

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

State report

Mizoram



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 Mizoram the survey was conducted in 1179 households from 80 villages in 8 districts.

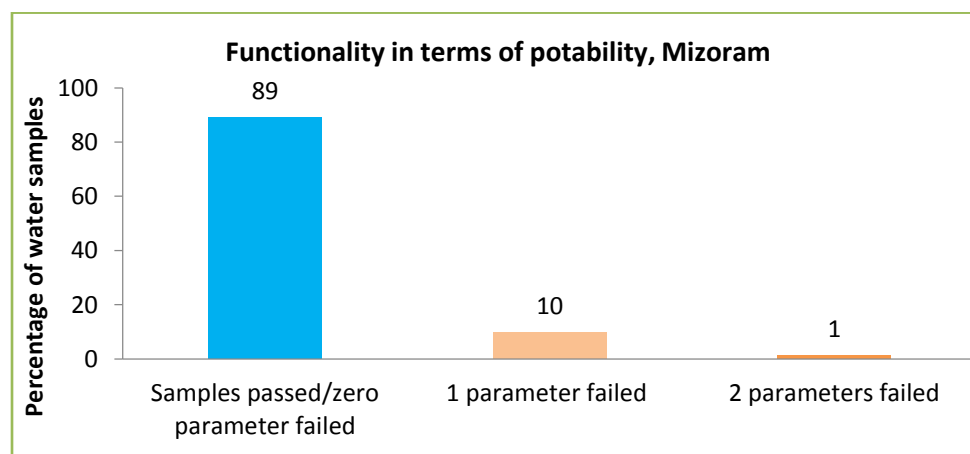
4. Key Findings

SL.	INDICATOR	Mizoram	India
Household level			
1	Average household size	5.3	5.6
2	Percent of households using FHTC for drinking purpose	99.9	88.9
3	Percentage of households reported working tap connections (supply at least one day in last 7 days)	91.3	93.6
4	Number of water supply days in a usual week		
4a	1 – 2 days	3.5	7.6
4b	3 – 4 days	1.0	10.4
4c	5 – 6 days	0.4	1.5
4d	7 days	95.1	80.5
5	Number of water supply days in the last week		
5a	0 days	0.0	2.4
5b	1 – 2 days	54.3	9.7
5c	3 – 4 days	18.5	14.8
5d	5 – 6 days	0.8	4.9
5e	7 days	26.3	68.1
6	Percentage of households reporting reliability of water supply days	94.1	86.5
7	Percentage of households reporting tap connections functioning continuously for more than 15 days in a month for last 12 months	95.1	84.6
8	Average number of times water is supplied on the days of supply		
8a	1 time	44.4	56.6
8b	2 times	5.5	28.2
8c	3 times	0.5	6.1
8d	4 times/24 hours	49.6	9.1
9	Percentage of households reporting reliability of supply for different supply timings	92.8	84.3
10	Percentage of households reporting adequate water pressure for different supply timings		
10a	Morning	94.4	80.1
10b	Afternoon	60.0	84.6
10c	Evening	100.0	84.8
11	Percentage of households reported paying water tariff – separately or along with other taxes	89.6	52.8
12	Percentage of households reported receiving 55 lpcd or more	63.4	83.5
13	Percentage of having potable water *	89.0	61.3
14	Percentage of households reporting regularity of supply	22.7	87.2
15	Percentage of households reporting functional tap connections	18.5	47.8
Village level			
16	Percentage villages having functional water and sanitation committees	98.8	48.5
17	Percentage of functional schemes in the sample villages considering all schemes (supplying water any day in the last 7 days)	90.6	86.0
18	Percentage of in-village schemes having O&M undertaken by village water	86.1	83.1

SL.	INDICATOR	Mizoram	India
	and sanitation committee or by Panchayat		
19	Percentage of sample schemes reported having faced challenges in the last one year		
19a	Inadequate infrastructure	6.8	40.2
19b	Poor water availability at the source	27.3	33.0
19c	Poor maintenance	20.5	46.2
19d	Natural calamity	90.9	63.4
20	Percentage of schemes reporting measure to improve source sustainability	83.8	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 Mizoram. 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.

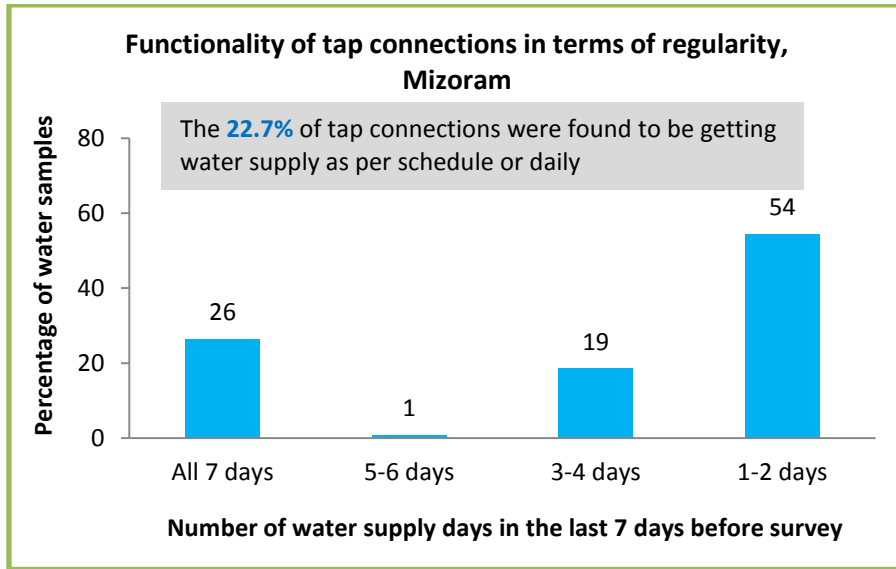
Fig 1: Functionality of the household tap connection in terms of potability - Mizoram



Base: Households with water quality testing done, N: 82

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.

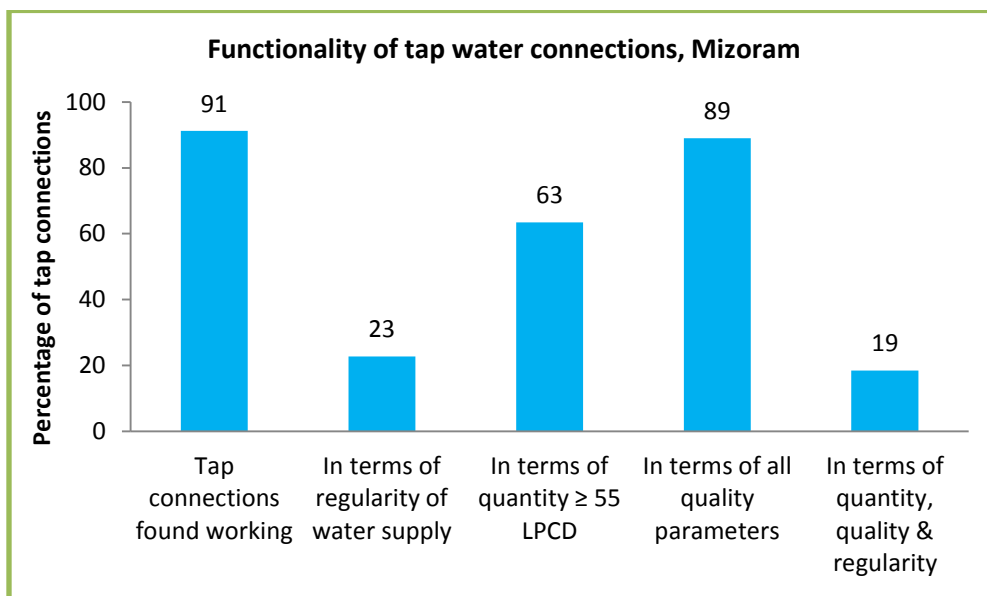
Fig 2: Functionality of the household tap connection in terms of regularity - Mizoram



Base: All Households, N: 1178

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 - Mizoram

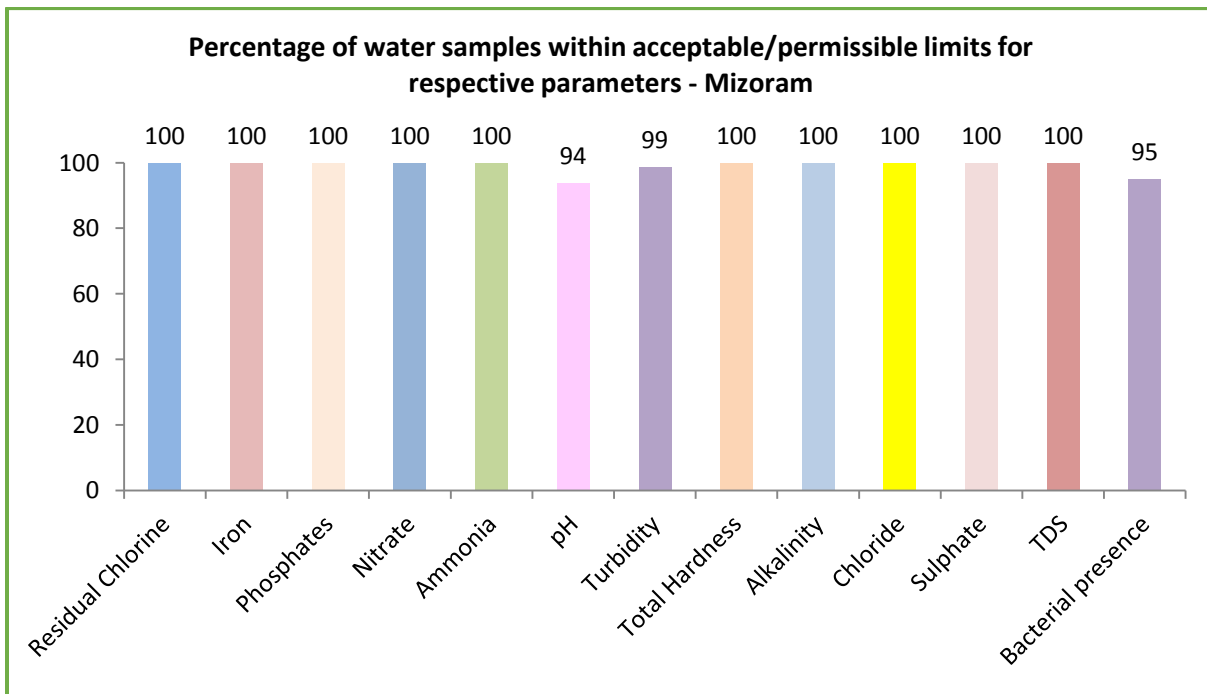


Base: Total count of tap connections considered for functionality assessment, N: 383

A total of 82 water samples were tested as per BIS: 10,500 standards for all 13 parameters. 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% or more) had almost all parameters within acceptable/permissible limits. The only water quality issues reported for 6 percent or less of the water samples were pH being outside the acceptable limits and in 5 percent samples presence of coliform bacteria.

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



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



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



5. Conclusions

Mizoram has a very low proportion of functional tap connections (18.5%) as compared with the national average. Mizoram has performed very well in the provision of potable water supply (89%), but, the proportion of households reporting regularity of water supply service is low (22.7%). Moreover, around 63 percent of the households have been estimated to be supplied with 55 lpcd or more of 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 lower proportion of households had functional tap connections is mostly due to the lower proportion of households receiving water supply on a regular basis and also not receiving adequate quantity of water. Households with taps having a combination of potability and regularity, as well as quantity and regularity is low, and is the reason why the overall functionality is low (51.7% households having adequate quantity and potable water; 22.2% households having potable water received on a regular basis; and 18.8% households had adequate quantity of water supply on a regular basis). The only water quality issues reported for 6 percent or less of the water samples were pH being outside the acceptable limits and presence of coliform bacteria in 5 percent samples.

The proportion of households reporting currently working tap connections in Mizoram is high (91%). On a usual basis, almost 95 percent of the households have reported receiving water supply on a daily basis. While half of the households have reported receiving water supply for more than 4 times a day, the

remaining households have mostly reported a single time water supply. Almost all households have reported that reliability with regard to water supply timings.

About nine out of every ten households with tap connections have reported paying water tariff. 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 all villages have reported having water and sanitation committees and in 91 percent of these villages, the water and sanitation committees were actually taking responsibility for operation and maintenance activities of the PWS schemes. As reported by the communities 'natural calamities' was the single most challenge faced by almost all schemes. About 84 percent of the schemes had taken some 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 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.	Mamit	Zawlnuam	Tuipubariri	Tuipubariri	Tuipubariri WSS	MVS	Under construction	Under construction

Annexure 2: List of villages with schemes supplying only through tap stand/ stand posts
No Scheme supplying water only through tap stand (no FHTC).

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
1.	Serchhip	Serchhip	Chanin	Chanin	Chanin WSS	SVS

Annexure 4: Indicative proportion of functional tap connections by districts

S.No.	Districts	Percentage Functional Taps
1.	Aizawl	5.4
2.	Champhai*	0.0
3.	Kolasib*	2.2
4.	Lawngtlai*	0.0
5.	Lunglei	20.0
6.	Mamit*	50.0
7.	Saiha*	73.3
8.	Serchhip	11.4

* The denominator is less than 50

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.	Kolasib	Bilkhawthlir	Bilkhawthlir	Bilkhawthlir
Villages with failed water samples for pH test				
1.	Aizawl	Aibawk	N.Lungsai	N.Lungsai
2.	Kolasib	Bilkhawthlir	Bilkhawthlir	Bilkhawthlir
3.	Lawngtlai	Chawngte	Kamalanagar li	Kamalanagar li
4.	Lawngtlai	Chawngte	Kamlanagar Iii	Kamalanagar Iii
5.	Saiha	Tuipang	Tongkolong	Tongkolong
Villages with failed water samples for Bacteriological present/ absence test using H2S vials				
1.	Kolasib	Bilkhawthlir	Saihapui V	Saihapui V
2.	Lawngtlai	Chawngte	W.Saizawh	W.Saizawh
3.	Serchhip	East Lungdar	Khawlailung	Khawlailung
4.	Serchhip	Serchhip	Hmunzawl	Hmunzawl