

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

State report

Meghalaya



Submitted to:

National Jal Jeevan Mission

Department of Drinking Water and Sanitation

Ministry of Jal Shakti

Report prepared by:

NIELSEN (INDIA) PRIVATE LIMITED

Table of Contents

1. Introduction	2
2. Objectives of the study	2
3. Approach and Methodology	2
4. Key Findings	3
5. Conclusions	8
Annexure 1: List of village with no scheme/defunct schemes/under construction	9
Annexure 2: List of villages with schemes supplying only through tap stand/stand posts	10
Annexure 3: List of villages where 15 FHTCs were not found	10
Annexure 4: Indicative proportion of functional tap connections by districts	11
Annexure 5: List of villages where samples failed for given quality parameter	11

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 Meghalaya the survey was conducted in 1316 households from 109 villages in 11 districts.

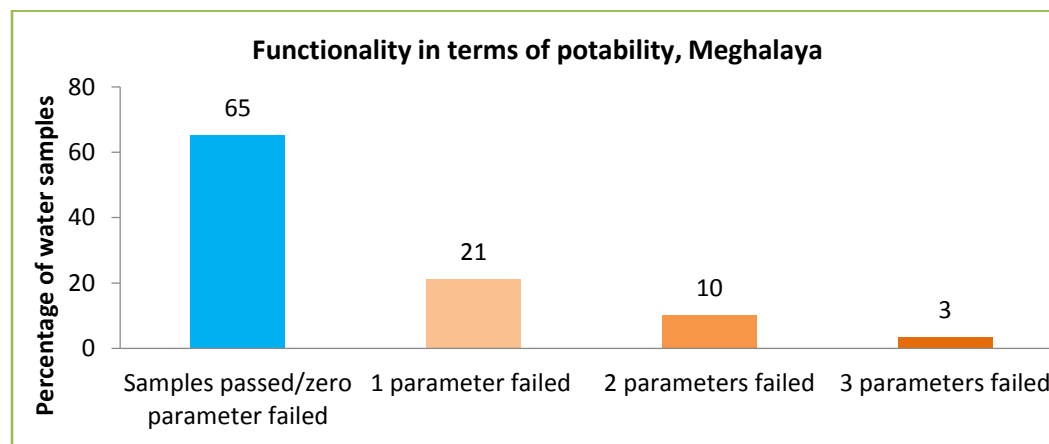
4. Key Findings

SL.	INDICATOR	Meghalaya	India
Household level			
1	Average household size	6.0	5.6
2	Percent of households using FHTC for drinking purpose	96.2	88.9
3	Percentage of households reported working tap connections (supply at least one day in last 7 days)	91.1	93.6
4	Number of water supply days in a usual week		
4a	1 – 2 days	0.2	7.6
4b	3 – 4 days	1.4	10.4
4c	5 – 6 days	0.4	1.5
4d	7 days	98.1	80.5
5	Number of water supply days in the last week		
5a	0 days	1.1	2.4
5b	1 – 2 days	1.5	9.7
5c	3 – 4 days	2.9	14.8
5d	5 – 6 days	4.7	4.9
5e	7 days	89.7	68.1
6	Percentage of households reporting reliability of water supply days	90.6	86.5
7	Percentage of households reporting tap connections functioning continuously for more than 15 days in a month for last 12 months	93.3	84.6
8	Average number of times water is supplied on the days of supply		
8a	1 time	36.6	56.6
8b	2 times	32.1	28.2
8c	3 times	0.0	6.1
8d	4 times/24 hours	31.4	9.1
9	Percentage of households reporting reliability of supply for different supply timings	97.8	84.3
10	Percentage of households reporting adequate water pressure for different supply timings		
10a	Morning	88.3	80.1
10b	Afternoon	96.5	84.6
10c	Evening	98.0	84.8
11	Percentage of households reported paying water tariff – separately or along with other taxes	7.9	52.8
12	Percentage of households reported receiving 55 lpcd or more	96.9	83.5
13	Percentage of households having potable water *	65.2	61.3
14	Percentage of households reporting regularity of supply	92.3	87.2
15	Percentage of households reporting functional tap connections	65.2	47.8
Village level			
16	Percentage villages having functional water and sanitation committees	86.2	48.5
17	Percentage of functional schemes in the sample villages considering all schemes (supplying water any day in the last 7 days)	80.2	86.0
18	Percentage of in-village schemes having O&M undertaken by village water	61.9	83.1

SL.	INDICATOR	Meghalaya	India
	and sanitation committee or by Panchayat		
19	Percentage of sample schemes reported having faced challenges in the last one year		
19a	Inadequate infrastructure	49.1	40.2
19b	Poor water availability at the source	45.3	33.0
19c	Poor maintenance	28.3	46.2
19d	Natural calamity	60.4	63.4
20	Percentage of schemes reporting measure to improve source sustainability	60.0	59.9
21	Number of sample villages found with no scheme (defunct/under construction/not handed over/not constructed)	19	751

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

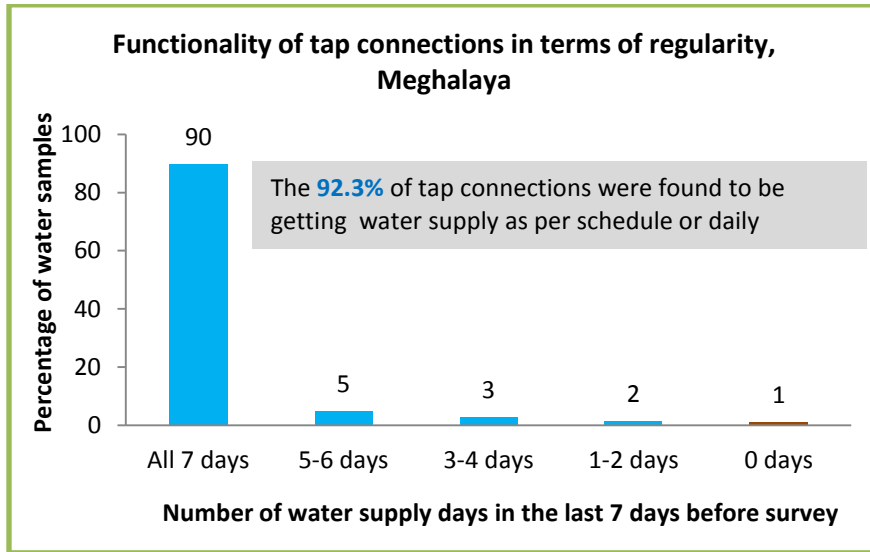
Fig 1: Functionality of the household tap connection in terms of potability - Meghalaya



Base: Households with water quality testing done, N: 89

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.

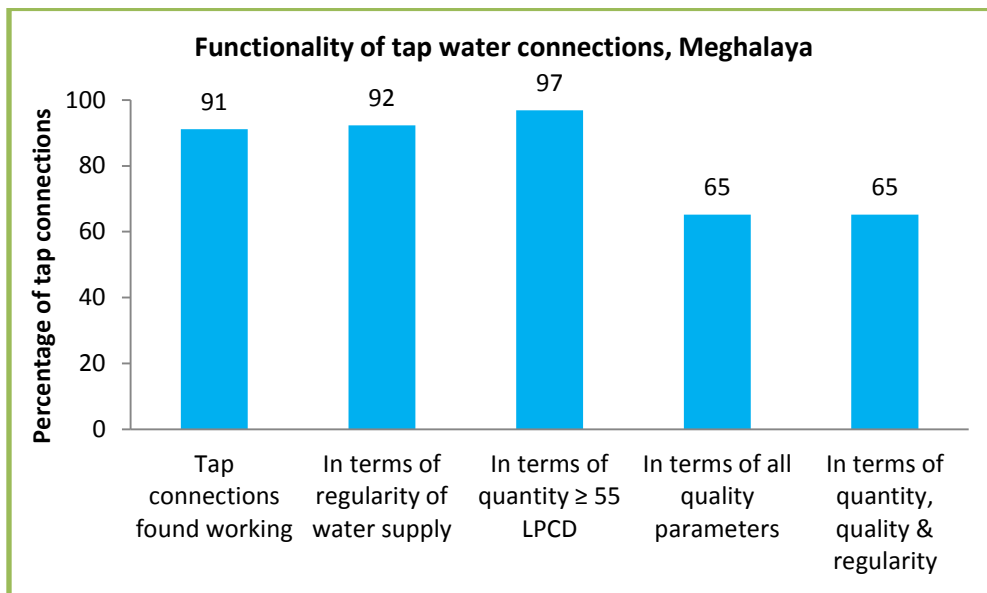
Fig 2: Functionality of the household tap connection in terms of regularity - Meghalaya



Base: Households with water quality testing done, N: 89

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 - Meghalaya



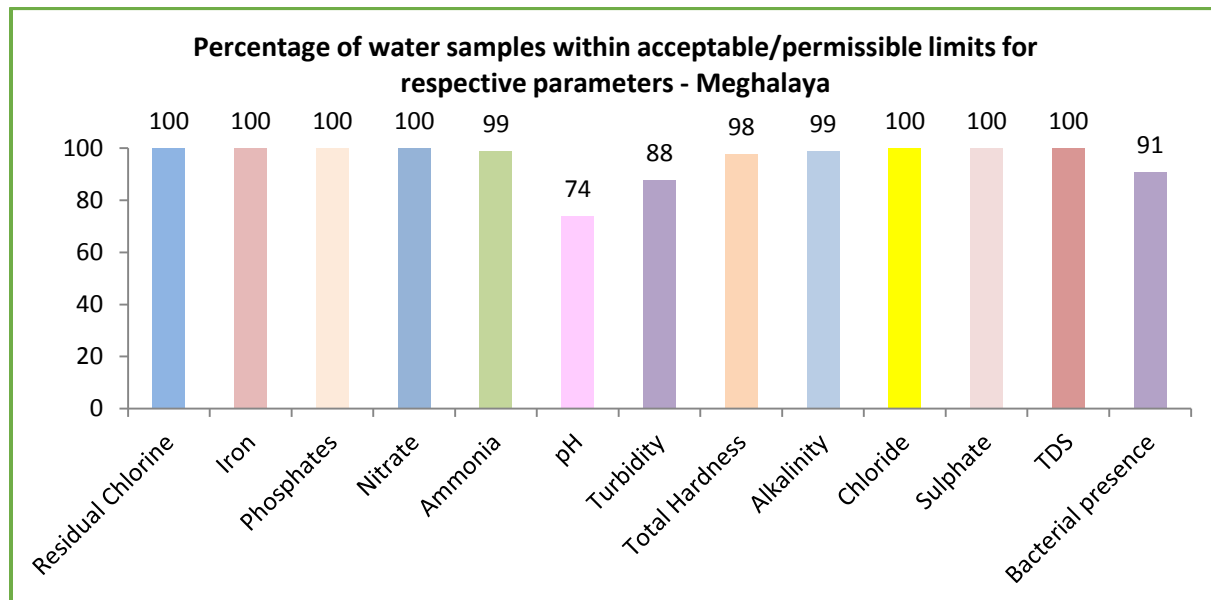
Base: Total count of tap connections considered for functionality assessment, N: 1301

Functionality Assessment Survey 2020-21- Meghalaya

A total of 89 water samples were tested as per BIS: 10,500 standards for all 15 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% and above) had Residual Chlorine, Iron, Phosphates, Nitrate, Ammonia, Total Hardness, Alkalinity, Chloride, Sulphate, and TDS within acceptable/permissible limits. pH and Turbidity and Bacterial (total coliform presence) 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 - Meghalaya



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



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



5. Conclusions

Meghalaya has performed well in the functionality assessment with almost 2 out of every 3 households with tap connections have been assessed to have a functional tap connection. A very high proportion (97%) of tap connections are estimated to supply more than 55 lpcd or more water and about 92 percent of tap connections were found to be supplying water daily or as per schedule. Meghalaya had higher proportion of functional tap connections (67%) as compared with the national average. 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 and regularity (58.6 percent households having adequate quantity and potable water; 55.2 percent households having potable water received on a regular basis; while 88.8 percent households had adequate quantity of water supply on a regular basis).

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

The proportion of households reporting currently working tap connections in Meghalaya is high (91%). On a usual basis, almost 98 percent of the households have reported receiving water supply on a daily basis. Slightly more than a third of the households (37%) reported being supplied water once a day, 32 twice a day and another 31 percent r supply to be more than 4 times a day or 24 hours supply. Almost all 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 only 8 percent 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.

Eighty six percent of the villages have reported having water and sanitation committees –in about two-thirds 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’, ‘poor water availability at source’ and ‘inadequate infrastructure’ was the main challenges faced by the schemes. Sixty percent 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.	East Khasi Hills	12-Shnong	Warbah	Warbah	Warbah pres. LP school-Warbah	SVS	Scheme is defunct	No water supply
2.	North Garo Hills	Bajengdoba	Chiraragre	Chiraragre	Reconstruction of Chirara WSS	MVS	Scheme is defunct	There is no functional scheme in the village
3.	North Garo Hills	Bajengdoba	Dalmanggre	Dalmanggre	Dalmanggre WSS	SVS	Scheme is defunct	Scheme not functional
4.	North Garo Hills	Bajengdoba	Mansinggre	Mansinggre	Mansinggre WSS	SVS	Scheme is defunct	Scheme not functional
5.	North Garo Hills	Kharkutta	Upper Bolsaldam	Upper Bolsaldam	Greater Kharkutta WSS	MVS	Scheme is defunct	Scheme not functional
6.	Ri Bhoi	Umsning	Kyrdemkulai 6th Mile	Kyrdemkulai 6th Mile	Improvement of Kyrdemkulai combined WSS	MVS	Scheme is defunct	Scheme is not functional since last 9 months
7.	South Garo Hills	Baghmar	Denggagre	Denggagre	Re-construction of Dikronggri WSS	MVS	Scheme is defunct	Scheme not functional
8.	South Garo Hills	Baghmar	Maraika Chiring	Maraika Chiring	Marakka Chiring WSS	MVS	Scheme is defunct	Scheme is not functional since last 14 months
9.	South Garo Hills	Chokpot	Kemrangiri	Kemranggre	Kemrangre WSS	SVS	Under construction	Under construction
10.	South Garo Hills	Chokpot	Papa Asakgre	Papa Asakgre	Near Papa Asakgiri village.	MVS	Scheme is defunct	Scheme not functional
11.	South Garo Hills	Gasuapara	Bilkona	Bilkona	Dumnikura WSS	MVS	Scheme is defunct	Old water tank is damaged
12.	South Garo Hills	Gasuapara	Dompaigre	Dompaigre	Construction of Dompaigre WSS	SVS	Under construction	Under construction
13.	South Garo Hills	Rongara	Dulbeta	Dulbeta	On the hillock of the Mahadeo village.	MVS	Scheme is defunct	Scheme not functional
14.	South West Garo Hills	Betasing	Sonamati	Sonamati	Balapara, Lewabari and Putimari WSS	MVS	Scheme is defunct	Scheme not functional
15.	West Garo Hills	Dalu	Terimpara (Morop)	Terimpara (Morop)	Terimpara WSS	MVS	Scheme is defunct	Scheme not functional
16.	West Garo Hills	Rongra	Jendragre	Jendragre	Greater Asananggre WSS	MVS	Scheme is defunct	Scheme not functional

Functionality Assessment Survey 2020-21- Meghalaya

S.No.	District Name	Block Name	Panchayat Name	Village Name	Name of Largest Scheme in the Village	Type	Status of the Scheme	Remarks
	Hills	am						
17.	West Garo Hills	Selsella	Maulakandi	Maulakandi	Goladigli WSS	SVS	Scheme is defunct	Scheme not functional
18.	West Garo Hills	Selsella	Salbilla I	Salbilla I	Ramjonggre WSS	MVS	Scheme is defunct	Scheme not functional
19.	West Jaintia Hills	Laskein	Barato	Barato	Barato Comb WSS	MVS	Scheme is defunct	Scheme is not functional since last 6 months due to pipeline damage which was caused by a flash flood.

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.	East Garo Hills	Samanda	Nengmandalgre	Nengmandalgre	Renovation of Bolkinggre WSS	MVS	Water supply through tap stand

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.	East Garo Hills	Songsak	Dobu Bolsalgittim	Dobu Bolsalgittim	Retrofitting of Dobu Rimding WSS	MVS
2.	North Garo Hills	Bajengdoba	Bolsong Sembalgre	Bolsong Sembalgre	Bolsong Sembalgre	SVS
3.	North Garo Hills	Kharkutta	Ildek Reserve	Ildek Reserve	Ildek Reserve WSS	SVS
4.	South West Garo Hills	Betasing	Ampatigre	Ampatigre	Implementation of Greater Ampati WSS	MVS
5.	West Garo Hills	Selsella	Phulbari (Islampur)	Phulbari (Islampur)	Quality Imp. of Rongsaigiri WSS	MVS

Annexure 4: Indicative proportion of functional tap connections by districts

S.No.	District	Percentage Functional Taps
1.	East Garo Hills	24.4
2.	East Jaintia Hills	100.0
3.	East Khasi Hills	99.3
4.	North Garo Hills	0.0
5.	Ri Bhoi	86.7
6.	South Garo Hills*	93.3
7.	South West Garo Hills	0.0
8.	South West Khasi Hills	90.0
9.	West Garo Hills	0.0
10.	West Jaintia Hills	77.5
11.	West Khasi Hills	98.7

* 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.	East Garo Hills	Dambo Rongjeng	Rangberam	Rangberam
2.	East Garo Hills	Samanda	Daribokgre	Daribokgre
3.	East Garo Hills	Samanda	Nengmandalgre	Nengmandalgre
4.	East Garo Hills	Songsak	Dobu Bolsalgittim	Dobu Bolsalgittim
5.	East Garo Hills	Songsak	Dobu Rimming	Dobu Rimming
6.	North Garo Hills	Bajengdoba	Dingrepa	Dingrepa
7.	North Garo Hills	Kharkutta	Ildek Reserve	Ildek Reserve
8.	North Garo Hills	Resubelpara	Dainadubi	Dainadubi
9.	South West Garo Hills	Zikzak	Lokaichar	Lokaichar
10.	South West Garo Hills	Zikzak	Nandichar -I	Nandichar -I
11.	West Garo Hills	Rongram	Asananggre	Asananggre
Villages with failed water samples for pH test				
1.	East Garo Hills	Dambo Rongjeng	Rangberam	Rangberam
2.	East Garo Hills	Samanda	Daribokgre	Daribokgre
3.	East Garo Hills	Samanda	Rongsak Songgital	Rongsak Songgital
4.	East Garo Hills	Songsak	Dobu Bolsalgittim	Dobu Bolsalgittim
5.	East Garo Hills	Songsak	Dobu Rimming	Dobu Rimming
6.	North Garo Hills	Bajengdoba	Bolsong Sembalgre	Bolsong Sembalgre
7.	North Garo Hills	Bajengdoba	Dingrepa	Dingrepa
8.	North Garo Hills	Bajengdoba	Jetdoba Langapara	Jetdoba Langapara
9.	North Garo Hills	Kharkutta	Ildek Reserve	Ildek Reserve
10.	South West Garo Hills	Betasing	Ampatigre	Ampatigre
11.	South West Garo Hills	Betasing	Borolatri	Borolatri
12.	South West Garo Hills	Betasing	Chondonpara	Chondonpara

Functionality Assessment Survey 2020-21- Meghalaya

S.No.	District name	Block name	Gram panchayat name	Village name
13.	South West Garo Hills	Betasing	Sulguri A	Sulguri
14.	South West Garo Hills	Zikzak	Lokaichar	Lokaichar
15.	South West Garo Hills	Zikzak	Mahendraganj Bazar	Mahendraganj Bazar
16.	South West Garo Hills	Zikzak	Majhechar - li Barman	Majechar - li Barman
17.	South West Garo Hills	Zikzak	Nandichar -I	Nandichar -I
18.	South West Garo Hills	Zikzak	Tarapara	Tarapara
19.	West Garo Hills	Rongram	Asananggre	Asananggre
20.	West Garo Hills	Selsella	Chibinang	Chibinang
21.	West Garo Hills	Selsella	Kasharipara	Kasharipara
22.	West Garo Hills	Selsella	Phulbari (Islampur)	Phulbari (Islampur)
23.	West Garo Hills	Tikrikilla	Paedaldoba (Garo)	Paedaldoba (Garo)
Villages with failed water samples for Total Hardness test				
1.	East Garo Hills	Dambo Rongjeng	Rongmil	Rongmil
2.	West Garo Hills	Selsella	Kasharipara	Kasharipara
Villages with failed water samples for Total Alkalinity test				
1.	West Jaintia Hills	Thadlaskein	Demthring	Demthring
Villages with failed water samples for Ammonia test				
1.	North Garo Hills	Bajengdoba	Aruakgre	Aruakgre
Villages with failed water samples for Bacteriological present/ absence test using H2S vials				
1.	East Garo Hills	Samanda	Daribokgre	Daribokgre
2.	North Garo Hills	Bajengdoba	Bolsong Sembalgre	Bolsong Sembalgre
3.	North Garo Hills	Kharkutta	Ildek Reserve	Ildek Reserve
4.	Ri Bhoi	Umling	Umsohma	Umsohma
5.	South West Garo Hills	Betasing	Borolatri	Borolatri
6.	South West Khasi Hills	Ranikor	Chikonbari-A	Chikonbari-A
7.	West Garo Hills	Rongram	Asananggre	Asananggre
8.	West Garo Hills	Selsella	Shyamding	Shyamding