwater recharging structures.

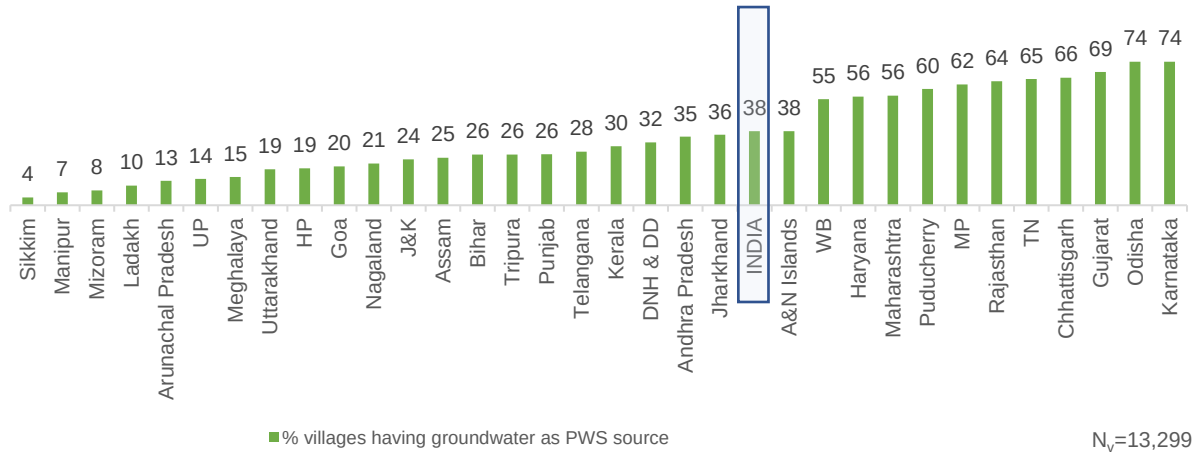
Figure 38: Percent of Villages utilizing ground water sources for PWS scheme (% villages)



A. State wise villages reporting presence of a groundwater source

At national level more than one-third (38 percent) villages covered in the assessment reported presence of ground water. In the states of Karnataka, Odisha, Gujarat and Chhattisgarh have reporting considerable proportion of villages (i.e., more than 65 percent villages) having ground water as source for PWS.

Figure 39: State wise percent of villages who reported having presence of groundwater sources

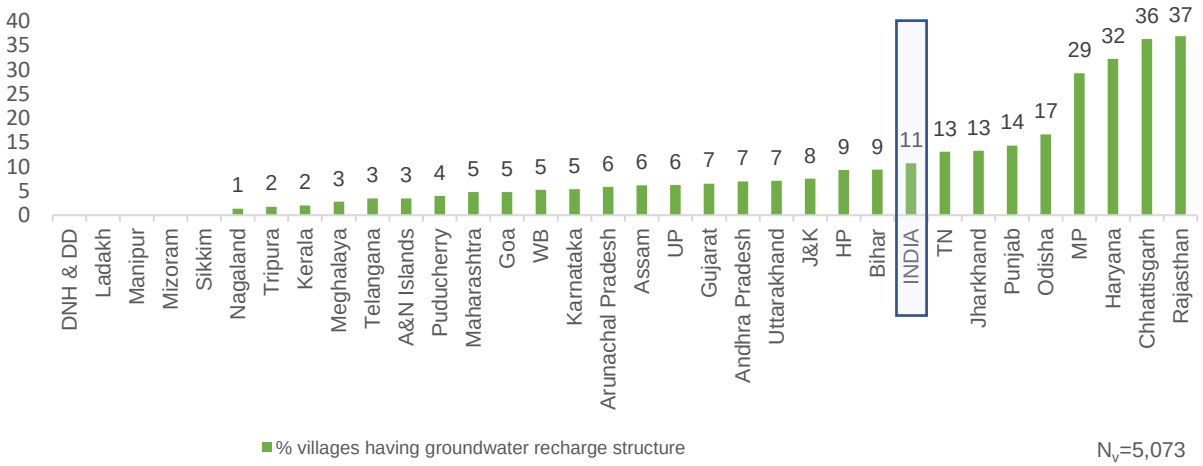


N_v=13,299

B. Villages having presence of a groundwater recharge structure

Overall, among the villages (i.e., 5,073) reporting on a groundwater source, only 11 percent villages reported to have a groundwater recharge structure. In the state level, only Rajasthan, Chhattisgarh and Haryana reported to have slightly more than 30 percent villages with groundwater recharge structure, in remain states, less than 10 percent villages have such structure.

Figure 40: State wise percent of villages reporting having a groundwater recharge structure

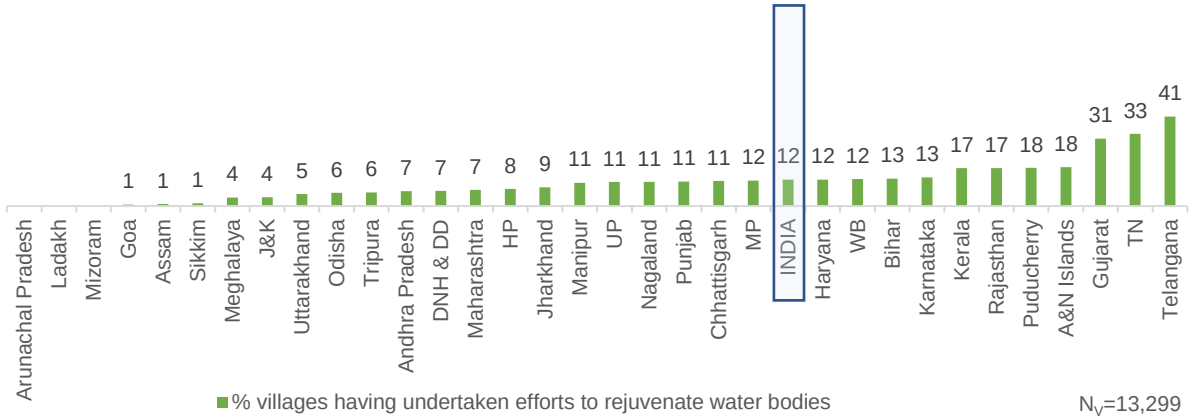


N_v=5,073

3.5.3 Rejuvenation of water bodies in the village

Rejuvenation of water bodies in the villages was reported by 12 percent of the villages. Of the villages (N=13299), 55 percent of the villages did not undertake any rejuvenation, while in 33 percent village respondents were not aware of water body rejuvenation and probably the activities were not carried out there.

Figure 41: State wise percent of villages undertaken efforts to rejuvenate water bodies

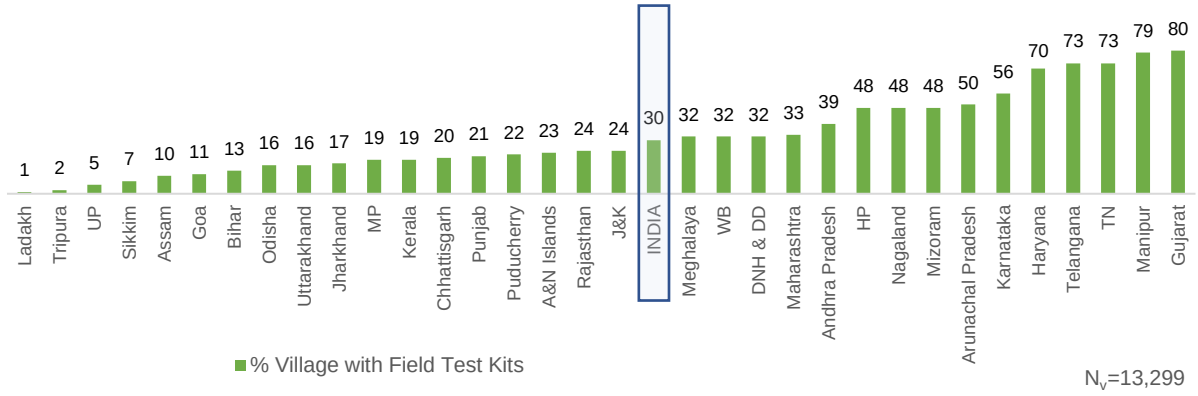


3.6 Water quality monitoring and surveillance in the villages

3.6.1 Availability of field test kits (FTKs)

Just around 30 percent of the sampled villages reported having field test kits to check water quality in their villages. State wise, 70 percent or more sampled villages from states of Gujarat, Manipur, Telangana, Tamil Nadu, and Haryana reported having FTKs available with them.

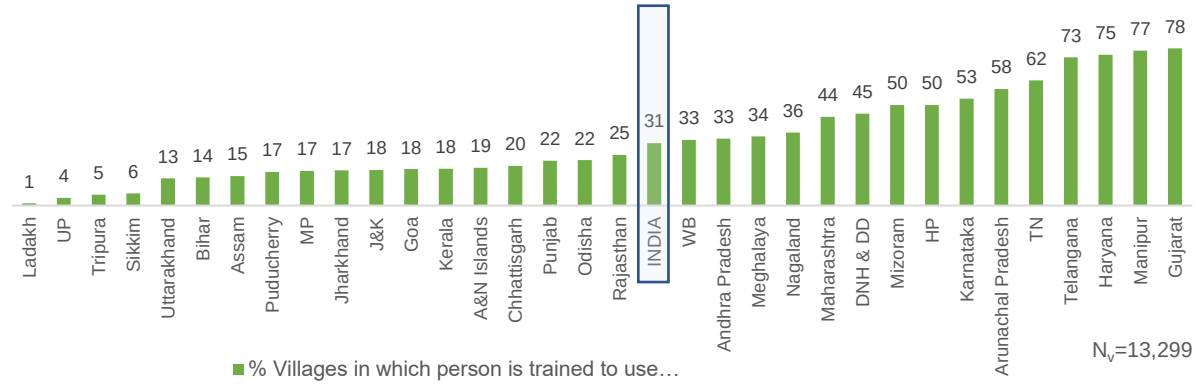
Figure 42: State wise percent of villages with FTK



3.6.2 Persons are trained to use Field Test Kits at village level

Across the country, 31 percent of sampled villages reported having trained persons for using FTKs. Four states namely Gujarat, Manipur, Haryana and Telangana reported to have persons who are trained to use Field Test Kits in more than 70 percent villages. In 18 states and UTs, less than 30 percent villages are reporting to have trained person.

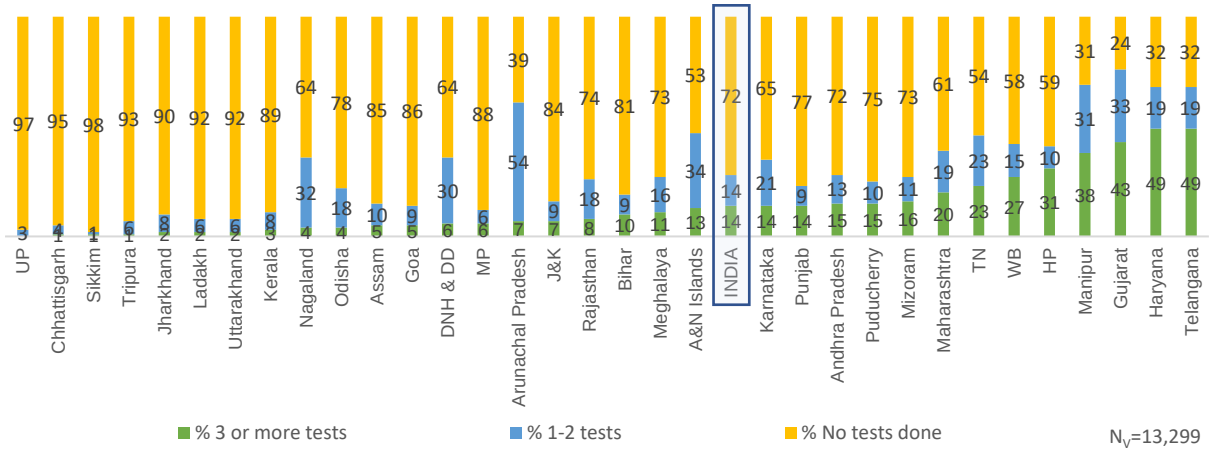
Figure 43: State wise percent of village having persons, trained to use FTKs



3.6.3 Frequency of testing using FTK

The frequency of on-site testing (3 or more tests per year) of essential chemical parameters, using FTK, necessary to maintain water quality, was found to be highest in Haryana and Telangana where on-site testing was performed in close to half (49 percent) sampled villages.

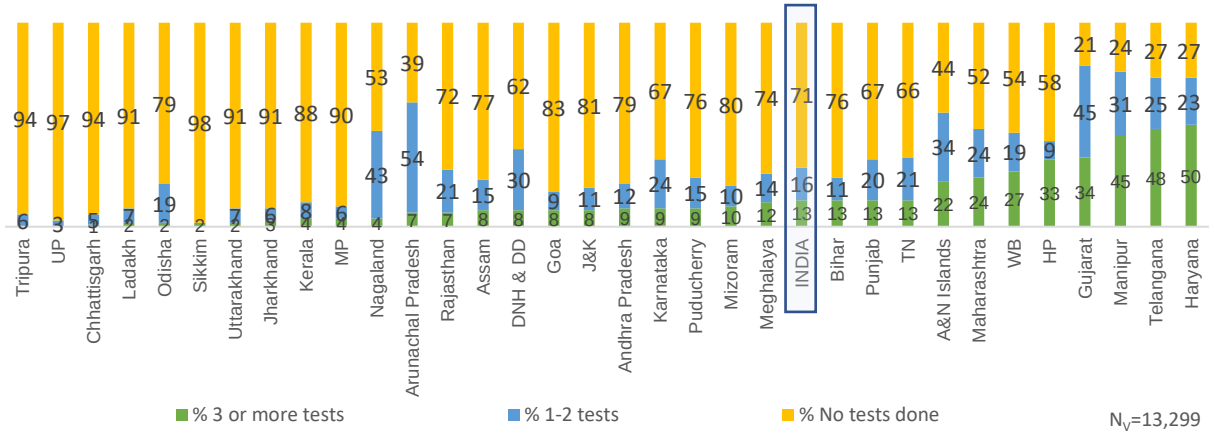
Figure 44: State wise percent of villages frequently of testing using FTK in the villages



3.6.4 Frequency of lab testing

The frequency of testing (3 or more tests per year) chemical parameters in laboratories was found to be highest in Haryana where **50 percent of the sampled villages** conducted laboratory-based testing more than thrice in last one year.

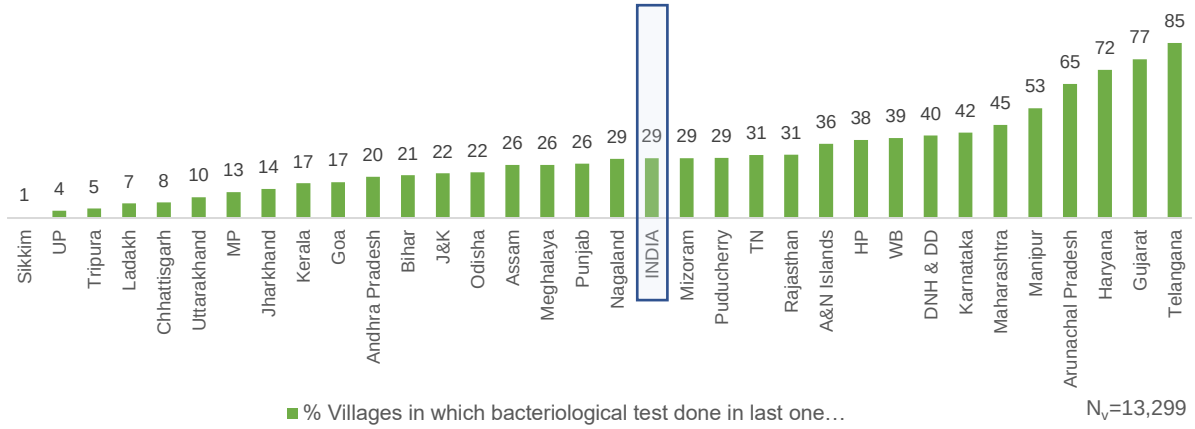
Figure 45: State wise frequency of lab testing of chemical parameters in the village (% villages)



3.6.5 Villages done bacteriological test in last one year

About little more than one-forth (29 percent) of the sampled villages conducted bacteriological tests either using FTK or through labs in the last one year, preceding the survey. Three States namely Telangana, Gujarat and Haryana reported to have done bacteriological test in more than 70 percent villages, in last one year. In eighteen states / UTs, less than 30 percent villages, done such tests.

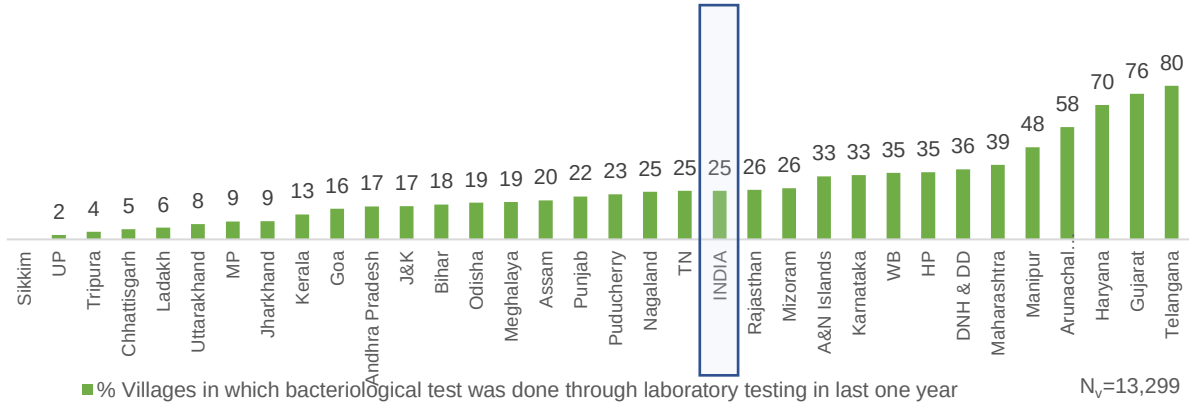
Figure 46: State wise percent of villages done bacteriological test in last one year



3.6.6 Bacteriological test done through laboratory testing in the last one year

Laboratory based bacteriological tests, was reported by 25 percent villages nationally, in last one year. Seventy percent or more villages in Telangana, Gujarat and Haryana reported to have had bacteriological tests done through laboratories in last one year.

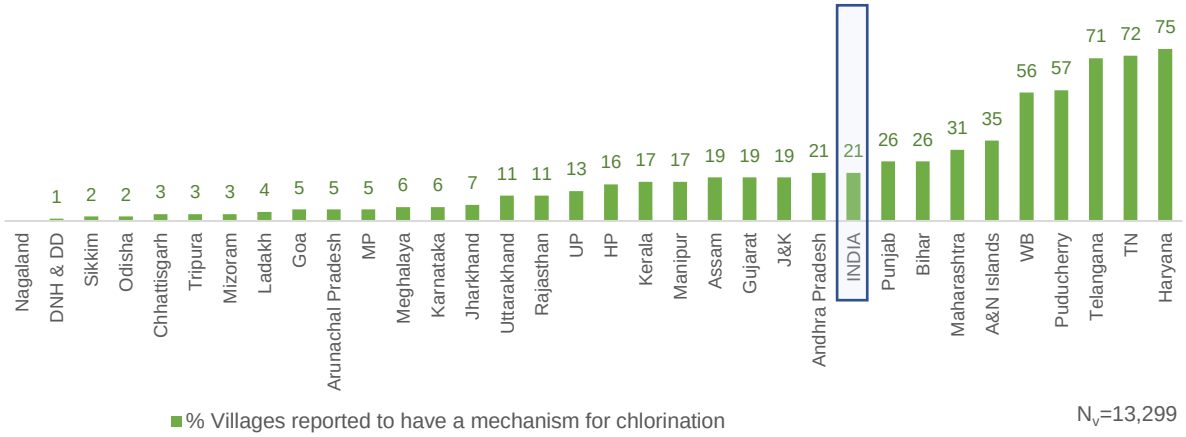
Figure 47: State wise percent of villages done bacteriological test done through laboratory testing in the last one



3.6.7 Villages reported having a mechanism for chlorination

Only one-fifth of the villages (i.e., 21 percent villages) at national level reported to have a mechanism for chlorination. , Three States namely Haryana, TN and Telangana reported to have a mechanism for chlorination in more than 70 percent villages.

Figure 48: Statewise percent of villages with chlorination mechanism in the village

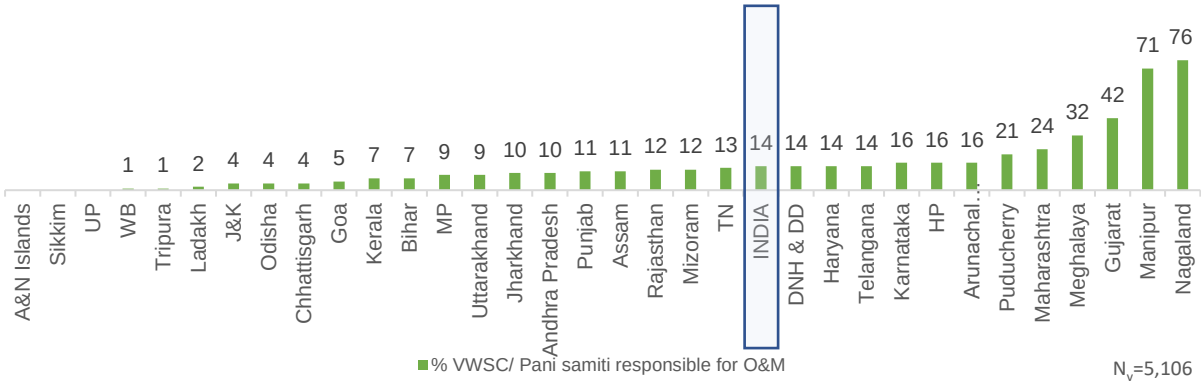


3.7 Management of water service delivery at village level

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

Nationally, **14 percent villages** that have VWSC/Pani Samiti reported to be responsible for operation and maintenance of PWS. The states of Nagaland and Manipur reported that VWCS/ Pani Samiti are responsible for operations and maintenance of the PWS schemes in more than 70 percent villages. In A&N Islands, Sikkim and UP, it was reported that VWCS/ Pani Samiti are not responsible.

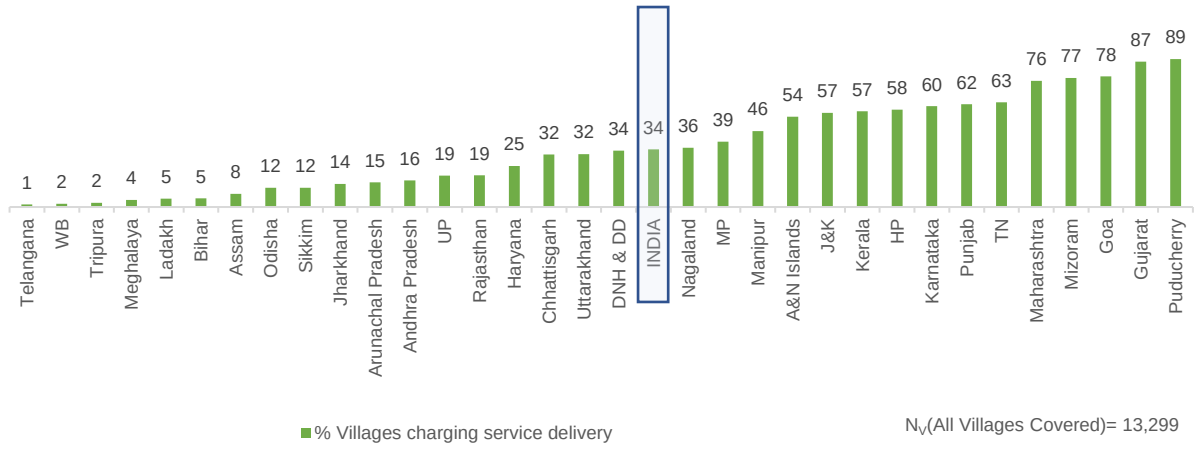
Figure 49: State wise % villages that have VWSC/Pani Samiti reporting on responsibility for O&M of PWS



3.7.2 Villages levying water service delivery charges from households

Nationally about a third (34 percent) villages y reported to levy charge for water service delivery to households. In states of Gujarat and Puducherry charge for water service delivery is levied to more than 80 percent HHs.

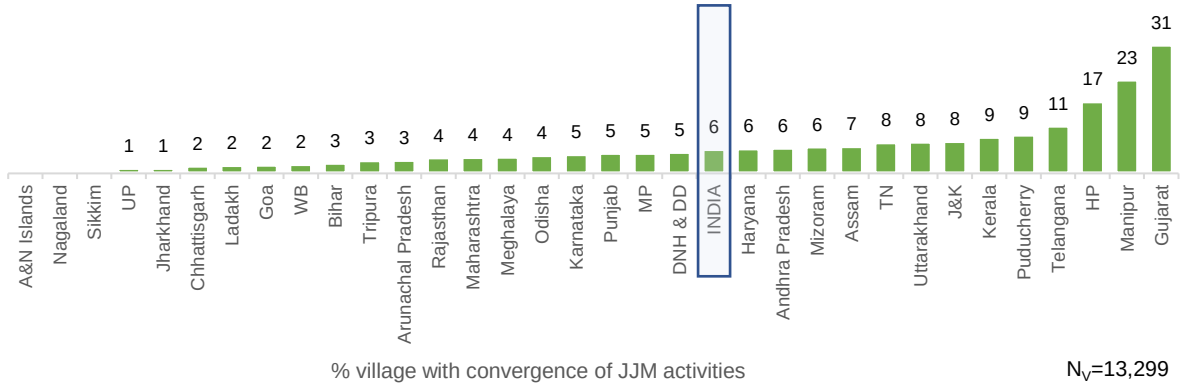
Figure 50: Statewise percent villages reporting levying charge for service delivery to the households



3.7.3 Convergence of JJM activities with other schemes in villages

Nationally, very small proportion (6 percent) villages reported convergence of activities under JJM with other government programmes. In states of Gujarat (31 percent villages) followed by 23 percent villages in Manipur and 17 percent villages respectively in Himachal Pradesh it was reported to achieve convergence of JJM activities.

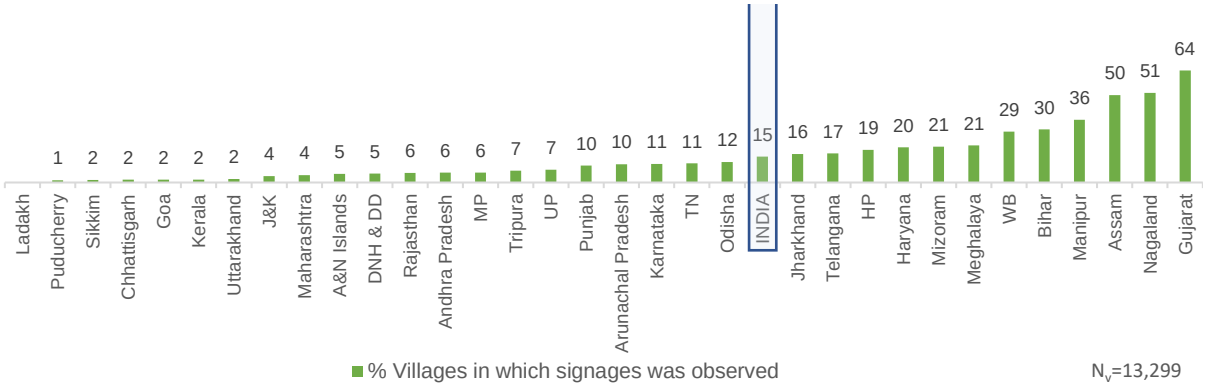
Figure 51: Statewise percent of Village reporting convergence of JJM activities with other schemes in the village



3.7.4 Villages where signages were observed

Signages about JJM were observed by enumerators in **15 percent of the sampled villages, overall**. Gujarat had the highest proportion of villages (64 percent) were observed followed by Nagaland (50 percent) and Assam (50 percent). In many states / UTs no village or very few villages had signages.

Figure 52: Statewise percent of villages with signages about JJM

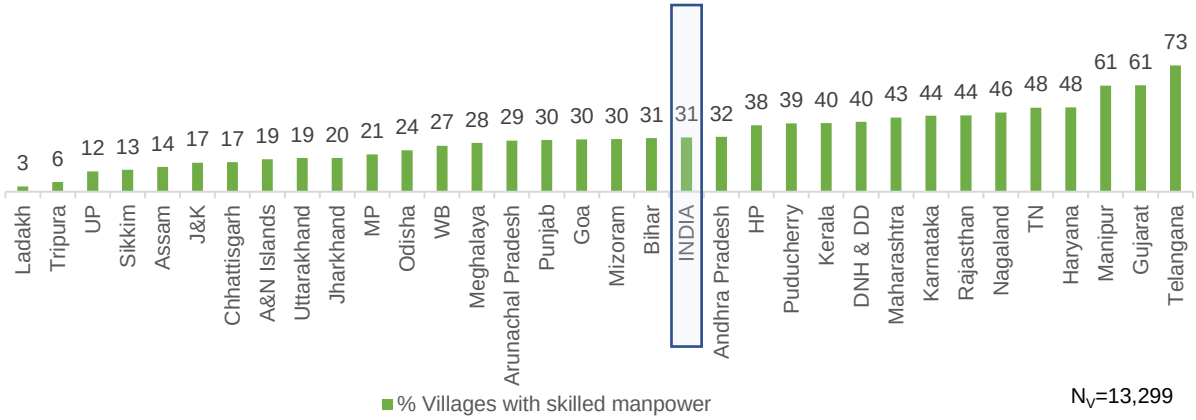


3.8 Status of Operation and maintenance

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

Overall, just around 31 percent villages reported to have skilled manpower for O&M services. Across states, Telangana, Gujarat and Manipur reported more than 60 percent f villages having skilled manpower for O&M while in Ladakh and Tripura less than 10 percent villages had skilled manpower.

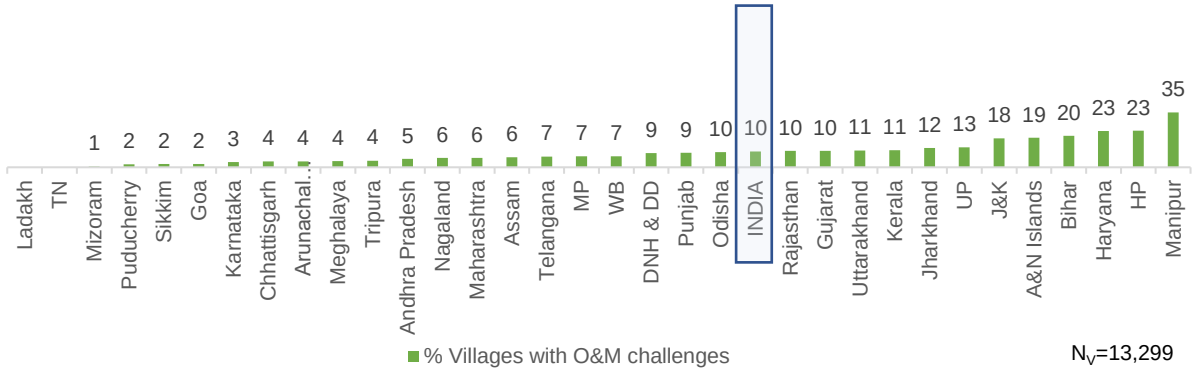
Figure 53: Statewise percent villages reported having skilled manpower for O&M of PWS schemes



3.8.2 Villages with O&M challenges

Nationally, 10 percent villages reported to have faced challenge in O&M of PWS. While in Manipur, Himachal Pradesh, and Haryana more than 20 percent villages reported to have faced O&M challenges.

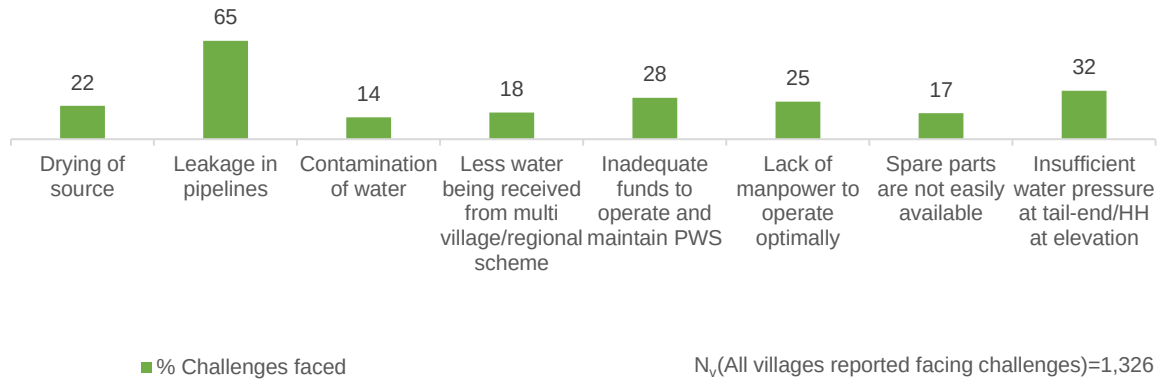
Figure 54: Statewise percent of Villages reported to face challenge in O&M of PWS



3.8.3 Type of challenges faced

Out of the 10 percent of villages that had faced challenges with respect to O&M of PWS schemes, 'leakage in pipelines' was attributed the most – at 65 percent, followed by 'insufficient water pressure at tail end / HH in elevation (32 percent)'.

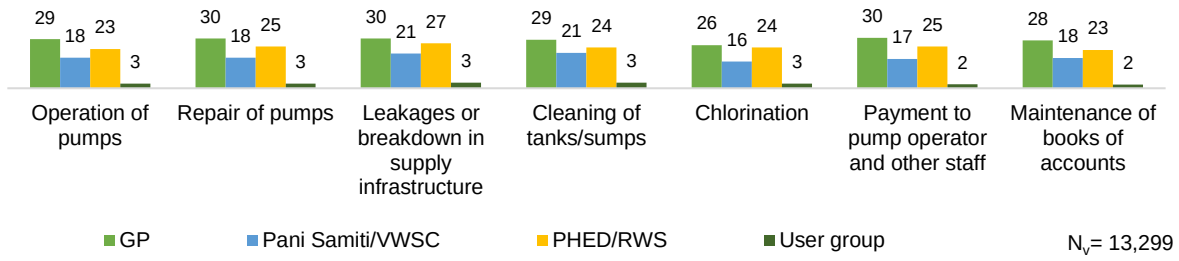
Figure 55: Types of O&M challenges faced by village (% of villages with challenges)



3.8.4 Responsibility for O&M of various PWS scheme related activities

Overall, 'Gram Panchayat and PHED/RWS' appear to be responsible for mitigating most challenges about operation and maintenance of PWS schemes

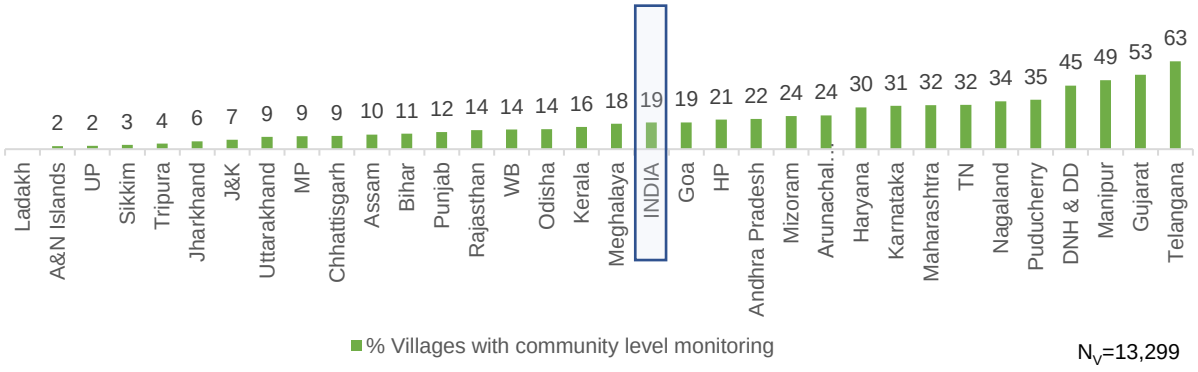
Figure 56: Responsibility for O&M of various PWS scheme related activities (% villages)



3.8.5 Villages with community level monitoring of water wastage

Nationally, 19 villages reported having community level monitoring of water wastage. Telangana and Gujarat are two states reported having more that 50 percent villages with community level monitoring of water usage. Ladakh, A&N Islands, UP, Sikkim, and Tripura reported less than 5 percent villages.

Figure 57: Statewise percent villages reporting having community level monitoring of water wastage

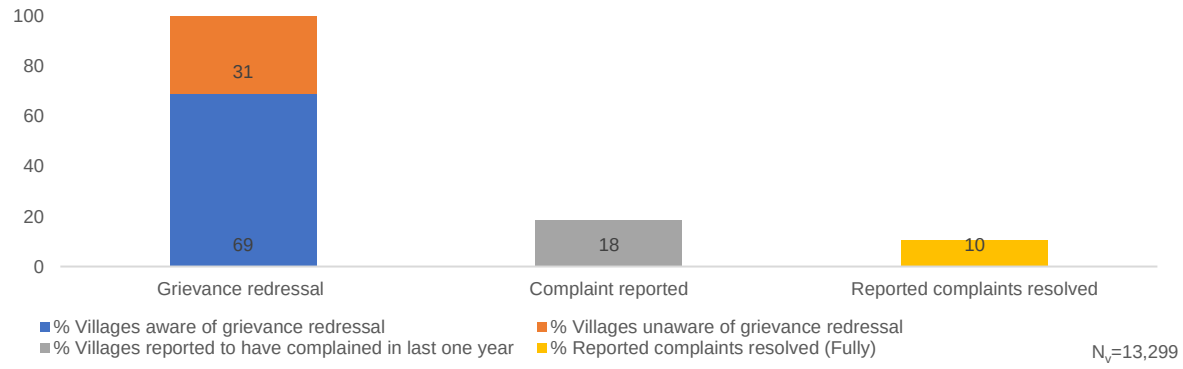


3.9 Status of service delivery related grievances and redressal

3.9.1 Grievance redressal at village

Awareness regarding redressal of grievances was found in more than two-third villages (69 percent) across the nation. Complaints were registered from 18 percent of the villages in last one year, and 10 percent were fully resolved.

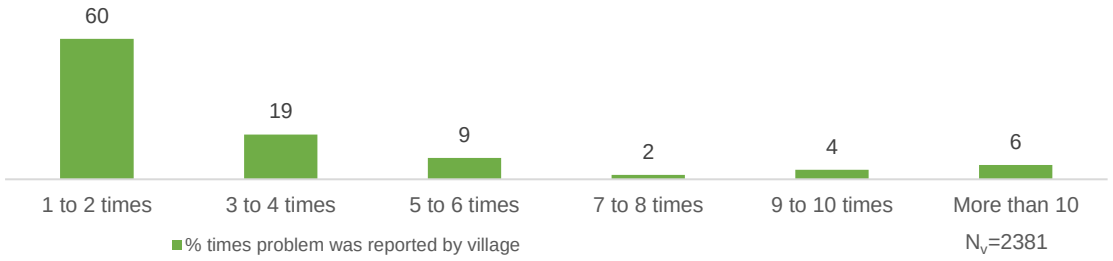
Figure 58: Percent of villages aware of grievance redressal and reported grievances in previous one year



3.9.2 Problem reported in last 1 year

Among the villages who reported a complaint (i.e., 2381 villages), only 6 percent villages have reported a complaint more than 10 times in the last one year, while 60 percent reported a complaint at least once or twice.

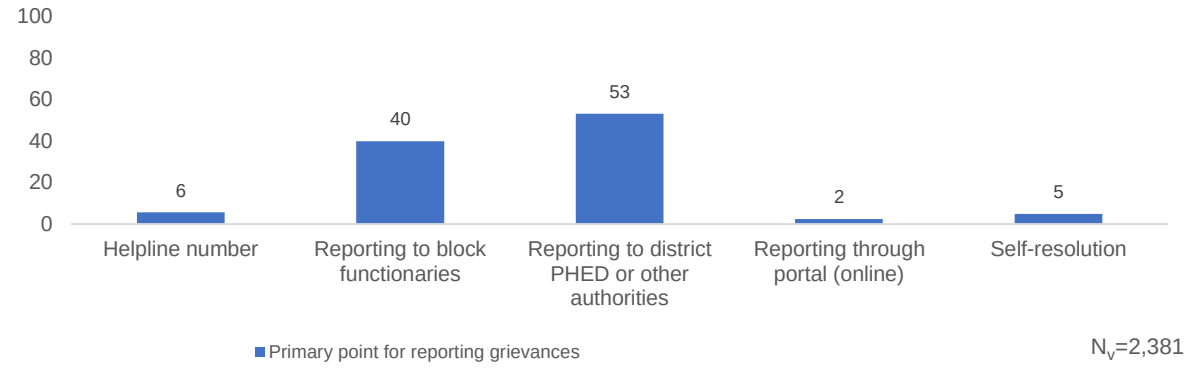
Figure 59: Percent villages reporting problems at different frequencies



3.9.3 Primary points for reporting grievances

Among those who reported complaint (i.e., N=2381 villages), **overall, 53 percent sampled villages** reported their grievances to the PHED department followed by lodging complaint to the block functionaries (40 percent).

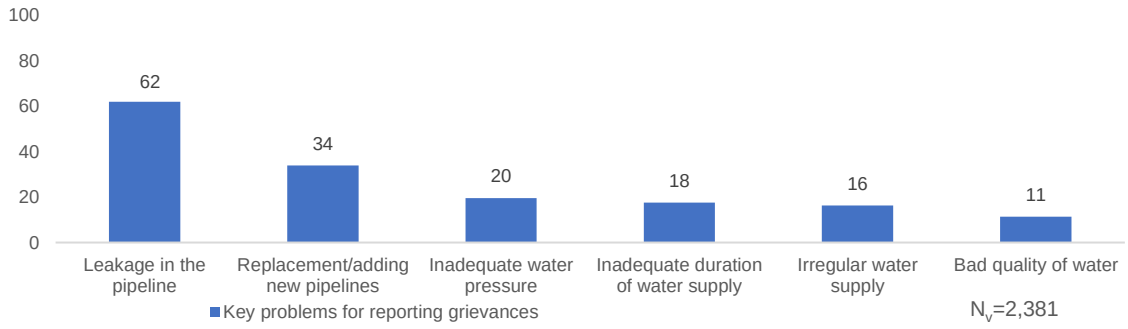
Figure 60: Primary points for reporting grievances by village (% Villages)



3.9.4 Key problems for reporting grievances

Overall, among those who reported complaint (i.e., 2381 villages) **62 percent of villages** reported that **leakage in the pipeline** is their most encountered problem for reporting grievances, followed by around 34 percent complaining about ‘replacement / adding new pipelines’.

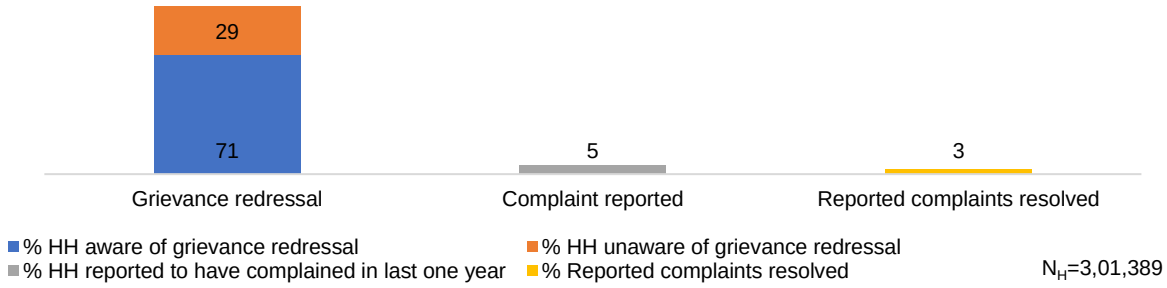
Figure 61: Key problems reported by village



3.9.5 Grievance resolution for households

Around three-forth (71 percent) HHs reported that they are aware of any grievance redressal mechanism w.r.t. HH tap water through PWS. Of the total sampled households, just 5 percent households reported any problem and only 3 percent HHs reported problems were resolved.

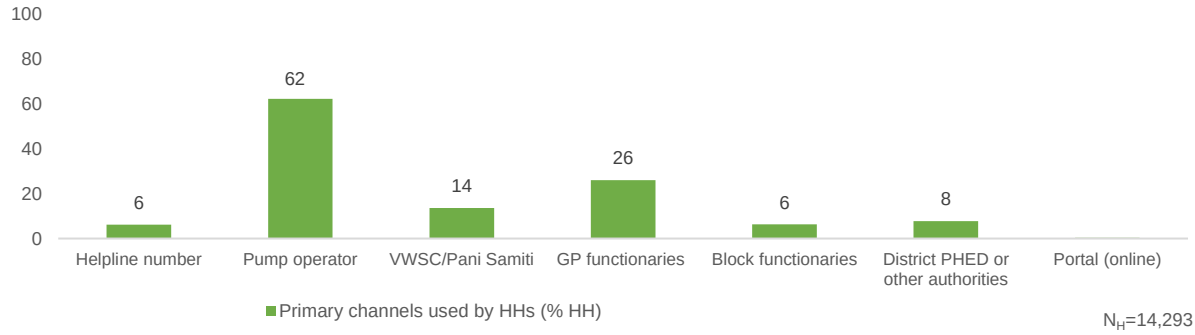
Figure 62: Percent of households aware of grievance redressal and reported grievances in previous one year



3.9.6 Primary channels used for reporting grievances by households

Among those who reported complaint as shown in the above graph (i.e., N=2,15,058 HHs), **62 percent** of the HHs reported their complaints to the **pump operators** beside other reporting-channels.

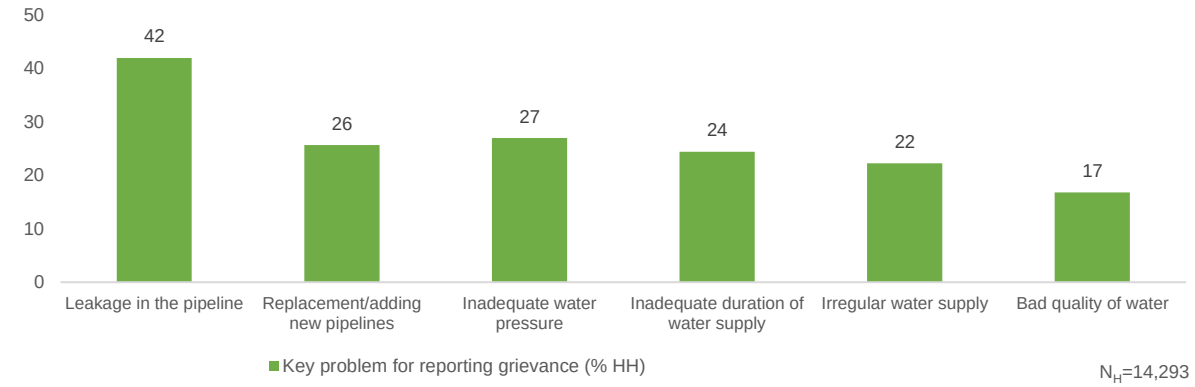
Figure 63: Percent household reporting on primary channels for reporting used by them for grievances redressal



3.9.7 Key problems for reporting grievances

Overall, among those who reported complaint (i.e., N=14,293 HHs) **significant proportion (42 percent)** HHs faced problem of **leakage in the pipeline** beside other problems.

Figure 64: Percent household reporting on key problems areas



3.10 Perception of HHs on Outcome Indicators

As per this assessment, 98 percent of the households did not report any incidence of water borne or water related diseases in last one year preceding the survey. On outcome on health parameters, response from the community members were as under:-

- 31 percent households reported positive change in employment days since FHTC cancellation.
- 79 percent of households reported increase in reduction in time and effort in collection of water.
- 26 percent households reported positive outcome on the girls going to upper primary sector.

Figure 66: Household reporting on incidence of water borne diseases in last one year

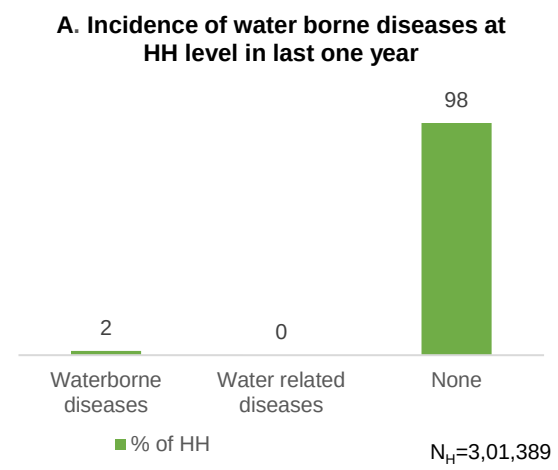


Figure 65: Household reported a change in employment days since FHTC programmes /schemes

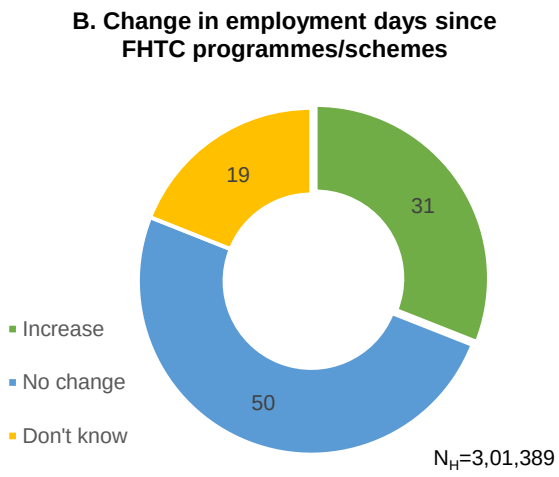


Figure 67: Households reported reduction in time and effort in collecting water

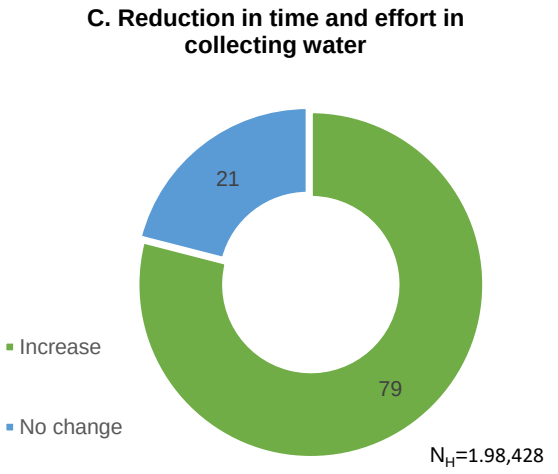
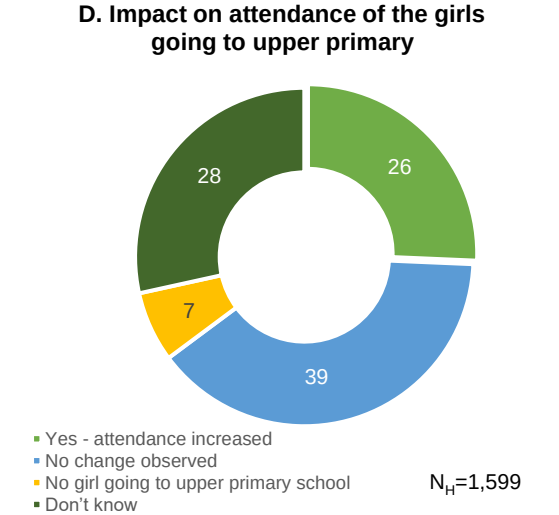


Figure 68: Households reported increase of attendance of girls going to upper primary school

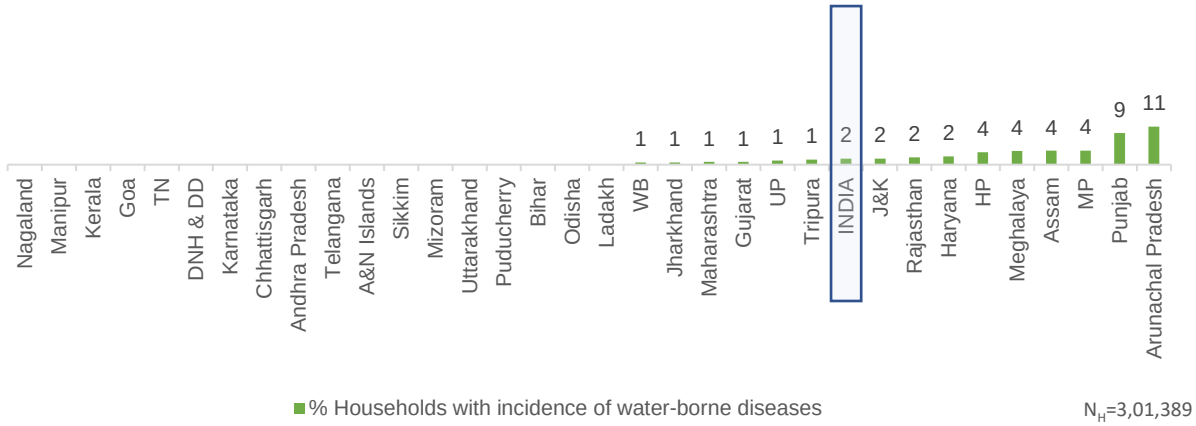


* Also, can be an impact of shutting down of schools due to COVID-19 related lockdown during the survey period.

A. Incidence of water borne diseases - State wise

Overall, 16 states reported incidence of waterborne diseases but only in Arunachal Pradesh and Punjab the situation is alarming. Arunachal Pradesh report 11 precent incidence of water borne diseases followed by Punjab (9 percent)

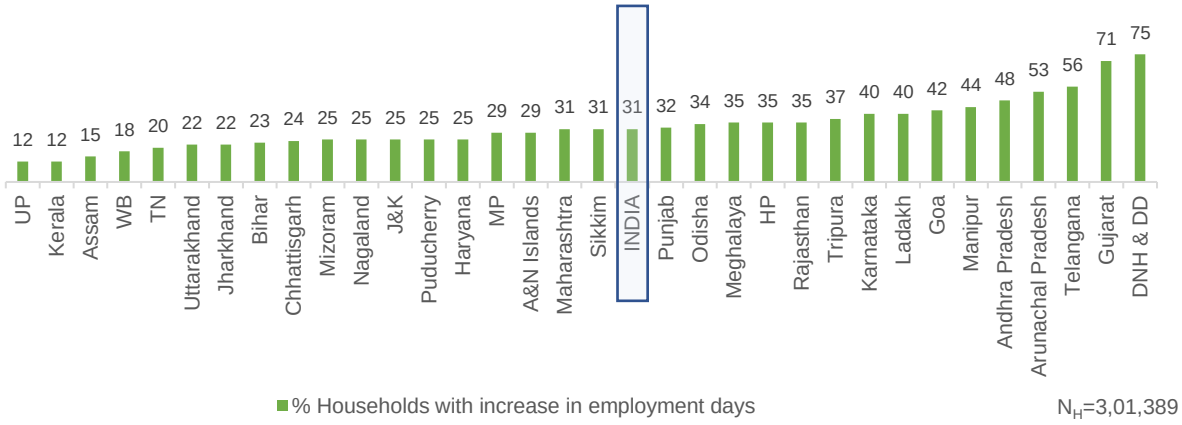
Figure 69: State wise percent of households reported incidence of water borne diseases in last one year



B. Increase in employment days- State wise

More than 70 percent households in Gujarat and Dadra & Nagar Haveli (UT) reported increase in employment days since installation of FHTC.

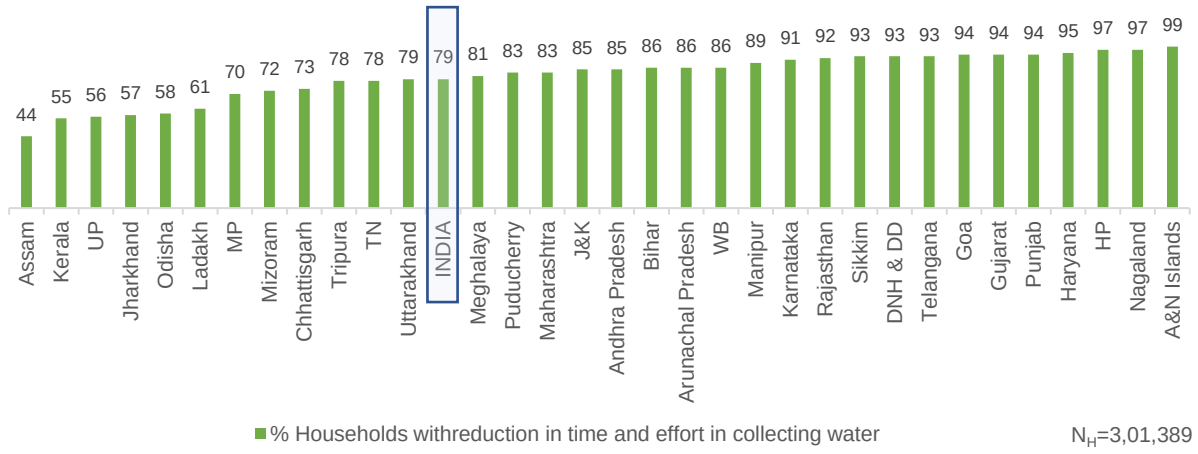
Figure 70: State wise percent of households reporting increase in employment days since FHTC installation



C. Households reporting reduction in time and effort in collecting water - State wise

Across the states, there are 13 states where more than 90 percent HHs reported reduction in time and effort in collecting water.

Figure 71: State wise percent of households reporting reduction in time and effort in collecting water

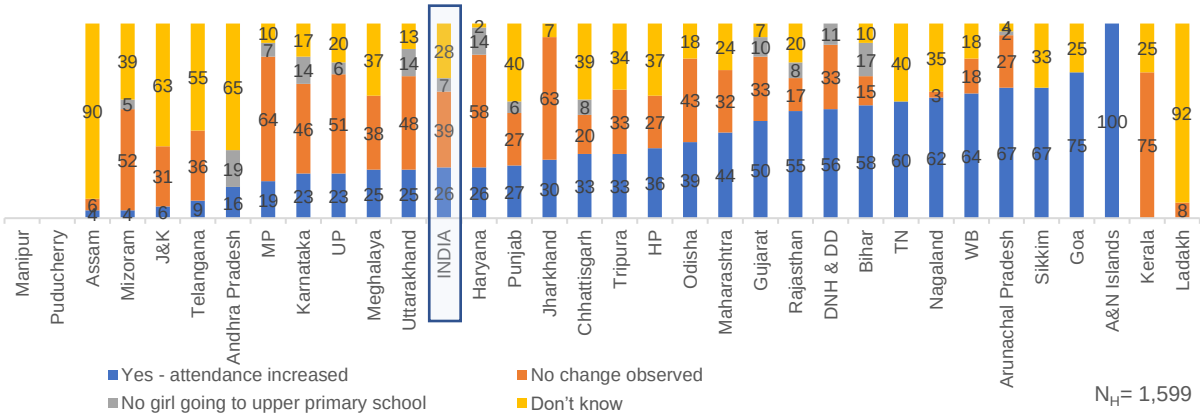


N_H=3,01,389

D. Impact on attendance of the girls going to upper primary schools- State wise

Seven states in which at least 60 percent HHs reported an increase in attendance of girls going to upper primary schools. Nationally, 26 percent HHs reporting increase in school attendance of girls in upper primary. Another 39 percent reporting no change.

Figure 72: State wise percent of households reporting impact on attendance of the girls going to upper primary

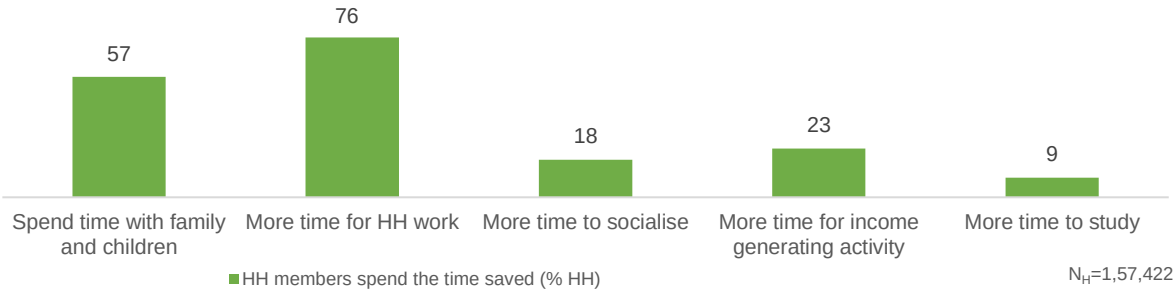


N_H= 1,599

E. Utilization of time saved by households post installation of HH tap connection

About three-forth HH members reported time saved by female HH members in collecting water, post installation of their HH tap connections, was utilized mostly for other HH works. Another 57 percent are utilizing spare time by spending time with family and children.

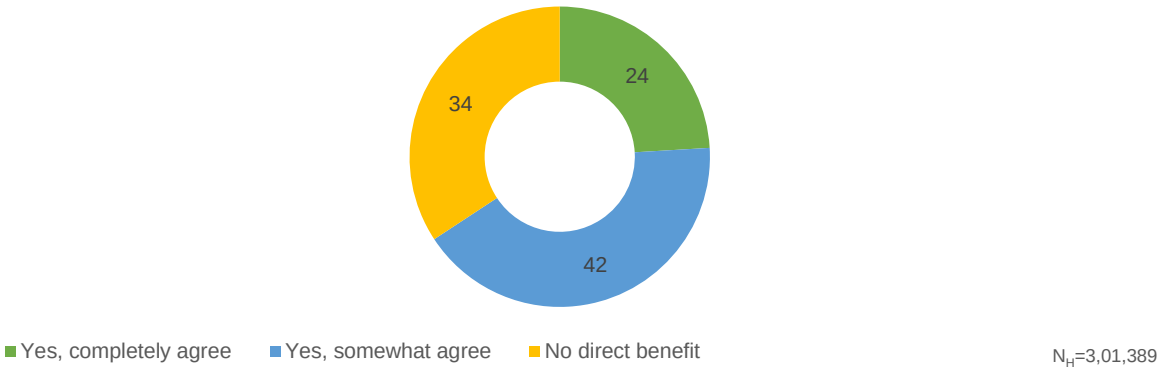
Figure 73: Percent household's utilization of time saved by households post installation of HH tap connection



3.10.1 Direct benefits to family income due to FHTC

Across the nation, 24 percent 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 42 percent HHs reported being in 'partial agreement'..

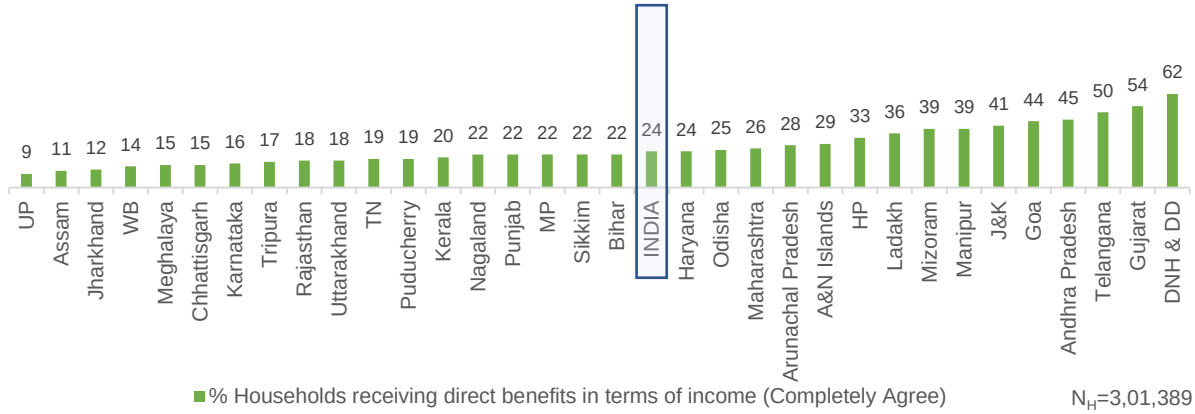
Figure 74: Composition of HHs (in %) to the query on receiving direct benefits in their income due to FHTC



Households receiving direct benefits in terms of income- State wise

In most states, less than 40 percent HHs reporting direct benefits to their income except, DND & DD, Gujarat, Telangana, Andhra Pradesh, Goa and J&K due to FHTC

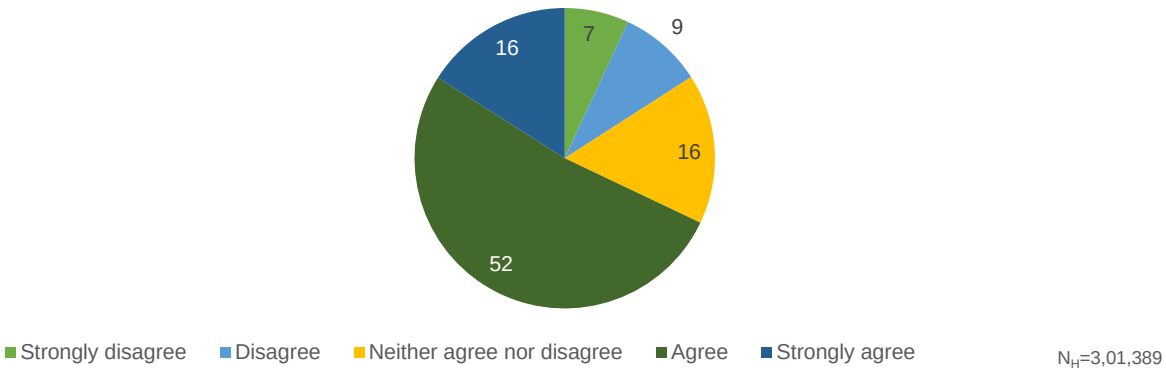
Figure 75: State wise composition of HHs (in %) to the query on receiving direct benefits in their income due to FHTC



3.10.2 Change in social status

More than two-third of the households (68 percent) felt change in their social status post installation of HH tap connections. They felt pride and brought about a positive change in social status.

Figure 76: Composition of households reported to have a positive change in social status (%)



3.10.3 Overall user satisfaction (Perception) as reported at the household

Overall, 75 percent households reported to be satisfied or highly satisfied with the quality parameters of waters. See table below:

Table 7: User satisfaction

User satisfaction - more than 75 percent happy with FHTC services			
S. No.	**Parameter (N_h=3,01,389)**		**In %**
1	Regularity		82.7
2	Overall quality		82.3
3	Colour		84.1
4	Taste		83.2
5	Odour		82.9

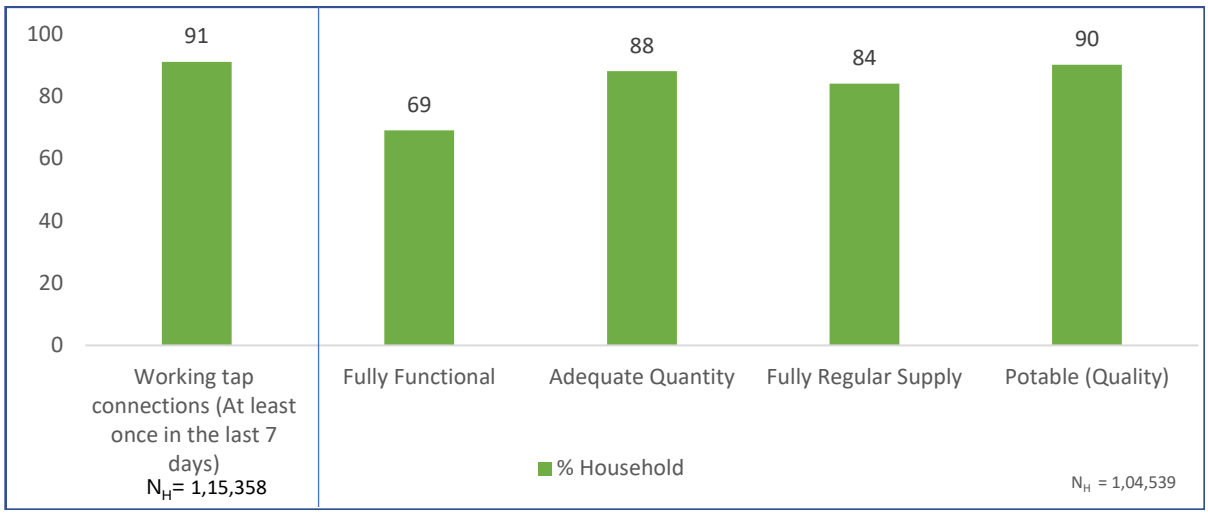
Chapter-4: Functionality status of FHTC at household level for Har-Ghar-Jal villages

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

Total of 5,346 Har-Ghar-Jal villages were covered in the survey across 33 states and UTs. Six states and UTs, *viz.* Goa, Haryana, Telangana, A&N islands, Dadra& Nagar Haveli and Daman & Diu and Puduchchery, were declared Har-Ghar-Jal before the inception of the functionality assessment. The findings on status of key parameters have been presented separately for such Har Ghar Jal villages below:

4.1 Overall Functionality (% households)

Figure 77: Functionality of HH tap connection for Har Ghar Jal villages



** 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., 1,04,539 HHs.*

Please note: Henceforth, N_H=1,04,539 implies all HHs where water was found on the day of the survey.

It has been found that 91 percent of the sampled HHs (N=1,15,358) had working tap connections. Moreover, almost 9 out of 10 households (88 percent) received adequate quantity (>=55 LPCD) water supply and more than 4 out of 5 received regular supply (84 percent) of water. However, through on-site testing and lab test results of the water indicates that nine -ten (90 percent) of the sampled households in the state receive potable water. Overall, 69 percent of the HHs were found to have fully functional tap water connections within the premises.

Out of the 1,15,358 HHs sampled for the FHTC assessment, water was not available in 10,819 (9 percent) households on the day of the survey.

Table 8: Statewise Quantity, Regularity, and Quality of FHTC for Har Ghar Jal villages (% HHs)

S. No.	States/ UT	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.	A&N Islands	100	40	48	85	90
2.	Andhra Pradesh	100	75	96	84	90

S. No.	States/ UT	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)
3.	DNH & DD	100	78	89	89	100
4.	Goa	100	81	97	93	90
5.	Kerala	100	39	100	67	63
6.	Manipur	100	55	66	68	91
7.	Sikkim	100	60	95	91	68
8.	Telangana	100	80	92	93	95
9.	TN	100	90	96	95	98
10.	Tripura	100	43	100	100	43
11.	WB	100	79	98	93	86
12.	Mizoram	100	49	71	75	94
13.	Gujarat	100	72	87	88	90
14.	Puducherry	100	88	100	99	89
15.	Haryana	98	55	82	83	76
16.	Rajasthan	98	38	54	58	76
17.	Nagaland	98	59	74	81	91
18.	J&K	98	64	90	76	92
19.	Karnataka	98	60	79	88	84
20.	HP	97	81	95	86	97
21.	Arunachal Pradesh	97	78	98	84	94
22.	Meghalaya	97	76	95	94	84
23.	Punjab	96	79	96	84	95
24.	Maharashtra	93	43	67	75	81
25.	**INDIA**	**91**	**69**	**88**	**84**	**90**
26.	Chhattisgarh	91	58	96	65	76
27.	Bihar	88	78	97	84	94
28.	Assam	87	59	80	74	91
29.	Uttarakhand	80	64	93	69	95
30.	MP	77	51	67	73	96
31.	Ladakh	72	73	86	86	97
32.	Odisha	62	57	83	70	89
33.	UP	57	62	89	70	94
34.	Jharkhand	39	36	66	48	96

* Regularity is receiving water for 12 months daily basis or as per schedule
# Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical, and bacteriological as given in Table 10 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.
**'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., 1,04,539 HHs.

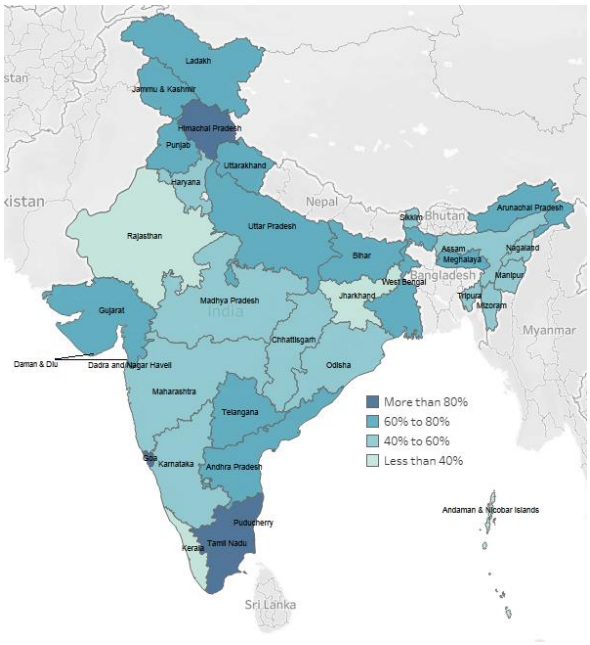
The state of Andhra Pradesh, Chhattisgarh, Punjab, TN, Bihar, Goa, Arunachal Pradesh, WB, Kerala, Puducherry and Tripura were found to provide more than 55 LPCD of water in more than 95 percent HHs.

More than 90 percent HHs in the states/UTs of Sikkim, Goa, Telangana, WB, Meghalaya, TN, Puducherry, and Tripura reported to regularly receive water through FHTC. Only Jharkhand and Rajasthan were found to regular supply of water is less than 60 percent.

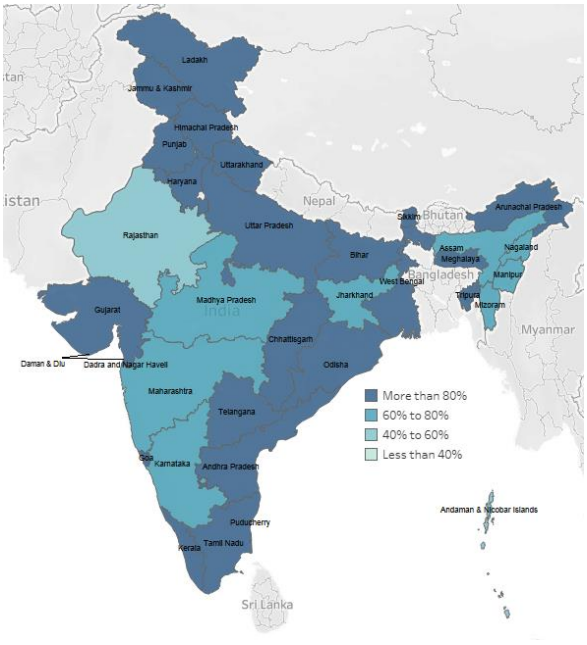
Potability of water was found to be more than 95 percent in the states/UTs of Jharkhand, MP, HP, Ladakh, TN and DNH & DD. Whereas in the states of Tripura the potability of water was found less than 60 percent.

State wise performance map- Har Ghar Jal Villages

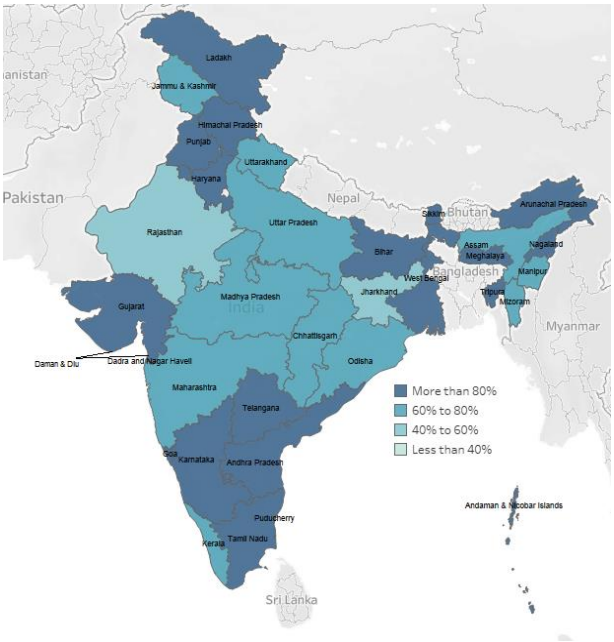
Functionality



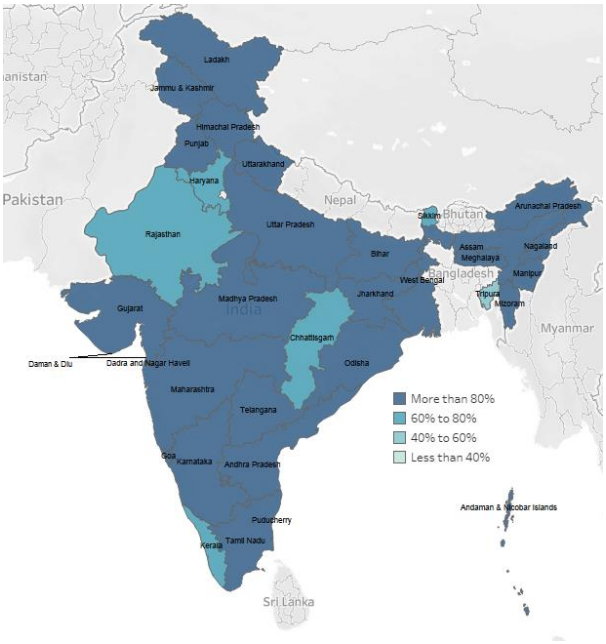
Adequate Quantity



Full Regular Supply



Potable (Quality)



State-wise comparison of overall quantity - State average and Har Ghar Jal Villages

Table 9: State-wise comparison of quantity of supplied between state average and Har Ghar Jal villages

States/ UTs	Overall Quantity (% HHs)	Har Ghar Jal Villages Quantity (% HHs)	Performance of Har Ghar Jal Villages
Puducherry	100	100	
Arunachal Pradesh	98	98	
Bihar	97	97	
Goa	97	97	
Kerala	97	100	↑
WB	97	98	↑
Punjab	96	96	
Tripura	96	100	↑
HP	95	95	
Meghalaya	94	95	↑
TN	94	96	↑
Uttarakhand	93	93	
Andhra Pradesh	92	96	↑
Sikkim	92	95	↑
Telangana	92	92	
Chhattisgarh	89	96	↑
DNH & DD	89	89	
UP	88	89	↑
Gujarat	87	87	
INDIA	85	88	↑
J&K	84	90	↑
Odisha	84	83	↓
Jharkhand	83	66	↓
Haryana	82	82	
Karnataka	82	79	↓
Assam	78	80	↑
Ladakh	78	86	↑
Maharashtra	68	67	↓
Nagaland	68	74	↑
MP	66	67	↑
Mizoram	66	71	↑
Manipur	62	66	↑
Rajasthan	59	54	↓
A&N Islands	48	48	

State-wise comparison of overall regularity- State average and Har Ghar Jal Villages

Table 10: State-wise regularity of supply comparison between state average and Har Ghar Jal villages

States/ UTs	Overall Regularity (% HHs)	Har Ghar Jal Villages Regularity (% HHs)	Performance of Har Ghar Jal Villages
Puducherry	99	99	
Tripura	94	100	↑
Goa	93	93	
Meghalaya	93	94	↑
Tamil Nadu	93	95	↑
Telangana	93	93	
West Bengal	90	93	↑
DNH & DD	89	89	
Sikkim	89	91	↑
Gujarat	88	88	
Himachal Pradesh	87	86	↓
Andaman & Nicobar Islands	85	85	
Arunachal Pradesh	85	84	↓
Chhattisgarh	85	65	↓
Bihar	84	84	
Karnataka	84	88	↑
Haryana	83	83	
Punjab	82	84	↑
Nagaland	81	81	
Ladakh	80	86	↑
INDIA	80	84	↑
Andhra Pradesh	79	84	↑
Mizoram	79	75	↓
Kerala	76	67	↓
Maharashtra	75	75	
Assam	73	74	↑
Uttarakhand	71	69	↓
Jammu & Kashmir	70	76	↑
Jharkhand	70	48	↓
Odisha	69	70	↑
Madhya Pradesh	67	73	↑
Uttar Pradesh	67	70	↑
Rajasthan	66	58	↓
Manipur	57	68	↑

State-wise comparison of overall potability- State average and Har Ghar Jal Villages

Table 11: State-wise comparison for potability of water supply between state average and Har Ghar Jal villages

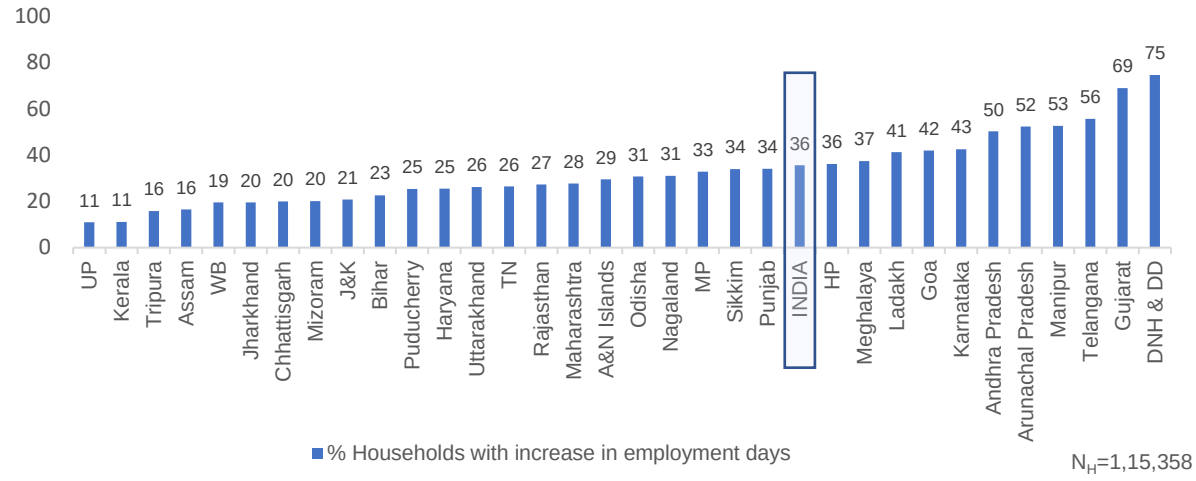
States/ UTs	Overall Potability (% HHs)	Har Ghar Jal Villages Potability (% HHs)	Performance of Har Ghar Jal Villages
DNH & DD	100	100	
Himachal Pradesh	98	97	↓
Ladakh	97	97	
Tamil Nadu	97	98	↑
Madhya Pradesh	96	96	
Telangana	95	95	
Bihar	94	93	↓
Mizoram	94	94	
Punjab	94	95	↑
Arunachal Pradesh	93	93	
Nagaland	93	91	↓
Manipur	92	90	↓
Uttarakhand	92	94	↑
Assam	91	91	
Uttar Pradesh	91	92	↑
Andaman & Nicobar Islands	90	90	
Andhra Pradesh	90	90	
Goa	90	90	
Chhattisgarh	89	76	↓
Gujarat	89	90	↑
Puducherry	89	89	
Odisha	88	89	↑
Meghalaya	87	84	↓
INDIA	87	90	↑
Jammu & Kashmir	86	92	↑
Jharkhand	86	96	↑
Rajasthan	82	76	↓
Maharashtra	81	81	
Karnataka	80	83	↑
Haryana	76	76	
West Bengal	76	85	↑
Sikkim	57	68	↑
Kerala	53	63	↑
Tripura	44	43	↓

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

A. Change in employment days since FHTC programmes/ schemes

Since having a functional HH tap connection, 36 percent HHs across states have reported that there has been a change in the number of employment days of the adult HH members.

Figure 78: Percent households reporting a change in employment days since FHTC /schemes implemented in Har Ghar Jal villages

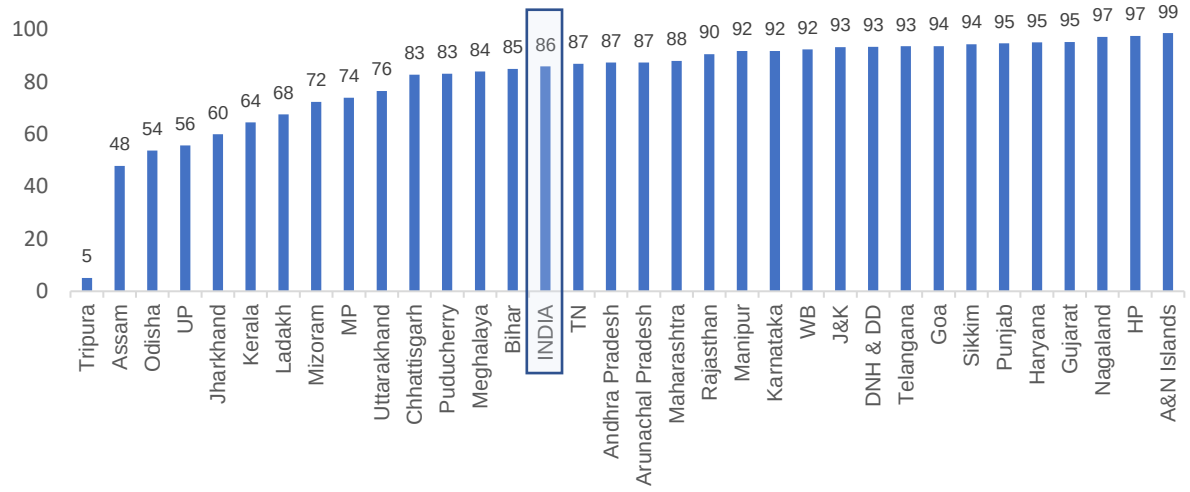


N_H=1,15,358

B. Reduction in time and effort in collecting water

Out of the HHs that reported female members (i.e. N=70,977) used to fetch water before HH tap connection, 86 percent reported that post installation of HH tap connection there is reduction of time and effort in collection of water

Figure 79: Percent households reported reduction in time and effort in collecting water in Har Ghar Jal villages

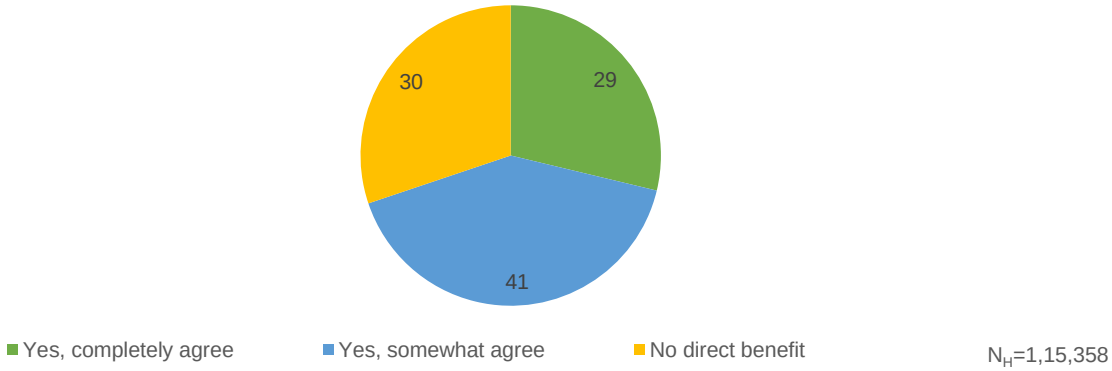


N_H=70,977

4.3 Direct benefits to family income due to FHTC

Across the states, 29 percent 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 41 percent reported being in partial agreement against the same.

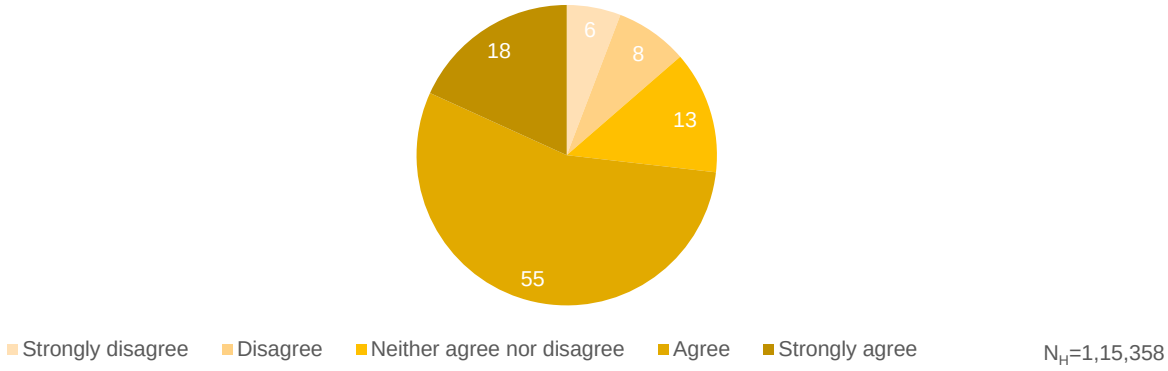
Figure 80: Composition of households reporting on the query about benefits in terms of family income due to FHTC in Har Ghar Jal villages



4.4 Change in social status

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

Figure 81: Households reported to have a positive change in social status in Har Ghar Jal villages



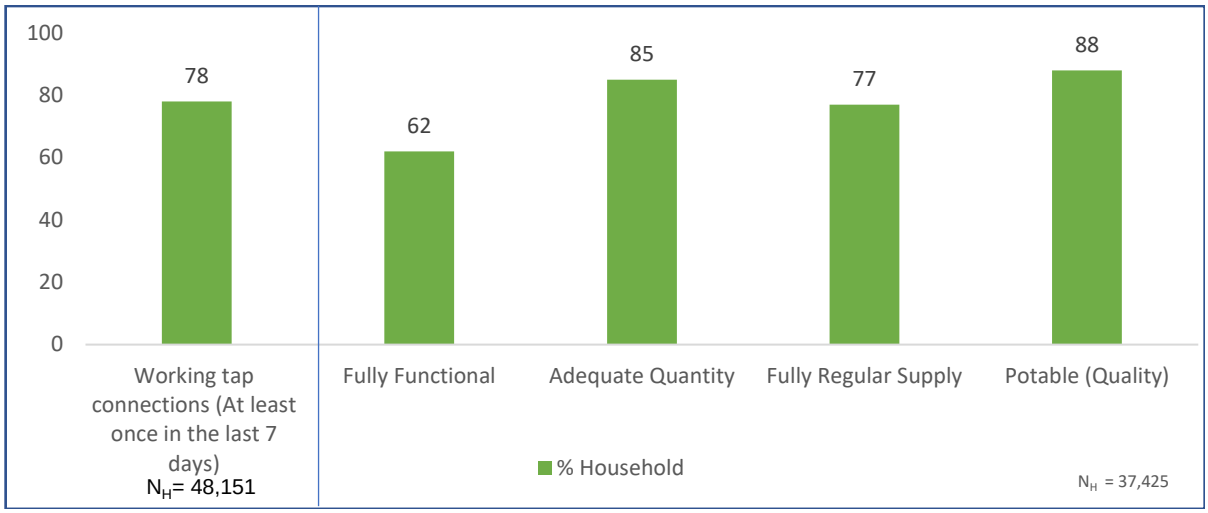
Chapter-5: Functionality status of FHTC at household level in Aspirational districts

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

A total 117 aspirational districts were covered in the survey across 28 states. Goa and 4 UTs – A&N Islands, Dadra & Nagar Haveli and Daman & Diu, Puduchchery and Ladakh did not have any aspirational districts. The findings on status of key parameters have been presented separately for aspirational districts below:

5.1 Overall Functionality (% households)

Figure 82: Percent households having functionality of HH tap connection in aspirational districts



** 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., 37,425 HHs*

Please note: Henceforth, N_H=37,425 implies all HHs where water was found on the day of the survey.

It has been found that 91 percent of the sampled HHs (N= 48,151) had working tap connections. Moreover, almost 8 out of 10 households (78 percent) received adequate quantity (>=55 LPCD) water supply and almost 4 out of 5 received regular supply (77 percent) of water. However, through on-site testing and lab test results of the water indicates that almost nine -ten (88 percent) of the sampled households in the state receive potable water. Overall, 62 percent of the HHs were found to have fully functional tap water connections within the premises.

Out of the 48,151 HHs sampled for the FHTC assessment, water was not available in 10,726 (22 percent) households on the day of the survey.

Table 12: Statewise Quantity, Regularity, and Quality of FHTC for aspirational districts (% HH)

S. No.	States/ UT	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.	Gujarat	100	14	68	61	51
2.	Karnataka	100	85	98	96	91
3.	Manipur	100	10	40	20	86
4.	Mizoram	100	41	76	55	92

S. No.	States/ UT	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)
5.	Nagaland	100	60	67	95	95
6.	Rajasthan	100	43	61	67	82
7.	Sikkim	100	53	89	88	66
8.	Telangana	100	89	95	94	99
9.	Tripura	100	47	96	84	57
10.	WB	100	83	99	93	89
11.	Andhra Pradesh	99	75	92	85	94
12.	J&K	98	43	92	88	50
13.	Kerala	97	57	98	89	67
14.	TN	97	67	76	84	98
15.	HP	97	91	99	93	99
16.	Bihar	93	80	97	84	97
17.	Arunachal Pradesh	90	44	95	49	89
18.	Punjab	87	85	99	87	99
19.	Haryana	87	63	69	81	96
20.	Maharashtra	85	42	68	56	93
21.	Uttarakhand	84	69	97	74	94
22.	**INDIA**	**78**	**62**	**85**	**77**	**88**
23.	Odisha	77	47	83	62	85
24.	Meghalaya	75	67	86	94	80
25.	Assam	71	52	68	72	91
26.	MP	64	74	81	86	97
27.	UP	58	55	92	59	95
28.	Chhattisgarh	54	67	83	83	86
29.	Jharkhand	49	55	83	71	85

* Regularity is receiving water for 12 months daily basis or as per schedule
# Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical, and bacteriological as given in Table 10 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.
**'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., 37,425 HHs.

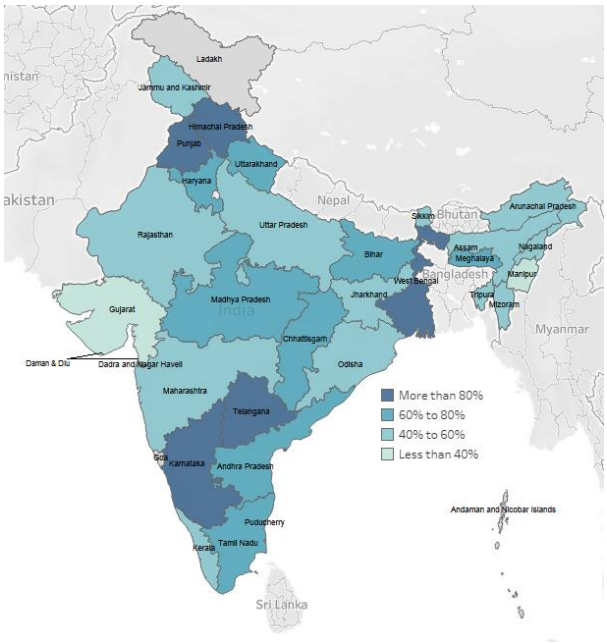
The state of Tripura, Bihar, Uttarakhand, Karnataka, Kerala, HP, Punjab and WB were found to provide more than 55 LPCD of water in more than 95 percent HHs.

More than 90 percent HHs in the states of HP, WB, Meghalaya, Telangana, Nagaland and Karnataka reported to regularly receive water through FHTC. While Manipur, Arunachal Pradesh, Mizoram, Maharashtra and UP were found to regular supply of water is less than 60 percent.

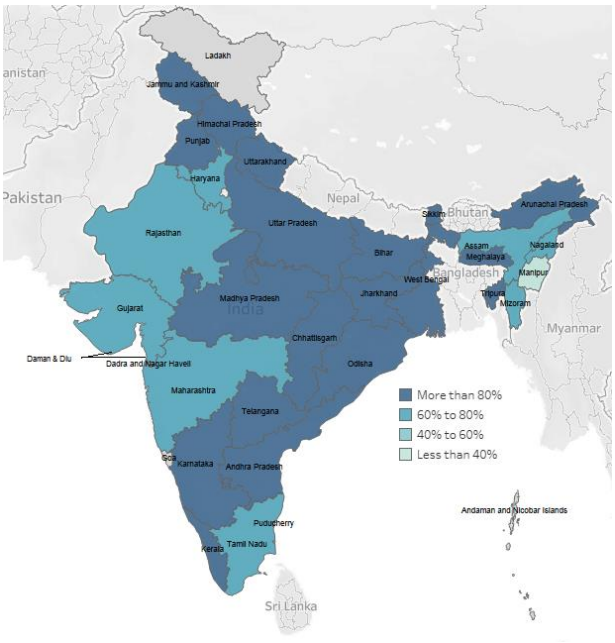
Potability of water was found to be more than 95 percent in the states of Bihar, MP, TN, HP, Punjab and Telangana. Whereas in the states of J&K, Gujarat and Tripura the potability of water was found less than 60 percent.

State wise performance map- Aspirational Districts

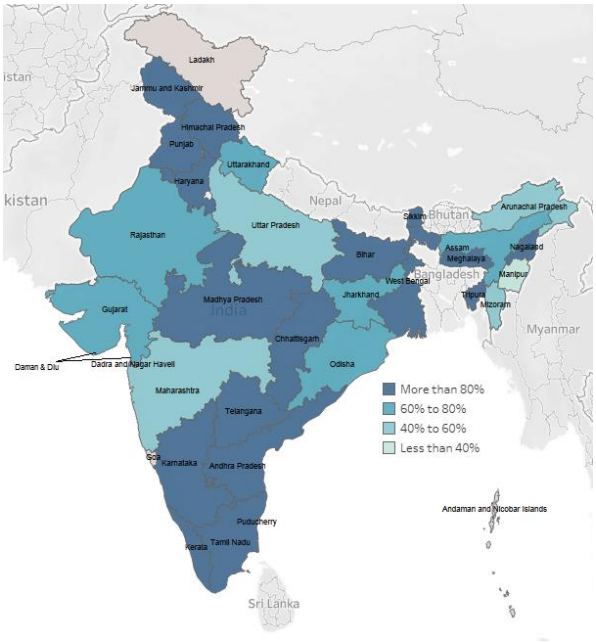
Functionality



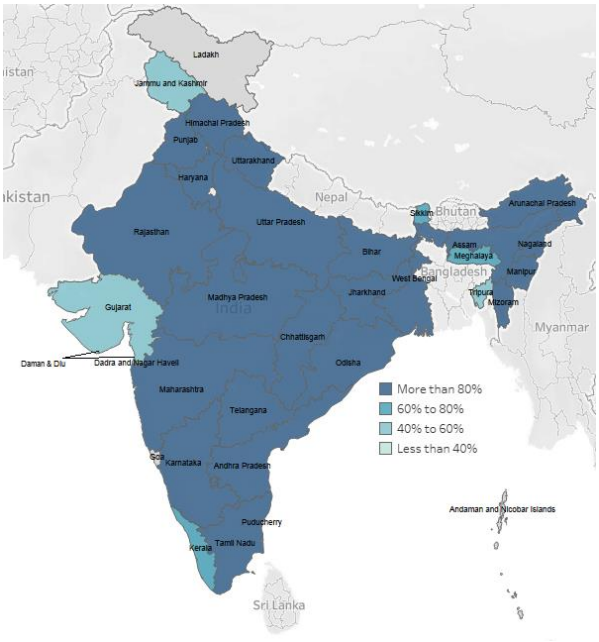
Adequate Quantity



Full Regular Supply



Potable (Quality)



State-wise comparison of overall quantity - State average and Aspirational Districts

Table 13: State-wise comparison of quantity of supplied between state average and aspirational districts

States/ UTs	Overall Quantity (% HHs)	Aspirational Districts Quantity (% HHs)	Performance of Aspirational Districts
Arunachal Pradesh	98	95	↓
Bihar	97	97	
Kerala	97	98	↑
West Bengal	97	99	↑
Punjab	96	99	↑
Tripura	96	96	
Himachal Pradesh	95	99	↑
Meghalaya	94	86	↓
Tamil Nadu	94	76	↓
Uttarakhand	93	97	↑
Andhra Pradesh	92	92	
Sikkim	92	89	↓
Telangana	92	95	↑
Chhattisgarh	89	83	↓
Uttar Pradesh	88	92	↑
Gujarat	87	68	↓
INDIA	85	85	
Jammu & Kashmir	84	92	↑
Odisha	84	83	↓
Jharkhand	83	83	
Haryana	82	69	↓
Karnataka	82	98	↑
Assam	78	68	↓
Maharashtra	68	68	
Nagaland	68	67	↓
Madhya Pradesh	66	81	↑
Mizoram	66	76	↑
Manipur	62	40	↓
Rajasthan	59	61	↑

State-wise comparison of overall regularity - State average and Aspirational Districts

Table 14: State-wise regularity of supply comparison between state average and aspirational districts

States/ UTs	Overall Regularity (% HHs)	Aspirational Districts Regularity (% HHs)	Performance of Aspirational Districts
Tripura	94	84	↓
Meghalaya	93	94	↑
Tamil Nadu	93	84	↓
Telangana	93	94	↑
West Bengal	90	93	↑
Sikkim	89	88	↓
Gujarat	88	61	↓
Himachal Pradesh	87	93	↑
Arunachal Pradesh	85	49	↓
Chhattisgarh	85	83	↓
Bihar	84	84	
Karnataka	84	96	↑
Haryana	83	81	↓
Punjab	82	87	↑
Nagaland	81	95	↑
INDIA	80	77	↓
Andhra Pradesh	79	85	↑
Mizoram	79	55	↓
Kerala	76	89	↑
Maharashtra	75	56	↓
Assam	73	72	↓
Uttarakhand	71	74	↑
Jammu & Kashmir	70	88	↑
Jharkhand	70	71	↑
Odisha	69	62	↓
Madhya Pradesh	67	86	↑
Uttar Pradesh	67	59	↓
Rajasthan	66	67	↑
Manipur	57	20	↓

State-wise comparison of overall potability - State average and Aspirational Districts

Table 15: State-wise comparison for potability of water supply between state average and aspirational districts

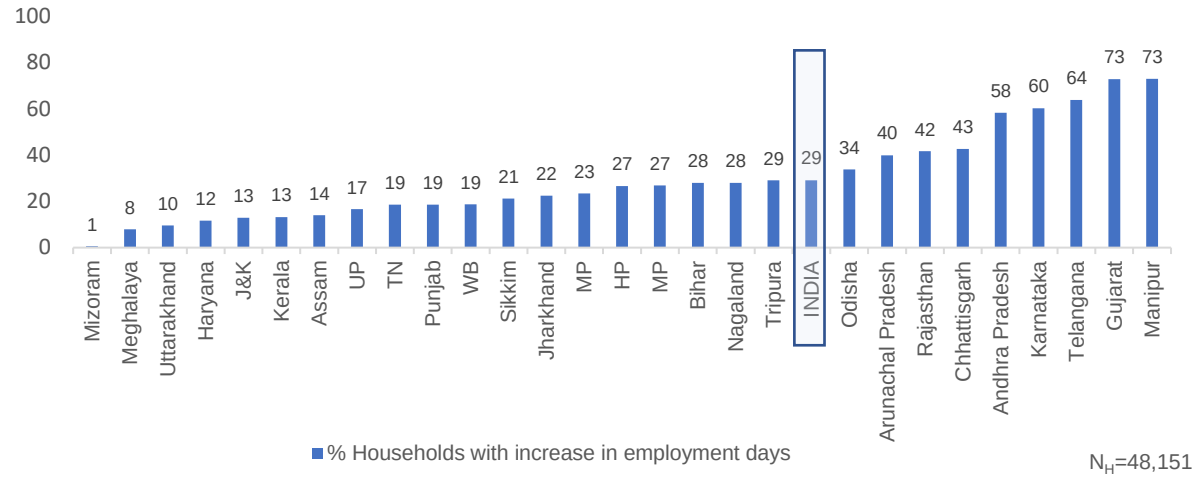
States/ UTs	Overall Potability (% HHs)	Aspirational Districts Potability (% HHs)	Performance of Aspirational Districts
Himachal Pradesh	98	99	↑
Tamil Nadu	97	98	↑
Madhya Pradesh	96	97	↑
Telangana	95	99	↑
Bihar	94	97	↑
Mizoram	94	92	↓
Punjab	94	99	↑
Arunachal Pradesh	93	89	↓
Nagaland	93	95	↑
Manipur	92	86	↓
Uttarakhand	92	94	↑
Assam	91	91	
Uttar Pradesh	91	94	↑
Andhra Pradesh	90	94	↑
Chhattisgarh	89	85	↓
Gujarat	89	51	↓
Odisha	88	85	↓
Meghalaya	87	80	↓
INDIA	87	88	↑
Jammu & Kashmir	86	50	↓
Jharkhand	86	84	↓
Rajasthan	82	82	
Maharashtra	81	93	↑
Karnataka	80	91	↑
Haryana	76	95	↑
West Bengal	76	89	↑
Sikkim	57	66	↑
Kerala	53	67	↑
Tripura	44	57	↑

5.2 Perception of households from aspirational districts on Outcome Indicators

A. Change in employment days since FHTC programmes/ schemes

Since having a functional HH tap connection, 29 percent HHs across states reported that there has been a change in the number of employment days of the adult HH members.

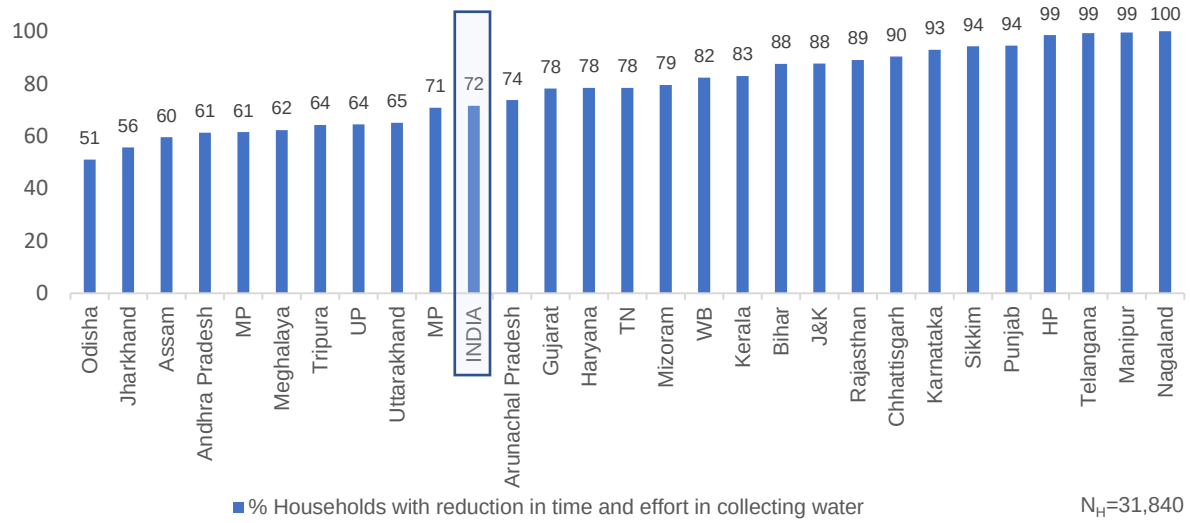
Figure 83: Percent households reporting change in employment days since FHTC programmes /schemes implemented in aspirational districts



B. Reduction in time and effort in collecting water

Out of the HHs that reported female members (N= 31,840) used to fetch water before HH tap connection, 72 percent reported that post installation of HH tap connection there is reduction of time and effort in collection of water.

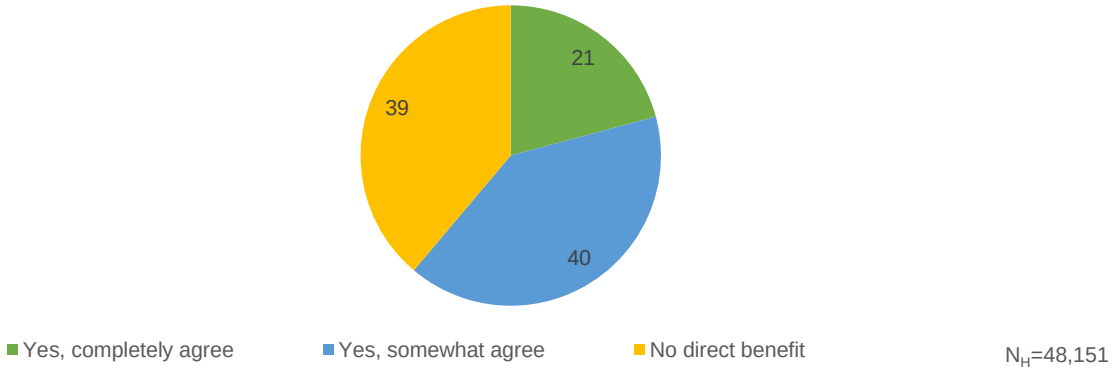
Figure 84: Households reported reduction in time and effort in collecting water in aspirational districts



5.3 Direct benefits to family income due to FHTC

Across the nation, 21 percent 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.

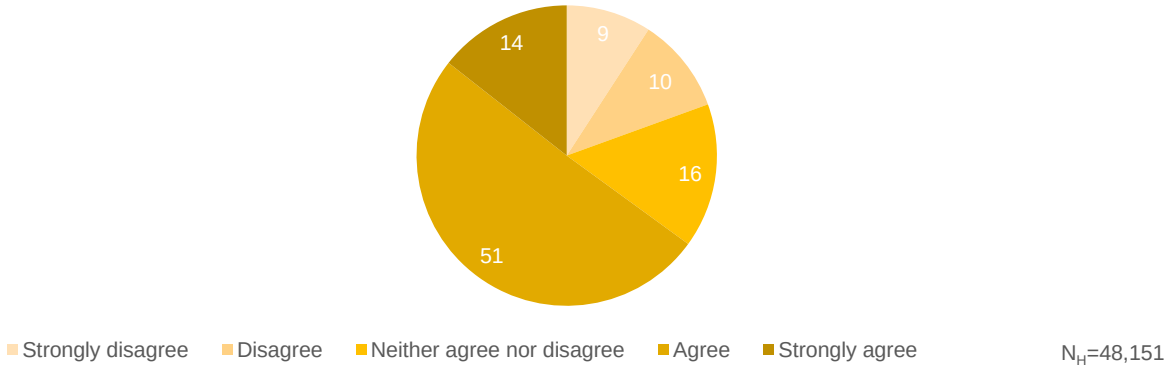
Figure 85: Composition of households reporting on the query about benefits in terms of family income due to FHTC in aspirational districts (% HHs)



5.4 Change in social status

More than three-fifth 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 86: Households reported to have a positive change in social status in aspirational districts



Chapter-6: Functionality status of FHTC at household level in JE-AES affected districts

6. Functionality status of FHTC at household level in JE-AES affected villages

A total 61 JE-AES affected districts were covered in the survey across 5 states – Uttar Pradesh, Assam, Bihar, Tamil Nadu, and West Bengal. The findings on status of key parameters have been presented separately for JE-AES affected districts below:

6.1 Overall Functionality (% households)

Figure 87: Functionality of HH tap connection in JE-AES affected districts

** 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., 37,425 HHs*

Please note: Henceforth, N_H= 19,214 implies all HHs where water was found on the day of the survey.

It has been found that 79 percent of the sampled HHs (N=24,412) had working tap connections. Moreover, almost 9 out of 10 households (95 percent) received adequate quantity (>=55 LPCD) water supply and 4 out of 5 received regular supply (80 percent) of water. However, through on-site testing and lab test results of the water indicates that almost nine -ten (89 percent) of the sampled households in the state receive potable water. Overall, 69 percent of the HHs were found to have fully functional tap water connections within the premises.

Out of the 24,412 HHs sampled for the FHTC assessment, water was not available in 5,198 (21 percent) households on the day of the survey.

Table 16: Statewise Quantity, Regularity, and Quality of FHTC for JE-AES affected districts (% HH)

S. No.	States/ UT	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.	TN	100	97	99	98	100
2.	WB	100	69	98	89	79
3.	Bihar	90	75	98	82	91
4.	Assam	81	59	88	75	83
5.	**INDIA**	**79**	**69**	**95**	**80**	**89**

S. No.	States/ UT	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)
6.	UP	53	57	91	61	96

* Regularity is receiving water for 12 months daily basis or as per schedule
# Potable water has been considered basis testing of water samples through laboratory tests for physical, chemical, and bacteriological as given in Table 10 parameters (within acceptable/ per missible range) and onsite testing of pH. The details of laboratory test are mentioned in the table given above in the glossary.
**'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., 19,214 HHs.

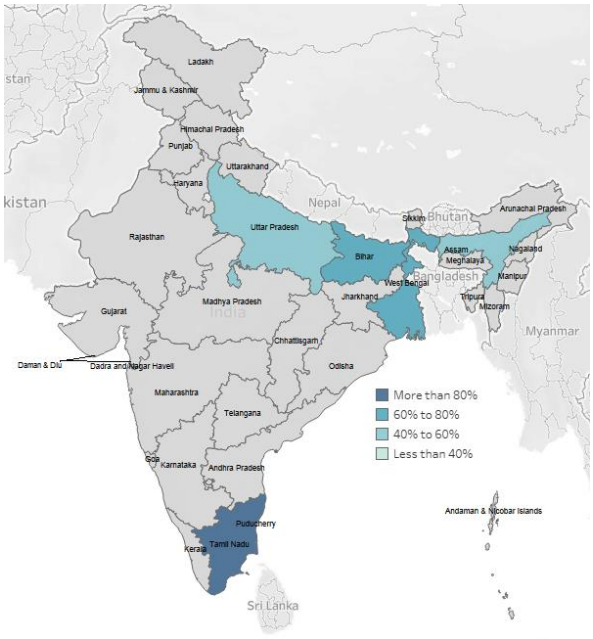
The state of TN, WB and Bihar were found to provide more than 55 LPCD of water in more than 95 percent HHs.

More than 90 percent HHs in the state of Tamil Nadu reported to regularly receive water through FHTC. Only Uttar Pradesh were found to regular supply of water is less than 70 percent.

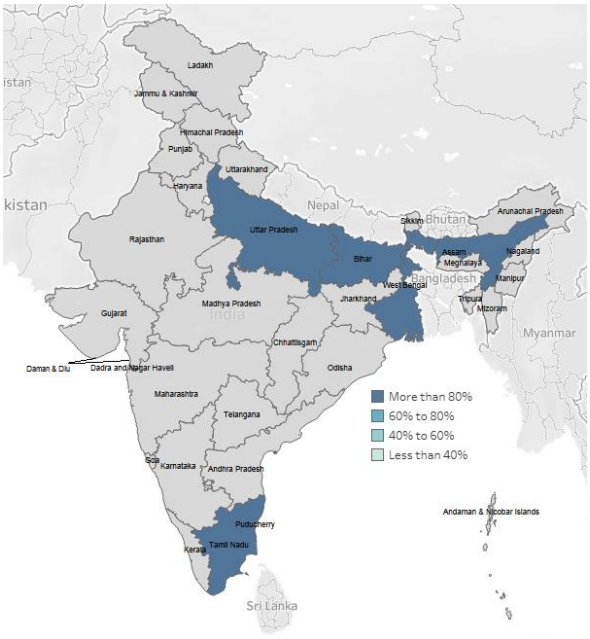
Potability of water was found to be more than 90 percent in the states of Tamil Nadu, Bihar and Uttar Pradesh. Whereas in the state of West Bengal the potability of water was found less than 80 percent.

State wise performance map- JE AES Districts

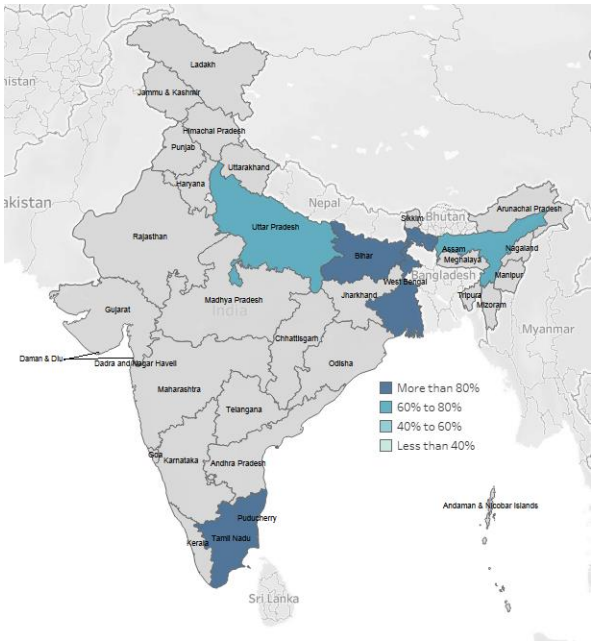
Functionality



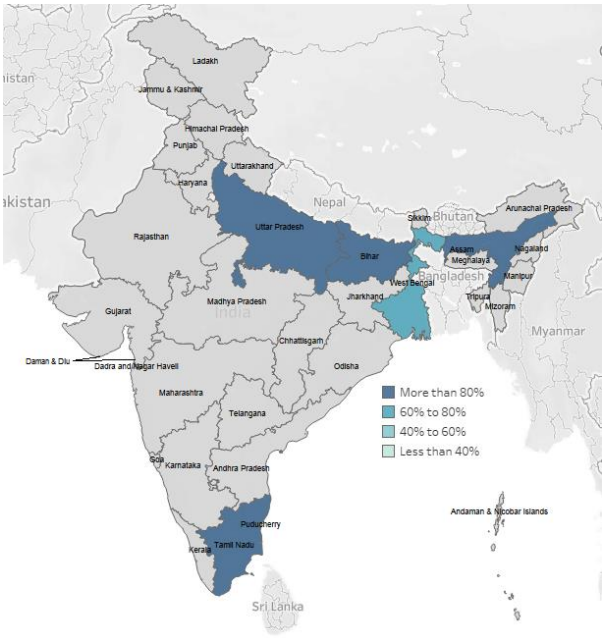
Adequate Quantity



Full Regular Supply



Potable (Quality)



State-wise comparison of overall quantity - State average and JE-AES Districts

Table 17: State-wise comparison of quantity of supplied between state average and JE-AES districts

States/ UTs	Overall Quantity (% HHs)	JE AES Districts Quantity (% HHs)	Performance of JE AES Districts
Bihar	97	98	↑
West Bengal	97	98	↑
Tamil Nadu	94	99	↑
Uttar Pradesh	88	91	↑
INDIA	85	95	↑
Assam	78	88	↑

State-wise comparison of overall regularity - State average and JE-AES Districts

Table 18: State-wise regularity of supply comparison between state average and JE-AES districts

States/ UTs	Overall Regularity (% HHs)	JE AES Districts Regularity (% HHs)	Performance of JE AES Districts
Tamil Nadu	93	98	↑
West Bengal	90	89	↓
Bihar	84	82	↓
INDIA	80	80	
Assam	73	75	↑
Uttar Pradesh	67	61	↓

State-wise comparison of overall potability - State average and JE-AES Districts

Table 19: State-wise comparison for potability of water supply between state average and JE-AES districts

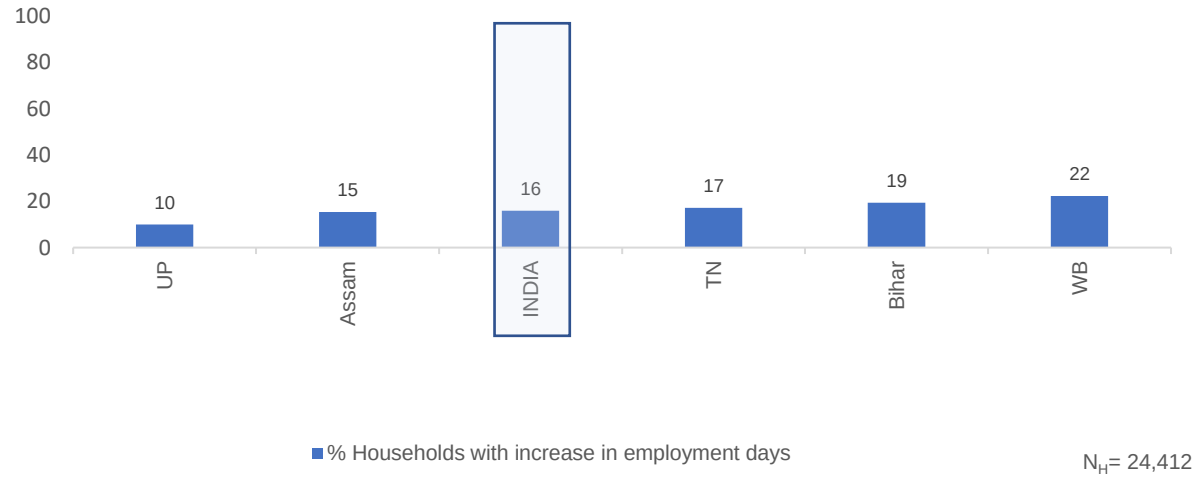
States/ UTs	Overall Potability (% HHs)	JE AES Districts Potability (% HHs)	Performance of JE AES Districts
Tamil Nadu	97	100	↑
Bihar	94	91	↓
Assam	91	83	↓
Uttar Pradesh	91	95	↑
INDIA	87	89	↑
West Bengal	76	79	↑

6.2 Perception of HHs from JE-AES affected districts on Outcome Indicators

A. Change in employment days since FHTC programmes/ schemes

Since having a functional HH tap connection, 16 percent HHs across states (N=24,412) reported that there has been a positive change in the number of employment days of the adult HH members.

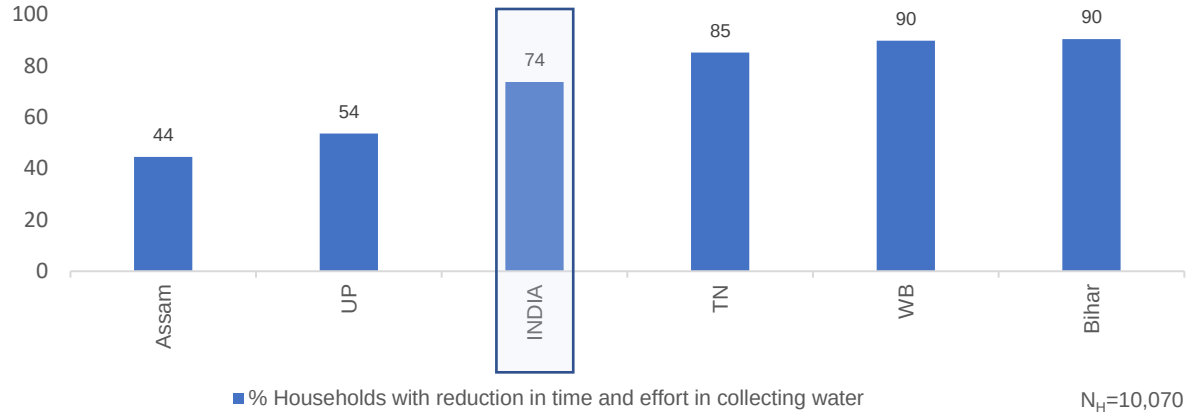
Figure 88: Household reported a change in employment days since FHTC programmes /schemes in JE-AES affected districts (% HHs)



B. Reduction in time and effort in collecting water

Out of the HHs reported (i.e. N=10,070) that female members used to fetch water before installation of HH tap connection, 74 percent reported that post installation of HH tap connection, there is reduction of time and effort in collection of water.

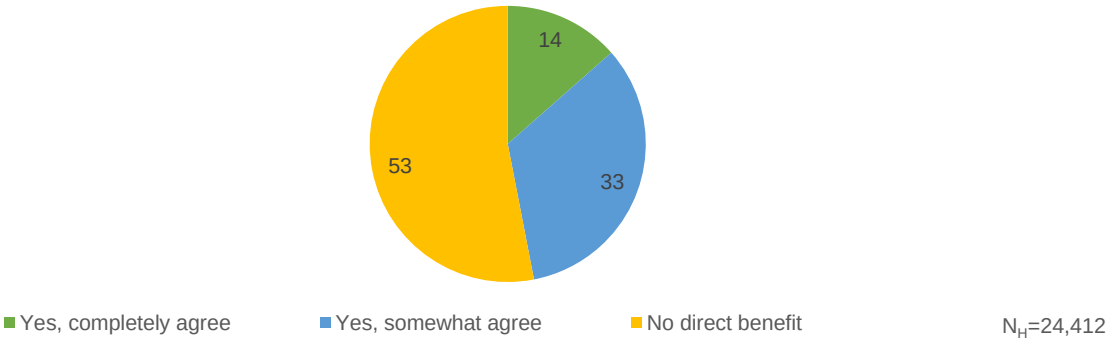
Figure 89: Percent households reporting reduction in time and effort in collecting water in JE-AES affected districts



6.3 Direct benefits to family income due to FHTC

Overall, 14 percent of sampled HHs from JE-AES affected districts reported being in complete agreement that there had been direct benefits in their HH income since the installation of HH tap connection, while 33 percent reported being in partial agreement.

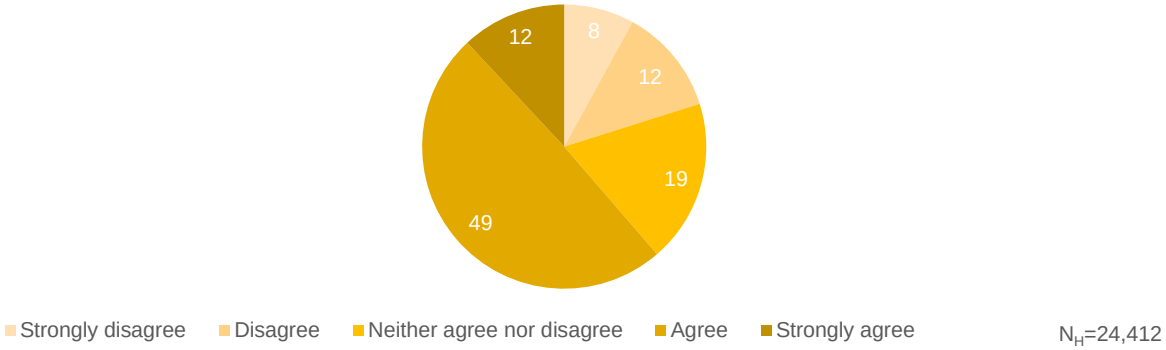
Figure 90: Composition of households reporting on the query about benefits in terms of family income due to FHTC in JE-AES affected districts



6.4 Change in social status

More than three-fifth of the households in JE-AES affected districts felt HH tap connection earned them more respect, feeling of pride and brought a positive change in their social status.

Figure 91: Households reported to have a positive change in social status in JE-AES affected districts



Chapter-7: Conclusion and way forward

7. Conclusion and way forward

Assessment of FHTC at the national level covered 33 states (including Union Territories), 712 districts, 13,299 villages, and 3,01,389 household. The scale of the survey is mammoth, and the findings as presented in the chapters in this report are representative at the district and state levels. Some of the major highlights from this survey are as follows in the form of brief summary, focusing especially from the lens of the priority areas for going forward.

7.1 Functionality of HH tap connections

a. The survey found 14 percent of the HHs did not receive water through household taps on the date or for a week preceding the survey. The states of Jharkhand, Chhattisgarh, and Uttar Pradesh had a higher proportion of HHs without working tap connections.
b. More than 30 percent of HHs in Andaman & Nicobar Islands, Rajasthan, Manipur, Madhya Pradesh, Mizoram, Maharashtra, and Nagaland received less than adequate supply of water (less than 55 LPCD of water).
c. More than 20 percent of HHs in Manipur, Rajasthan, Madhya Pradesh, Uttar Pradesh, Odisha, Jammu & Kashmir, Jharkhand, Uttarakhand, Assam, Maharashtra, Kerala, and Andhra Pradesh received either partial or irregular supply of water.
d. More than 20 percent of HHs in Tripura, Kerala, Sikkim, Haryana, West Bengal, and Karnataka did not receive potable water through household taps.
e. 9 States/UTs – Rajasthan, A&N Islands, Kerala, Manipur, Tripura, Maharashtra, Madhya Pradesh, Mizoram, and Sikkim had the functionality of less than 50 percent.
f. Seasonal scarcity of water and the resultant coping mechanism was being managed at the HH level with limited community-level interventions. More than 60 percent of HHs in Odisha, Jharkhand, Jammu & Kashmir, Himachal Pradesh, Chhattisgarh, Rajasthan, Mizoram and Ladakh reported to face seasonal shortage of water. A scheme-level measure to address the seasonal shortage of water could be further added to the overall scope of FHTC assessment under NJJM.

7.2 Institutional mechanisms

a. Less than 20 percent villages in Ladakh, Sikkim, Andaman & Nicobar Islands, West Bengal, Uttar Pradesh, Tripura and Odisha had reported having VWSC or a Pani Samiti.
b. Awareness regarding redressal of grievances was found to be in more than two-third villages (69 percent) across the nation but only 18 percent villages reportedly lodged any complaints in the last year.
c. At the HHs, most of them considered pump operators followed by GP functionaries as the channel for reporting a complaint. However, only 5% HHs reportedly lodged any complaints in the last year. Almost 40% of the complaints lodged were not resolved. For the remaining 60%, the complaints get resolved primarily within a week. Almost 40 percent households' complaints were not resolved.
d. Helpline established for purpose of reporting grievances regarding PWS was reported to be among the least preferred mode to lodge complaints by HHs. and village stakeholders (6 percent). This indicates that the overall awareness regarding the helpline may be is low across among the HHs. the States/ UTs.
e. More than 95 percent of villages in A&N Islands, Sikkim, Uttar Pradesh, West Bengal, Tripura, Ladakh, Jammu & Kashmir, Odisha and Chhattisgarh didn't have VWSC or a Pani Samiti responsible to manage the piped water supply schemes.

f. More than 80 percent of the villages in Ladakh, Tripura, Uttar Pradesh, Sikkim, Assam, Jammu & Kashmir, Chhattisgarh, A&N Islands, Uttarakhand and Jharkhand did not have skilled manpower for O&M of PWS schemes.
g. More than 20 percent of the villages in Manipur, Himachal Pradesh, and Haryana reported to have faced operational & maintenance challenges.
h. More than 90 percent of villages in Ladakh, A&N Islands, Uttar Pradesh, Sikkim, Tripura, Jharkhand, Jammu & Kashmir, Uttarakhand, Madhya Pradesh, Chhattisgarh and Assam did not have a community monitoring mechanism to monitor usage.

Chapter-8: Recommendations

8. Recommendations - Way forward

The FHTC assessment 2022 presents evidence that in majority of the households functional water tap connections have been provided. Going forward to further strengthen the coverage and implementation of the FHTC programme, the following recommendations emerge from the current round of assessment.

1. Need to set up mechanisms to routinely validate the IMIS data at the state level to further ensure that the reported numbers are accurate and are validated well.
2. Majority of the HHs reported satisfaction with the overall functionality of household tap connection, but its arrangement of O&M needs to be further streamlined and strengthened, especially in the context of sustainability and availability of skilled manpower.
3. Water quality issues viz. mainly Turbidity, Bacteriological, Iron, Nitrate, fluoride, and Arsenic are reported in HHs samples, across the states and this is an important point of consideration from quality angle. Urgent remedial action for the same must be taken to improve the overall potability of water.
4. Regular chlorination arrangements should be ensured for bacteriologically free water supply. This should include developing IEC materials on correct dossing and training of village level staffs to monitor water quality. The IEC should be continued for long period at the village level. Inclusion of local level health worker in the training would be strategic.
5. It is critical to ensure availability of field test kits along with regular training to check the quality of water supply. Also, the capacity of district level laboratories (labs) is matter of concern and should remain a focus of the state and district administration for enhanced lab efficiency. That would go a long way in ensuring water quality through proper lab test.
6. Investments in behaviour change communication is needed to inform HHs on potability specially to build up the confidence to use FHTC water for drinking. Additionally, spreading awareness about helpline numbers is important so that people can directly call to register complaints, if any.
7. Strengthening and hand-holding support to the VWSC/ Pani Samiti for O&M of pipe water supply schemes is also very critical. There should be a strategic scale up efforts ss all states on priority to ensure improved upkeep of services on the ground.
8. Investments by Govt. at all levels including from donors is the fuel keep the system running in a sustained manner. That would ensure community participation, awareness, and handholding support for the successful implementation of JJM.
9. District level decision making and planning to be further encouraged to ensure that participation of Panchayat / GP /local people are enhanced in setting up community accountability mechanisms. This engagement will also benefit acceptance of service delivery charges by the communities.

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