

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

**State report**

**Himachal Pradesh**



**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 H<sub>2</sub>S 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 Himachal Pradesh the survey was conducted in 1621 households from 110 villages in 12 districts.

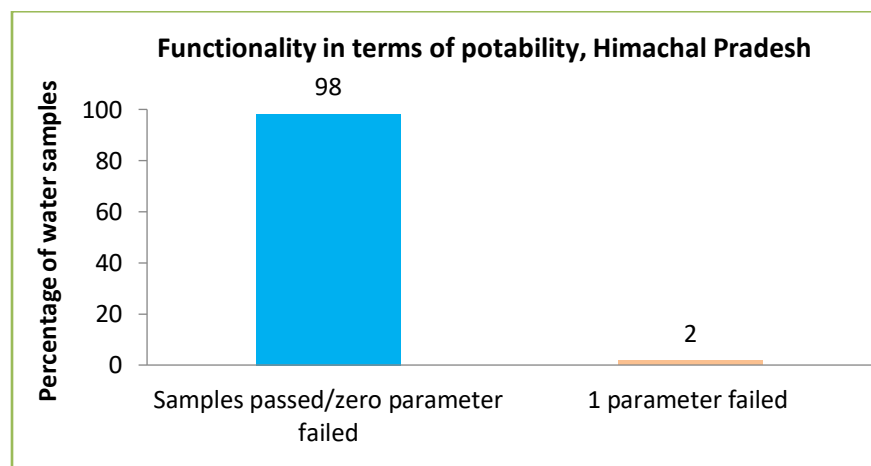
#### 4. Key Findings

SL.	INDICATOR	Himachal Pradesh	India
<b>Household level</b>			
1	Average household size	5.2	5.6
2	Percent of households using FHTC for drinking purpose	99.6	88.9
3	Percentage of households reported working tap connections (supply at least one day in last 7 days)	98.1	93.6
4	Number of water supply days in a usual week		
4a	1 – 2 days	3.1	7.6
4b	3 – 4 days	12.2	10.4
4c	5 – 6 days	1.4	1.5
4d	7 days	83.3	80.5
5	Number of water supply days in the last week		
5a	0 days	0.1	2.4
5b	1 – 2 days	3.9	9.7
5c	3 – 4 days	16.0	14.8
5d	5 – 6 days	2.8	4.9
5e	7 days	77.2	68.1
6	Percentage of households reporting reliability of water supply days	95.5	86.5
7	Percentage of households reporting tap connections functioning continuously for more than 15 days in a month for last 12 months	95.0	84.6
8	Average number of times water is supplied on the days of supply		
8a	1 time	58.1	56.6
8b	2 times	16.0	28.2
8c	3 times	0.1	6.1
8d	4 times/24 hours	25.8	9.1
9	Percentage of households reporting reliability of supply for different supply timings	94.2	84.3
10	Percentage of households reporting adequate water pressure for different supply timings		
10a	Morning	90.1	80.1
10b	Afternoon	87.8	84.6
10c	Evening	100.0	84.8
11	Percentage of households reported paying water tariff – separately or along with other taxes	77.5	52.8
12	Percentage of households reported receiving 55 lpcd or more	95.3	83.5
13	Percentage of households having potable water *	98.2	61.3
14	Percentage of households reporting regularity of supply	93.3	87.2
15	Percentage of households reporting functional tap connections	88.3	47.8
<b>Village level</b>			
16	Percentage villages having functional water and sanitation committees	89.1	48.5
17	Percentage of functional schemes in the sample villages considering all schemes (supplying water any day in the last 7 days)	96.3	86.0

SL.	INDICATOR	Himachal Pradesh	India
18	Percentage of in-village schemes having O&M undertaken by village water and sanitation committee or by Panchayat	58.3	83.1
19	Percentage of sample schemes reported having faced challenges in the last one year		
19a	Inadequate infrastructure	18.2	40.2
19b	Poor water availability at the source	21.2	33.0
19c	Poor maintenance	60.6	46.2
19d	Natural calamity	60.6	63.4
20	Percentage of schemes reporting measure to improve source sustainability	40.0	59.9
21	Number of sample villages found with no scheme (defunct/under construction/not handed over/not constructed)	1	751

Figures 1, 2 and 3 depicts the functionality aspects of the household tap connections in Himachal Pradesh. 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.

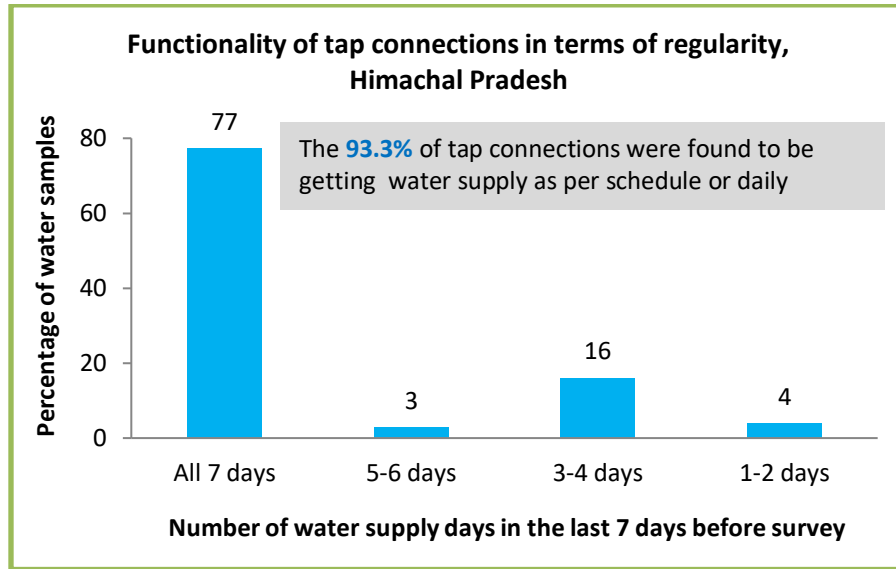
**Fig 1: Functionality of the household tap connection in terms of potability - Himachal Pradesh**



**Base: Households with water quality testing done, N: 112**

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.

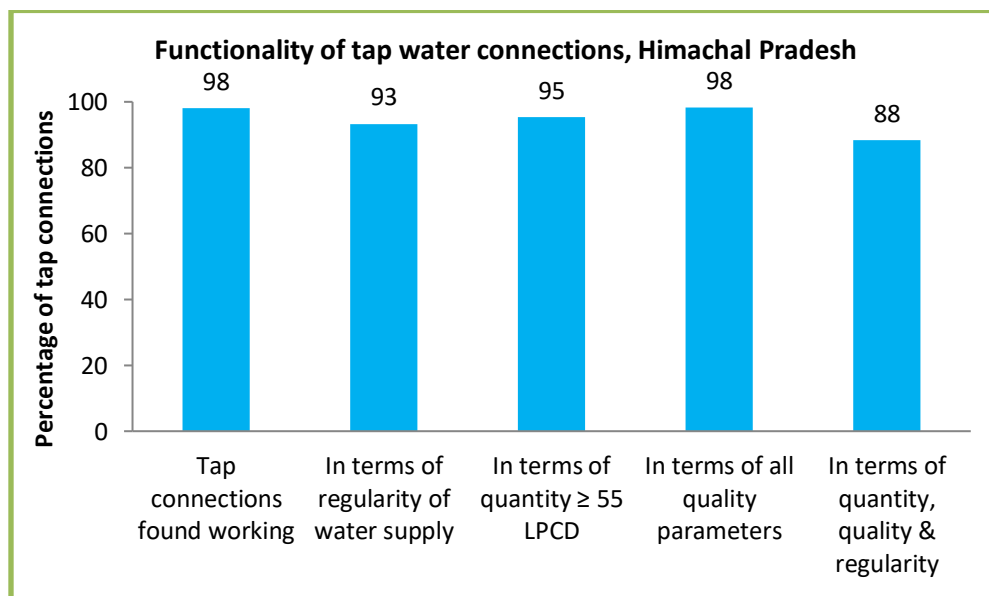
**Fig 2: Functionality of the household tap connection in terms of regularity - Himachal Pradesh**



**Base: All Households, N: 1621**

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.

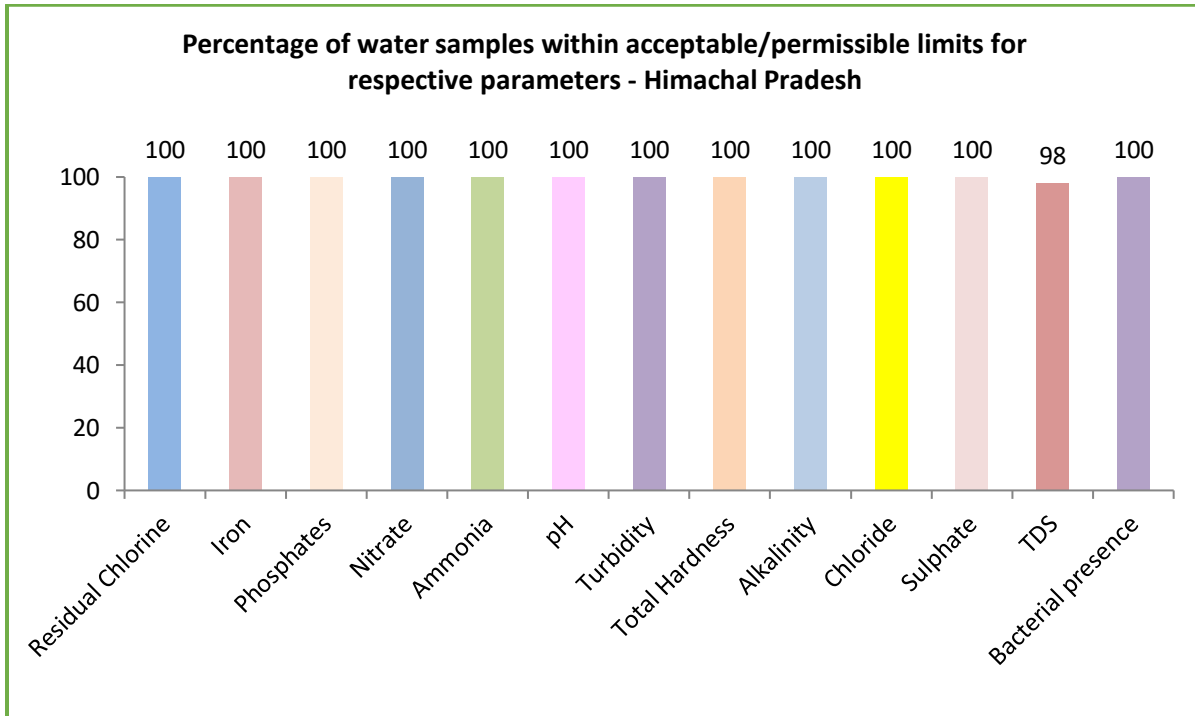
**Fig 3: Overall functionality of the household tap connection - Himachal Pradesh**



**Base: Total count of tap connections considered for functionality assessment, N: 1590**

A total of 112 water samples were tested as per BIS: 10,500 standards from a randomly selected head end households of selected sample PWS schemes in the sample villages of Himachal Pradesh. The figure below shows the proportion of samples in which different parameters were found within acceptable/permissible limits. As can be seen, all the samples, except for TDS (98%), had Residual Chlorine, Iron, Phosphates, Nitrate, Ammonia, pH, Turbidity, Total Hardness, Alkalinity, Chloride, Sulphate and Bacterial presence within acceptable/permissible limits.

**Fig 4: Percentage of water samples within acceptable/permissible limits for respective parameters – Himachal Pradesh**



**Pic 1: Household survey being undertaken in one of the villages in Himachal Pradesh**



**Pic 2: Water quality sample testing being undertaken in a village in Himachal Pradesh**





## 5. Conclusions

Himachal Pradesh has performed exceptionally well in the functionality assessment, with 9 out of every 10 households with tap connections have been assessed to have a functional tap connection. Almost all households have reported regular water supply and being supplied 55 lpcd or more of water, and 98% percent having potable water supply, which is way above the national figure. Himachal Pradesh had higher proportion of functional tap connections (88.3%) as compared with the national average. About 95 percent of the households were estimated to be supplied 55 lpcd or more and 93 percent with a regular water supply. 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 higher proportion of households had functional tap connections is mostly due to the higher proportion of households having a combination of quantity, potability and quantity (93.4 percent households having adequate quantity and potable water; 91.6 percent households having potable water received on a regular basis; while 90 percent households had adequate quantity of water supply on a regular basis).

For most of the schemes water supply was scheduled as daily supply but there seems to be variation from the schedule. A lower proportion of those reporting a usual daily water supply (83.3%), has reported receiving water supply on a daily basis in the last 7 days (77.2%). Almost 60 percent of the households have reported being supplied water once a day, and one fourth of the households reported the supply to be more than 5 times or for 24 hours supply. Almost all the households have reported a reliability of water supply timings as well as adequate water pressure.

The state performed well in terms of tariff/ water charges collection as 78 percent of the households reported paying water charges. 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.

Although 90 percent of the villages surveyed have a water sanitation committee only 68 percent of them are actually taking any responsibility of operation and maintenance activities of the PWS schemes. As reported by the communities 'natural calamities' and 'poor maintenance' were the main challenges faced by the schemes. Only 40 percent of the villages 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 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 villages 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.	Mandi	Sadar Mandi	Kataula	Kundhakh	WSS Seri Mandra in G.P. Riagri, Kamand and Kataula	MVS	No scheme	There is no piped water scheme in this village.

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

No villages were found with such schemes.

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

S.No.	District Name	Block Name	Panchayat Name	Village Name	Name of Largest Scheme in the Village	Type	Number of households surveyed
1.	Chamba	Bhattiyat	Tunuhatti	Hatli	WSS Hatli Rohani	MVS	11
2.	Chamba	Mehla	Guwar	Gwar	Providing WSS To NC/ PC Hab. Under Census Vilage S	MVS	11
3.	Chamba	Tissa	Kohal	Garh	WSS Pukhar Naler Kumharka	MVS	9

**Annexure 4: Indicative proportion of functional tap connections by districts**

S.No.	District	Percentage Functional Taps
1.	Bilaspur	90.0
2.	Chamba	94.9
3.	Hamirpur	84.7
4.	Kangra	80.0
5.	Kinnaur	84.7
6.	Kullu	94.7
7.	Mandi	96.3
8.	Shimla	98.7
9.	Sirmaur	92.0
10.	Solan	79.3
11.	Una	75.6

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

S.No.	District name	Block name	Gram panchayat name	Village name
<b>Villages with failed water samples for Total Dissolved Solids test</b>				
1.	Kangra	Nagrota Surian	Gathuter	Thalla
2.	Kangra	Panchrukhi	Kailashpur	Machhoi