

Assessment of functionality status of household tap connections in rural areas (2020-21)

State report

Haryana



Submitted to:

National Jal Jeevan Mission

Department of Drinking Water and Sanitation

Ministry of Jal Shakti

Report prepared by:

NIELSEN (INDIA) PRIVATE LIMITED

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1. Introduction

Announced in 2019, the Jal Jeevan Mission – Har Ghar Jal (JJM – HGJ) is implemented by Department of Drinking Water and Sanitation (DDWS), Ministry of Jal Shakti in partnership with States/ UTs. JJM aims to provide a Functional Household Tap Connection (FHTC) to every rural home in the country by 2024. A household tap connection is said to be functional when the tap water supply is of adequate quantity (minimum 55 lpcd) and prescribed quality (as per BIS:10500) on regular and long-term basis. Further, JJM seeks to promote holistic management of local water sources and not just provide tap water connections.

The DDWS had engaged Nielsen (India) Private Limited to undertake 'Functionality Assessment' of household tap connections. The assessment covered household tap connections in 6,992 villages across 704 districts from 31 States/ UTs. The survey was undertaken in November – December 2020.

2. Objectives of the study

The main objectives were an assessment of Functionality of Household Tap Connections (FHTCs) under JJM on various parameters; ascertaining, in the form of data, on-ground progress of JJM in terms of adequate quantity of prescribed quality of drinking water supplied to rural households on regular basis; and engaging with Gram Panchayats and/ or its sub-committees of the sample villages and soliciting their feedbacks and recommendations for improving the programme implementation; and to suggest measures for mid-course correction for improvement in functionality of household tap connections.

3. Approach and Methodology

The approach followed was to assess the functionality of household tap connections (within premises) and in-village drinking water supply infrastructure. The selection of sample villages was from the JJM-Integrated Management Information System (IMIS) data-base of villages having at least 15 household tap connections. In each sample village, the largest PWS scheme was sampled. The survey was planned as in-person Computer Aided Personal Interview (CAPI) survey, and included an on-ground assessment of the functionality of sample PWS schemes and tap connections attached to the same. The survey included measurement of the quantity of water received at the household level through the tap connection, as well as water testing to check whether the quality of the drinking water is as per the BIS standards, using Field Test Kits (FTKs) and H₂S vials. The study also collected supply side information, including assessment of the quantity of water supplied by the scheme, operation and maintenance arrangements, availability and functionality of scheme level infrastructure and the aspects related to source and system sustainability.

A sample of 10 villages from every district in the State were selected following probability proportionate to size (PPS) systematic random sampling method ensuring due representation of SC/ SC majority villages as well as quality-affected villages. In each selected village, households for the survey were selected at head end, middle and tail end of the selected piped water supply network. In Haryana the survey was conducted in 3165 households from 220 villages in 22 districts.

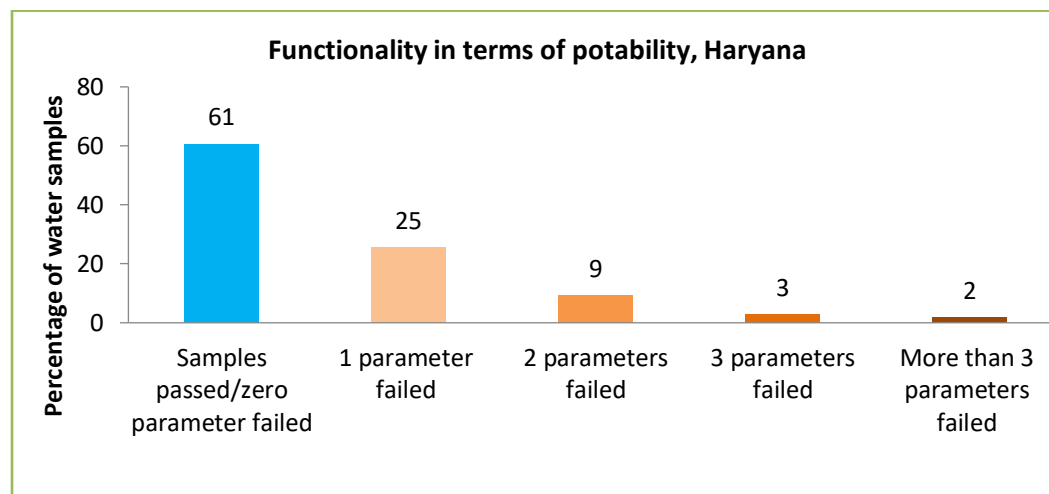
4. Key Findings

SL.	INDICATOR	Haryana	India
Household level			
1	Average household size	6.1	5.6
2	Percent of households using FHTC for drinking purpose	76.3	88.9
3	Percentage of households reported working tap connections (supply at least one day in last 7 days)	96.0	93.6
4	Number of water supply days in a usual week		
4a	1 – 2 days	8.8	7.6
4b	3 – 4 days	9.3	10.4
4c	5 – 6 days	0.7	1.5
4d	7 days	81.2	80.5
5	Number of water supply days in the last week		
5a	0 days	0.0	2.4
5b	1 – 2 days	11.8	9.7
5c	3 – 4 days	16.3	14.8
5d	5 – 6 days	1.9	4.9
5e	7 days	70.0	68.1
6	Percentage of households reporting reliability of water supply days	82.3	86.5
7	Percentage of households reporting tap connections functioning continuously for more than 15 days in a month for last 12 months	86.9	84.6
8	Average number of times water is supplied on the days of supply		
8a	1 time	57.1	56.6
8b	2 times	31.3	28.2
8c	3 times	11.4	6.1
8d	4 times/24 hours	0.1	9.1
9	Percentage of households reporting reliability of supply for different supply timings	79.1	84.3
10	Percentage of households reporting adequate water pressure for different supply timings		
10a	Morning	79.9	80.1
10b	Afternoon	69.5	84.6
10c	Evening	79.4	84.8
11	Percentage of households reported paying water tariff – separately or along with other taxes	7.8	52.8
12	Percentage of households reported receiving 55 lpcd or more	77.0	83.5
13	Percentage of households having potable water *	60.6	61.3
14	Percentage of households reporting regularity of supply	85.7	87.2
15	Percentage of households reporting functional tap connections	47.7	47.8
Village level			
16	Percentage villages having functional water and sanitation committees	35.0	48.5
17	Percentage of functional schemes in the sample villages considering all schemes (supplying water any day in the last 7 days)	80.7	86.0
18	Percentage of in-village schemes having O&M undertaken by village water	77.0	83.1

SL.	INDICATOR	Haryana	India
	and sanitation committee or by Panchayat		
19	Percentage of sample schemes reported having faced challenges in the last one year		
19a	Inadequate infrastructure	38.5	40.2
19b	Poor water availability at the source	25.6	33.0
19c	Poor maintenance	67.9	46.2
19d	Natural calamity	23.1	63.4
20	Percentage of schemes reporting measure to improve source sustainability	63.3	59.9
21	Number of sample villages found with no scheme (defunct/under construction/not handed over/not constructed)	7	751

Figures 1, 2 and 3 depicts the functionality aspects of the household tap connections in Haryana. Figure 1 presents the details of the potability aspects – the proportion of samples which have qualified as per all 13-15 parameters, as well as the proportion of sample which have failed due to one/two/three/more than three parameters.

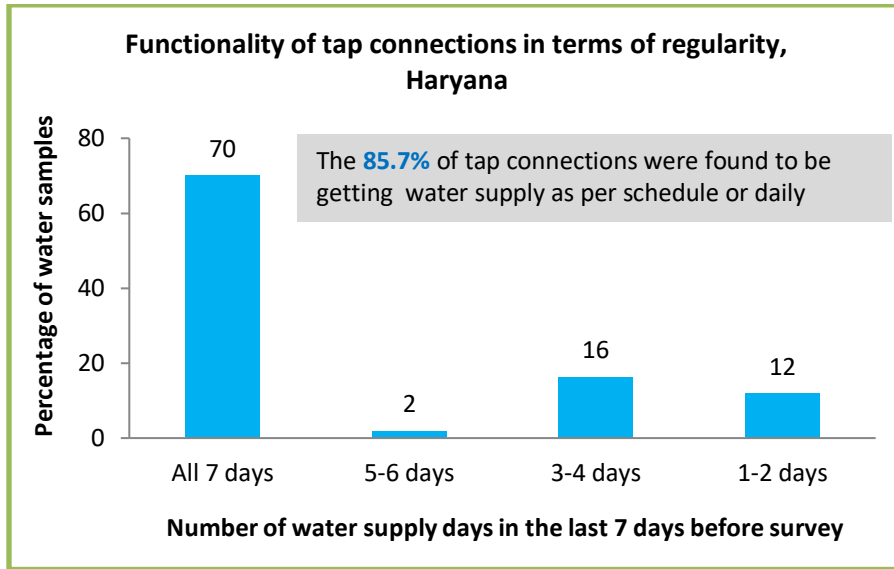
Fig 1: Functionality of the household tap connection in terms of potability - Haryana



Base: Households with water quality testing done, N: 216

Figure 2 presents functionality in terms of regularity, and presents the water supply situation in the last 7 days (before survey date). This includes information on the proportion of taps supplying water on all 7 days, 5-6 days, 3-4 days, 1-2 days and zero days in the last 7 days. As not all schemes are planned to supply water daily, the information of the proportion of taps supplying water daily or as per the water supply schedule is also presented.

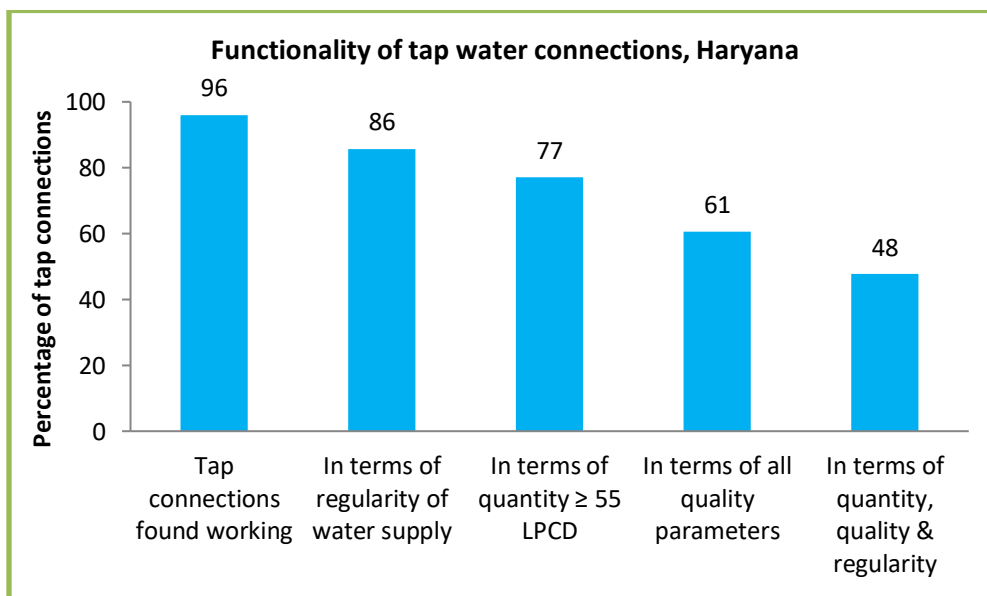
Fig 2: Functionality of the household tap connection in terms of regularity - Haryana



Base: All Households, N: 3140

Figure 3, presents the summary situation of the working tap connections (defined as supplying water atleast on one day in the last 7 days), the functionality in terms of the proportion of tap connections which have qualified regularity, quantity, quality parameters, and the proportion which have qualified all 3 parameters.

Fig 3: Overall functionality of the household tap connection - Haryana

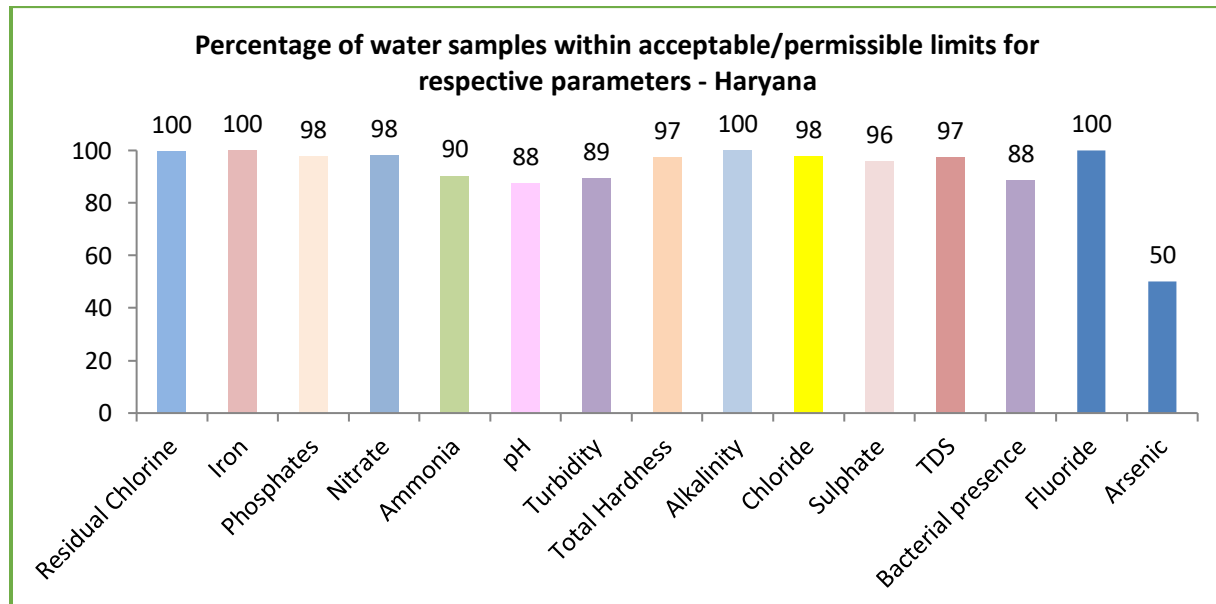


Base: Total count of tap connections considered for functionality assessment, N: 2967

A total of 216 water samples were tested as per BIS: 10,500 standards for all 15 parameters. Of these samples, 5 samples included testing for Fluoride and 2 samples included testing for Arsenic. The figure below shows the proportion of samples in which different parameters were found within acceptable/ permissible limits.

As can be seen, almost all the samples (98% and above) had Residual Chlorine, Iron, Phosphates, Nitrate, Alkalinity, Chloride, and Fluoride within acceptable/permissible limits. pH, Turbidity, Bacterial presence (total coliform) and Arsenic were the main issues with the samples which were not found potable.

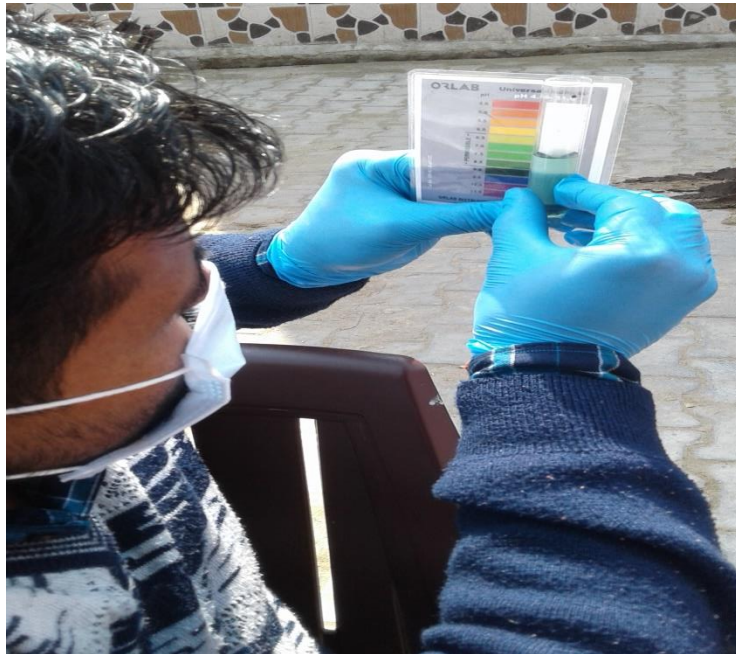
Fig 4: Percentage of water samples within acceptable/permissible limits for respective parameters - Haryana



Pic 1: Household survey being undertaken in one of the villages in Haryana



Pic 2: Water quality sample testing being undertaken in a village in Haryana



5. Conclusions

Haryana had almost same proportion of functional tap connections (47.7%) as compared with the national average. A high proportion (77%) of tap connections are estimated to supply more than 55 lpcd or more water and about 86 percent of tap connections were found to be supplying water daily or as per schedule. However, the proportion of households receiving potable water is less - about 61 percent. Since the tap connections considered to be functional were as per the JJM guidelines of including adequate quantity (55 lpcd or more), potability (as per BIS:10500 standards) and regularity of water supply (all days or as per the water supply schedule), the reason that a lower proportion of households had functional tap connections is mostly due to the lower proportion of households having a combination of potability and quantity (50.2% households having adequate quantity and potable water; 54.1% households having potable water received on a regular basis; while 70.5% households had adequate quantity of water supply on a regular basis).

The main issues with the samples which were not found potable were bacteriological (total coliform) presence, as well as Ammonia, Turbidity and pH being above permissible limits.

The proportion of households reporting currently working tap connections in Haryana is high (96%). On a usual basis, almost 81 percent of the households have reported receiving water supply on a daily basis. More than half of the households have reported being supplied water once a day, and a third of them reported supply twice a day. Nearly four fifth of the households have reported a reliability of water supply timings as well as adequate water pressure.

However, despite good quality water supply service delivery, the fact that less than one tenth of the households have reported paying water tariff is an area of concern. As per the JJM guidelines, the State Government needs to ensure 100% fund requirement for operation and maintenance of the schemes are met by the Agency responsible for water supply provision to function as a utility.

Almost one thirds of the villages have reported having water and sanitation committees – of these villages, in about three-fourths, the water and sanitation committees were actually taking responsibility for operation and maintenance activities of the PWS schemes. As reported by the communities 'inadequate infrastructure and poor maintenance' were the main challenges faced by the schemes. Two-third of the schemes had taken any initiatives for source sustainability.

Annexures to this report includes:

- List of village with no scheme/defunct schemes/under construction is placed as Annexure 1,
- List of villages with schemes supplying only through tap stand/stand posts is placed as Annexure 2,
- List of villages where 15 FHTCs were not found is placed as Annexure 3,
- Indicative proportion of functional tap connections by districts is placed as Annexure 4, and
- List of villages where samples failed for given quality parameter is placed as Annexure 5

Annexure 1: List of village with no scheme/defunct schemes/under construction

S.No	District Name	Block Name	Panchayat Name	Village Name	Name of Largest Scheme in the Village	Type	Status of the Scheme	Remarks
1.	Bhiwani	Tosham	Badalwala	Badalwala	Badalwala village providing independent water works	SVS	Scheme is defunct	Scheme is not functional since last 11 months
2.	Bhiwani	Tosham	Sandwala	Sandwala	Tosham division, estimate for providing and placing top layer filter media in various rural water supply scheme in Tosham	MVS	Scheme is defunct	Scheme is not functional since last 10 months
3.	Hisar	Narnaund	Kheri Rose	Kheri Rose	Anganwadies - providing drinking water supply facility	MVS	Scheme is defunct	Scheme is not functional since last 15 years
4.	Kaithal	Guhla	Budhanpur	Budhanpur	Various villages scheme district Kaithal	MVS	No scheme	There is no piped water scheme in this village.
5.	Mewat	Nuh	Meoli	Meoli	Kherla-inst. of TW against abandoned TW	MVS	No scheme	There is no piped water scheme in this village.
6.	Mewat	Pingwan	Ferozpur Meo	Ferozpur Meo	Kherla-inst. of TW against abandoned TW	MVS	No scheme	There is no piped water scheme in this village.
7.	Panipat	Israna	Pathri	Pathri	Kurana-const. Of s/s tank and continuous sand filter at w/w	MVS	Scheme is defunct	Scheme is not functional since last 15 years

Annexure 2: List of villages with schemes supplying only through tap stand/stand posts

S.No.	District Name	Block Name	Panchayat Name	Village Name	Name of Largest Scheme in the Village	Type	Remarks
1.	Mahendragarh	Nangal Chaudhary	Chapra Bibipur	Chapra Bibipur	Improvement of drinking water supply in rural schools of tehsil Narnaul, district Mahendergarh.	MVS	No FHTC. Water supply through tap stand only
2.	Mahendragarh	Nangal Chaudhary	Saidalipur	Saidalipur	Improvement of drinking water supply in rural schools of tehsil Narnaul, district Mahendergarh.	MVS	No FHTC. Water supply through tap stand only

Annexure 3: List of villages where 15 FHTCs were not found

No villages were there with less than 15 households surveyed.

Annexure 4: Indicative proportion of functional tap connections by districts

S.No.	District	Percentage Functional Taps
1.	Ambala	90.0
2.	Bhiwani	4.2
3.	Charkhi Dadri	12.7
4.	Faridabad	47.4
5.	Fatehabad	57.3
6.	Gurgaon	56.0
7.	Hisar	23.7
8.	Jhajjar	12.0
9.	Jind	53.3
10.	Kaithal	28.1
11.	Karnal	81.1
12.	Kurukshetra	88.6
13.	Mahendragarh	15.4
14.	Mewat	20.2
15.	Palwal	67.5
16.	Panchkula	76.2
17.	Panipat	52.2
18.	Rewari	58.1
19.	Rohtak	2.7
20.	Sirsa	79.3
21.	Sonipat	8.3
22.	Yamunanagar	98.5

Annexure 5: List of villages where samples failed for given quality parameter

S.No.	District name	Block name	Gram panchayat name	Village name
Villages with failed water samples for Turbidity test				
1.	Bhiwani	Bawani Khera	Bohal	Bohal
2.	Bhiwani	Kairu	Malwas Kohar	Malwas Kohar
3.	Charkhi Dadri	Badhra	Nimber Badesra	Nimber Badesra
4.	Charkhi Dadri	Charkhi Dadri	Sahuwas	Sahuwas
5.	Charkhi Dadri	Jhojhu (Dadri -li)	Chirya	Chirya
6.	Jhajjar	Bahadurgarh	Nilothi	Nilothi
7.	Jhajjar	Jhajjar	Bhadana	Bhadana
8.	Jhajjar	Jhajjar	Mehrana	Mehrana
9.	Jhajjar	Matanhail	Mohanbari	Mohanbari

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S.No.	District name	Block name	Gram panchayat name	Village name
10.	Jhajjar	Salhawas	Kasni	Kasni
11.	Jind	Safidon	Bagru Kalan	Bagru Kalan
12.	Jind	Safidon	Bagru Kalan	Bagru Kalan
13.	Jind	Safidon	Bagru Kalan	Bagru Kalan
14.	Kaithal	Kaithal	Baba Ladana	Baba Ladana
15.	Karnal	Nilokheri	Baqipur	Baqipur
16.	Panchkula	Raipurrani	Debar	Debar
17.	Rewari	Jatusana	Masta Pur	Masta Pur
18.	Rohtak	Kalanaur	Baniyani	Baniyani
19.	Rohtak	Kalanaur	Marodhi Rangran	Marodhi Rangran
20.	Rohtak	Rohtak	Ghilor Khurd	Ghilor Khurd
21.	Rohtak	Sampla	Ismaila 11 Biswa	Ismaila 11 Biswa
22.	Sonipat	Mundlana	Khandrai	Khandrai
23.	Sonipat	Murthal	Khewra	Khewra
Villages with failed water samples for pH test				
1.	Bhiwani	Bhiwani	Dhana Ladanpur	Dhana Ladanpur
2.	Bhiwani	Bhiwani	Tigrana	Tigrana
3.	Bhiwani	Loharu	Fartiya Tal	Dhani Shyama
4.	Charkhi Dadri	Badhra	Kakroli Hatti	Kakroli Hatti
5.	Charkhi Dadri	Charkhi Dadri	Balkara	Balkara
6.	Faridabad	Tigaon	Sahupura Khadar	Sahupura Khadar
7.	Fatehabad	Fatehabad	Thaliwali (Dhani)	Fatehabad Rural
8.	Fatehabad	Ratia	Nangal	Nangal
9.	Gurgaon	Farrukhnagar	Jori Kalan	Jori Kalan
10.	Gurgaon	Sohna	Nunhera	Nunhera
11.	Hisar	Adampur	Mahalsara	Mahalsara
12.	Hisar	Barwala	Nayagaon	Nayagaon
13.	Hisar	Hisar-I	Payal	Payal
14.	Hisar	Hisar-II	Kharia	Kharia
15.	Kaithal	Guhla	Landheri	Shahzadpur
16.	Mahendragarh	Ateli Nangal	Kariya	Kariya
17.	Mahendragarh	Mahendragarh	Basai	Basai
18.	Panipat	Israna	Dahar	Dahar
19.	Rohtak	Kalanaur	Baniyani	Baniyani
20.	Rohtak	Rohtak	Bahmanwas	Bahmanwas
21.	Rohtak	Rohtak	Ladhot	Ladhot
22.	Rohtak	Rohtak	Simli	Simli
23.	Rohtak	Sampla	Ismaila 11 Biswa	Ismaila 11 Biswa
24.	Sonipat	Ganaur	Dhatoli	Dhatoli
25.	Sonipat	Ganaur	Dhatoli	Dhatoli
26.	Sonipat	Ganaur	Dhatoli	Dhatoli
27.	Sonipat	Ganaur	Shapur Tega	Shapur Tega

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S.No.	District name	Block name	Gram panchayat name	Village name
Villages with failed water samples for Total Hardness test				
1.	Faridabad	Faridabad	Jasana	Jasana
2.	Panipat	Madlauda	Waisar	Waisar
3.	Rohtak	Rohtak	Ghilor Khurd	Ghilor Khurd
4.	Rohtak	Sampla	Ismaila 11 Biswa	Ismaila 11 Biswa
5.	Sonipat	Gohana	Puthi	Puthi
6.	Sonipat	Murthal	Khewra	Khewra
Villages with failed water samples for Chloride test				
1.	Ambala	Shahzadpur	Kherki Manakpur	Kherki Manakpur
2.	Gurgaon	Gurgaon	Nainwal	Nainwal
3.	Gurgaon	Pataudi	Gwaliar	Gwaliar
4.	Jind	Julana	Kamach Khera	Kamach Khera
5.	Kaithal	Rajound	Bir Bangran	Bir Bangran
Villages with failed water samples for Ammonia test				
1.	Bhiwani	Bawani Khera	Bohal	Bohal
2.	Bhiwani	Kairu	Malwas Kohar	Malwas Kohar
3.	Bhiwani	Siwani	Dhani Ramjas	Dhani Ramjas
4.	Charkhi Dadri	Badhra	Kakroli Hatti	Kakroli Hatti
5.	Charkhi Dadri	Charkhi Dadri	Balkara	Balkara
6.	Charkhi Dadri	Charkhi Dadri	Sahuwas	Sahuwas
7.	Charkhi Dadri	Jhojhu (Dadri -li)	Chirya	Chirya
8.	Charkhi Dadri	Jhojhu (Dadri -li)	Mai Khurd	Mai Khurd
9.	Hisar	Barwala	Badhawar	Badhawar
10.	Jhajjar	Bahadurgarh	Nilothi	Nilothi
11.	Jhajjar	Jhajjar	Mehrana	Mehrana
12.	Kaithal	Dhand	Jandola	Jandola
13.	Karnal	Nilokheri	Baqipur	Baqipur
14.	Mahendragarh	Nangal Chaudhry	Saidalipur	Saidalipur
15.	Rohtak	Kalanaur	Baniyani	Baniyani
16.	Rohtak	Kalanaur	Marodhi Rangran	Marodhi Rangran
17.	Rohtak	Maham	Bhaini Bhaorn	Bhaini Bhaorn
18.	Rohtak	Rohtak	Ghilor Khurd	Ghilor Khurd
19.	Rohtak	Rohtak	Ladhot	Ladhot
20.	Rohtak	Rohtak	Simli	Simli
21.	Rohtak	Sampla	Ismaila 11 Biswa	Ismaila 11 Biswa
Villages with failed water samples for Phosphate test				
1.	Bhiwani	Kairu	Malwas Kohar	Malwas Kohar
2.	Jhajjar	Jhajjar	Mehrana	Mehrana
3.	Panipat	Sanauli Khurd	Dhansoli	Dhansoli
4.	Rohtak	Sampla	Ismaila 11 Biswa	Ismaila 11 Biswa
5.	Sonipat	Murthal	Khewra	Khewra
Villages with failed water samples for Residual Chlorine test				

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S.No.	District name	Block name	Gram panchayat name	Village name
1.	Panchkula	Barwala	Sultanpur	Sultanpur
Villages with failed water samples for Nitrate test				
1.	Charkhi Dadri	Jhojhu (Dadri -li)	Mai Khurd	Mai Khurd
2.	Fatehabad	Bhuna	Ghotru	Ghotru
3.	Kurukshetra	Shahbad	Goripur	Goripur
4.	Rohtak	Rohtak	Bahmanwas	Bahmanwas
Villages with failed water samples for Sulphate test				
1.	Bhiwani	Kairu	Malwas Kohar	Malwas Kohar
2.	Jind	Safidon	Bagru Kalan	Bagru Kalan
3.	Jind	Safidon	Bagru Kalan	Bagru Kalan
4.	Karnal	Indri	Khanpur	Khanpur
5.	Karnal	Nilokheri	Baqipur	Baqipur
6.	Panipat	Israna	Dahar	Dahar
7.	Panipat	Madlauda	Waisar	Waisar
8.	Panipat	Samalkha	Jurasi Khalsa	Jurasi Khalsa
9.	Sonipat	Gohana	Puthi	Puthi
Villages with failed water samples for Total Dissolved Solids test				
1.	Ambala	Shahzadpur	Kherki Manakpur	Kherki Manakpur
2.	Faridabad	Tigaon	Chirsi	Kabulpur Patti Mahtab
3.	Gurgaon	Gurgaon	Nainwal	Nainwal
4.	Gurgaon	Pataudi	Gwaliar	Gwaliar
5.	Jind	Jind	Radhana	Radhana
6.	Sonipat	Gohana	Puthi	Puthi
Villages with failed water samples for Bacteriological present/ absence test using H2S vials				
1.	Ambala	Shahzadpur	Kherki Manakpur	Kherki Manakpur
2.	Bhiwani	Bhiwani	Tigrana	Tigrana
3.	Bhiwani	Kairu	Malwas Kohar	Malwas Kohar
4.	Charkhi Dadri	Charkhi Dadri	Kheri Bura	Kheri Bura
5.	Charkhi Dadri	Charkhi Dadri	Sahuwas	Sahuwas
6.	Fatehabad	Jakhal	Musa Khera	Musa Khera
7.	Fatehabad	Ratia	Nangal	Nangal
8.	Jhajjar	Badli	Jahangirpur	Jahangirpur Jhajjar
9.	Jhajjar	Bahadurgarh	Bir Barkatabad	Bir Barkatabad
10.	Jhajjar	Jhajjar	Mehrana	Mehrana
11.	Jhajjar	Machhrauli	Jaitpur	Jaitpur
12.	Jhajjar	Matanhail	Mohanbari	Mohanbari
13.	Kaithal	Guhla	Landheri	Shahzadpur
14.	Kaithal	Kaithal	Titram	Titram
15.	Kaithal	Siwan	Urlana	Urlana
16.	Mahendragarh	Kanina	Kaimla	Kaimla
17.	Mahendragarh	Nangal Chaudhry	Saidalipur	Saidalipur
18.	Mahendragarh	Narnaul	Jadupur	Jadupur

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S.No.	District name	Block name	Gram panchayat name	Village name
19.	Mahendragarh	Satnali	Dalanwas	Dalanwas
20.	Mewat	Indri	Rahuka	Rahuka
21.	Palwal	Prithla	Dudhola	Dudhola
22.	Rewari	Dharuhera	Bolni	Bolni
23.	Rewari	Rewari	Bariawas	Bariawas
24.	Rohtak	Sampla	Ismaila 11 Biswa	Ismaila 11 Biswa
25.	Sonipat	Murthal	Khewra	Khewra
Villages with failed water samples for Arsenic test				
1.	Kurukshetra	Pipli	Ram Garh	Ram Garh
2.	Sonipat	Rai	Sersa	Sersa