

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

State report

Telangana



Submitted to:
National Jal Jeevan Mission
Department of Drinking Water and Sanitation
Ministry of Jal Shakti

Report prepared by:
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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 Telangana the survey was conducted in 4800 households from 320 villages in 32 districts.

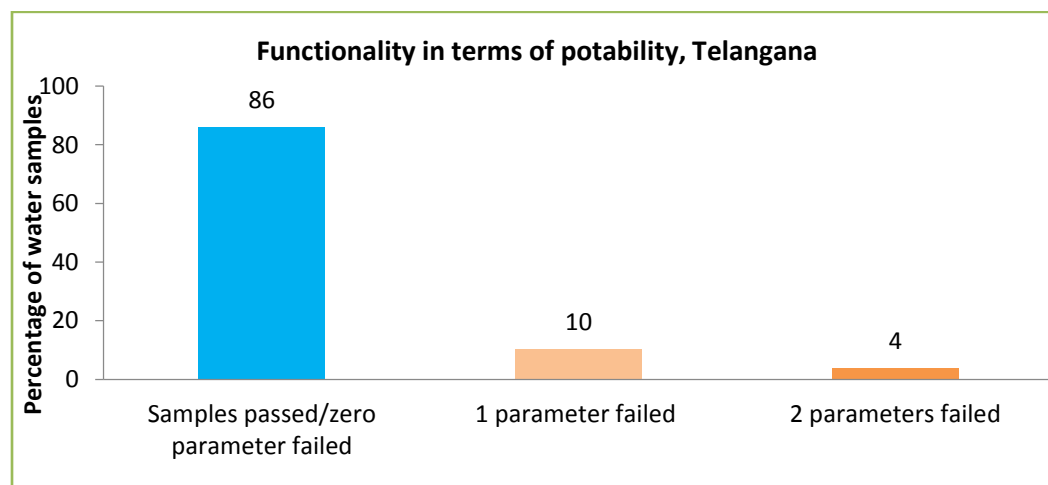
4. Key Findings

SL.	INDICATOR	Telangana	India
Household level			
1	Average household size	4.6	5.6
2	Percent of households using tap connection for drinking purpose	88.5	88.9
3	Percentage of households reported working tap connections (supply at least one day in last 7 days)	93.2	93.6
4	Number of water supply days in a usual week		
4a	1 – 2 days	0.5	7.6
4b	3 – 4 days	3.3	10.4
4c	5 – 6 days	0.1	1.5
4d	7 days	96.2	80.5
5	Number of water supply days in the last week		
5a	0 days	0.0	2.4
5b	1 – 2 days	0.8	9.7
5c	3 – 4 days	4.6	14.8
5d	5 – 6 days	2.5	4.9
5e	7 days	92.1	68.1
6	Percentage of households reporting reliability of water supply days	93.7	86.5
7	Percentage of households reporting tap connections functioning continuously for more than 15 days in a month for last 12 months	95.8	84.6
8	Average number of times water is supplied on the days of supply		
8a	1 time	78.6	56.6
8b	2 times	21.2	28.2
8c	3 times	0.1	6.1
8d	4 times/24 hours	0.1	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	94.8	80.1
10b	Afternoon	86.2	84.6
10c	Evening	98.3	84.8
11	Percentage of households reported paying water tariff – separately or along with other taxes	33.6	52.8
12	Percentage of households reported receiving 55 lpcd or more	90.6	83.5
13	Percentage of households having potable water *	86.0	61.3
14	Percentage of households reporting regularity of supply	95.5	87.2
15	Percentage of households reporting functional tap connections	76.1	47.8
Village level			
16	Percentage villages having functional water and sanitation committees	93.8	48.5
17	Percentage of functional schemes in the sample villages considering all schemes (supplying water any day in the last 7 days)	91.7	86.0

SL.	INDICATOR	Telangana	India
18	Percentage of in-village schemes having O&M undertaken by village water and sanitation committee or by Panchayat	91.9	83.1
19	Percentage of sample schemes reported having faced challenges in the last one year		
19a	Inadequate infrastructure	40.7	40.2
19b	Poor water availability at the source	9.3	33.0
19c	Poor maintenance	44.2	46.2
19d	Natural calamity	48.8	63.4
20	Percentage of schemes reporting measure to improve source sustainability	78.1	59.9
21	Number of sample villages found with no scheme (defunct/under construction/not handed over/not constructed)	0	751

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

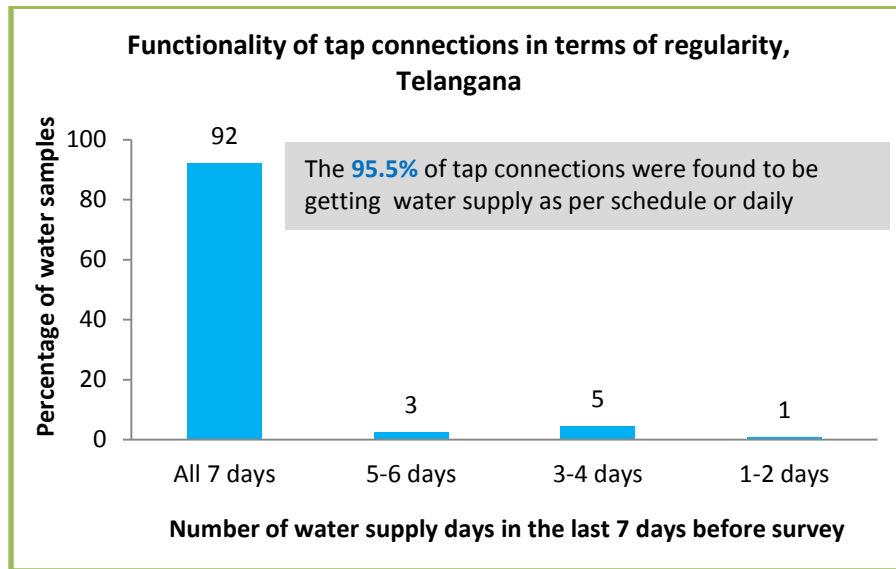
Fig 1: Functionality of the household tap connection in terms of potability - Telangana



Base: Households with water quality testing done, N: 321

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.

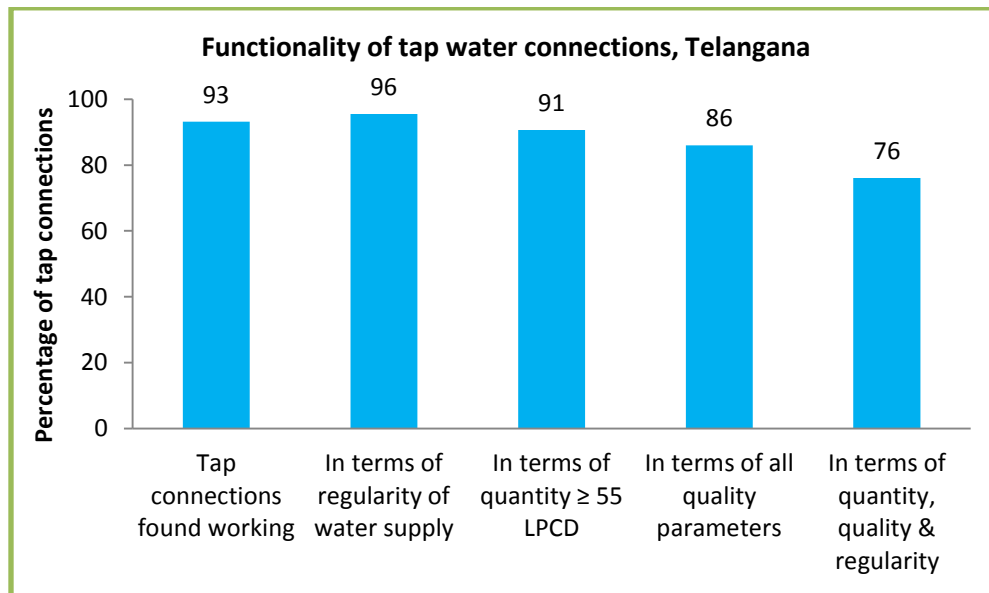
Fig 2: Functionality of the household tap connection in terms of regularity - Telangana



Base: All Households, N: 4798

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 - Telangana

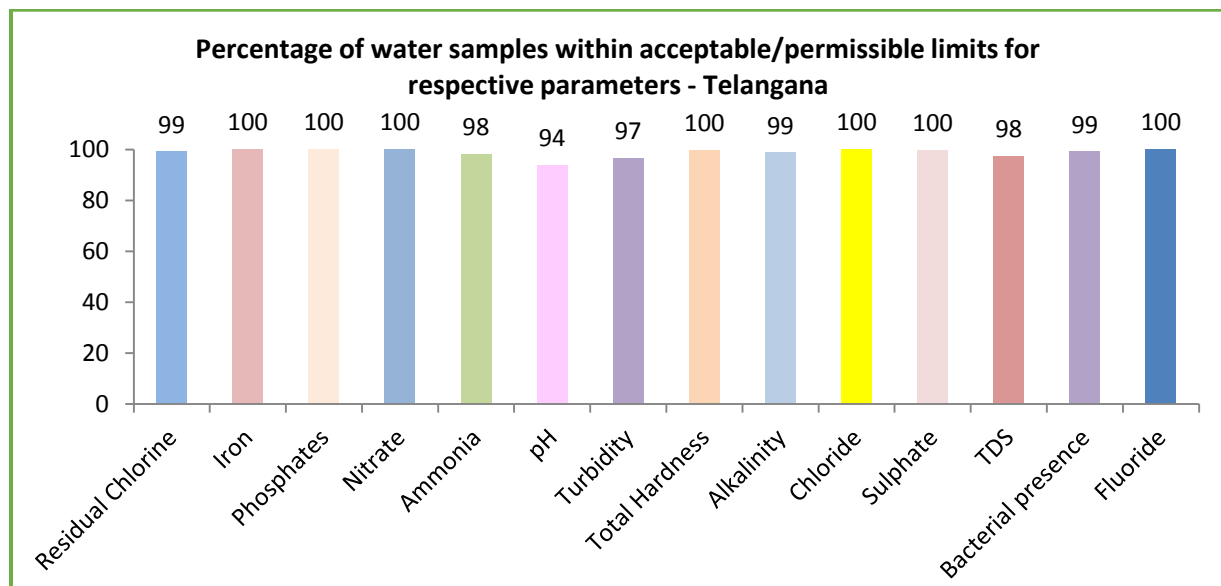


Base: Total count of tap connections considered for functionality assessment, N: 4739

A total of 321 water samples were tested as per BIS: 10,500 standards for all 13 parameters. Of these samples, only 1 sample included testing for Fluoride. All the water samples were taken from a randomly selected head end household of selected sample PWS schemes in the sample villages of Telangana – one sample for each of separate water sources in the village. 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. Only one sample was tested for Fluoride and was found within the permissible limit. The main issues were pH and Turbidity being outside acceptable/permissible limits.

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



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



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



5. Conclusions

Telangana has 76 percent functional tap connections and this is much higher than the national average. About 91 percent of the households were estimated to be provided with 55 lpcd or more water supply and 96 percent tap connections were provided daily water supply or supply on scheduled days. The proportion of households provided with potable water was 86 percent. Thus, Telangana has performed well in the functionality assessment. 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 water quality of almost all the water samples (98% or more) had almost all parameters within acceptable/permissible limits. Only one sample was tested for fluoride and was found within the permissible limit. The main issues were pH and Turbidity being outside acceptable/permissible limits.

The proportion of households reporting currently working tap connections is comparatively high (93.2%) in Telangana. Almost all the households have reported receiving daily water supply on a usual basis, and 92 percent of the households have also reported receiving daily water supply in the last week, before the survey date. Moreover, almost all (93.7%) have reported reliability on supply on water supply days, i.e. reliability of daily water supply.

In Telangana, water is mostly (reported by 78.6% households) supplied once a day, and 94 percent households have reported that the water supply timings are reliable. There is adequate water pressure for the different water supply timings as reported by most households. About 96 percent of the households have reported that tap connections were functioning continuously for more than 15 days in a month for the last 12 months.

The proportion of households who have reported paying water tax is low (33.6%) – lower than the national average. As per the JJM guidelines, the State Government needs to ensure 100 percent 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 the villages (93.8%) have reported having water and sanitation committees, and wherever available, most (91.9%) of 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, inadequate infrastructure and poor maintenance' were the main challenges faced by the schemes. Almost four-fifths of the schemes had taken some initiatives for source sustainability.

Annexures to this report includes:

- 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

No villages present with no scheme/defunct schemes/under construction.

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

No villages present with schemes supplying only through tap stand.

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

No villages present where 15 FHTCs were not found.

Annexure 4: Indicative proportion of functional tap connections by districts

S.No	Districts	Percentage Functional Taps
1.	Adilabad (19)	72.7
2.	Bhadradi Kothagudem (02)	0.0
3.	Jagitial (03)	100.0
4.	Jangoan (04)	66.4
5.	Jayashankar Bhupalpalli (05)	86.7
6.	Jogulamba Gadwal (06)	81.3
7.	Kamareddy (07)	69.3
8.	Karimnagar (20)	78.7
9.	Khammam (22)	73.3
10.	Komaram Bheem Asifabad (10)	66.0
11.	Mahaboobnagar (14)	84.7
12.	Mahabubabad (11)	50.0
13.	Mancherial (13)	82.0
14.	Medak (17)	96.0
15.	Medchal Malkajgiri (15)	88.0
16.	Mulugu	92.7
17.	Nagarkurnool (16)	88.0
18.	Nalgonda (23)	85.3
19.	Narayanpet	66.7
20.	Nirmal (18)	52.0
21.	Nizamabad (18)	76.5
22.	Peddapalli (20)	84.0
23.	Rajanna Siricilla (21)	94.8
24.	Rangareddy (15)	74.0
25.	Sangareddy (23)	85.3
26.	Siddipet (24)	82.0
27.	Suryapet (25)	79.3
28.	Vikarabad (26)	64.7
29.	Wanaparthy (27)	97.8
30.	Warangal Urban (28)	66.0
31.	Warangal (21)	86.7
32.	Yadadri Bhongiri (30)	67.3

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.	Bhadradri Kothagudem(02)	Annapureddypalli	Gumpena(09)	Gumpena(012)
2.	Bhadradri Kothagudem(02)	Burgampad(15)	Burgampad(08)	Burgampad(012)
3.	Bhadradri Kothagudem(02)	Dammapeta(28)	Gandugulapalli(10)	Nagupally(011)
4.	Bhadradri Kothagudem(02)	Dummagudem(08)	Pragallapally(07)	K.Veerabhadrapuram(023)
5.	Bhadradri Kothagudem(02)	Tekulapalli(18)	Sulanagar(08)	Bethampudi(004)
6.	Bhadradri Kothagudem(02)	Yellandu(19)	Balaji Nagar	Sudimalla(005)
7.	Jangoan(04)	Lingalaghanpur(06)	Nagaram(03)	Nagaram(002)
8.	Jayashankar Bhupalpalli(05)	Ghanpur (M)(44)	Chelpur(01)	Chelpur(001)
9.	Mahaboobnagar(14)	Gandeed(27)	Vennached(02)	Vennached(002)
10.	Mahabubabad(11)	Bayyaram(21)	Kotha Peta(11)	Gandham Palli(013)
11.	Peddapalli(20)	Julapalli(17)	Peddapur(01)	Peddapur(001)
Villages with failed water samples for pH test				
1.	Bhadradri Kothagudem(02)	Annapureddypalli	Gumpena(09)	Gumpena(012)
2.	Bhadradri Kothagudem(02)	Aswapuram(07)	Mitagudem(02)	Ammagaripalli(003)
3.	Bhadradri Kothagudem(02)	Bhadrachalam(09)	Bhadrachalam(09)	Bhadrachalam(031)
4.	Bhadradri Kothagudem(02)	Burgampad(15)	Burgampad(08)	Burgampad(012)
5.	Bhadradri Kothagudem(02)	Chunchupalli	Chunchupally(11)	Chunchupally(012)
6.	Bhadradri Kothagudem(02)	Dammapeta(28)	Gandugulapalli(10)	Nagupally(011)
7.	Bhadradri Kothagudem(02)	Dammapeta(28)	Mandalapalli(15)	Mandalapalli(020)
8.	Bhadradri Kothagudem(02)	Dummagudem(08)	Pragallapally(07)	K.Veerabhadrapuram(023)
9.	Bhadradri Kothagudem(02)	Tekulapalli(18)	Sulanagar(08)	Bethampudi(004)
10.	Bhadradri Kothagudem(02)	Yellandu(19)	Balaji Nagar	Sudimalla(005)
11.	Khammam(22)	Chintakani(42)	Kodumur(02)	Kodumur(002)
12.	Khammam(22)	Chintakani(42)	Basawapuram(03)	Basawapuram(003)
13.	Khammam(22)	Raghunathapalem(36)	Shivaigudem(13)	Shivaigudem(006)

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S.No.	District name	Block name	Gram panchayat name	Village name
14.	Mahabubabad(11)	Bayyaram(21)	Kotha Peta(11)	Gandham Palli(013)
15.	Mahabubabad(11)	Gudur(27)	Yerrakunta Thanda	Boddugonda(023)
16.	Mahabubabad(11)	Nellikudur(19)	Rajulakothapally(05)	Rajulakothapally(006)
17.	Mahabubabad(11)	Thorrur(18)	Chikataipalem(20)	Chikataipalem(022)
18.	Warangal Urban(28)	Bheemdevara Pally(56)	Mutharam(11)	Mutharam(Pk)(008)
19.	Warangal Urban(28)	Bheemdevara Pally(56)	Gandhinagar	Manikya Pur(003)
20.	Warangal Urban(28)	Hasanparthi(10)	Seethampeta(12)	Hasanparthi(009)
Villages with failed water samples for Total Hardness test				
1.	Komaram Bheem Asifabad(10)	Kaghaznagar(39)	Bhatpalle(11)	Bhatpalle(025)
Villages with failed water samples for Total Alkalinity test				
1.	Adilabad(19)	Talamadugu(01)	Kuchlapur(03)	Kuchlapur(004)
2.	Nirmal(18)	Laxmanchanda(22)	Laxmanchanda(07)	Laxmanchanda(007)
3.	Nirmal(18)	Nirmal(21)	Chityal(12)	Chityal(022)
4.	Rangareddy(15)	Farooqnagar(12)	Dooskal(07)	Dooskal(008)
Villages with failed water samples for Ammonia test				
1.	Nalgonda(23)	Adavi Devula Palli	Muklacherla(01)	Muklacherla(001)
2.	Siddipet(24)	Thoguta(46)	Zapthilingareddhypally (13)	Zapthilingareddypally(013)
3.	Suryapet(25)	Chivemla(27)	Tuljaraopet(17)	Tuljaraopet(011)
4.	Suryapet(25)	Palakeedu	Bette Thanda(22)	Sajjapuram(017)
5.	Vikarabad(26)	Bomraspet(02)	Madanpalle Tanda	Madanpalle(008)
6.	Vikarabad(26)	Bomraspet(02)	Metlakunta(09)	Metlakunta(010)
Villages with failed water samples for Residual Chlorine test				
1.	Kamareddy(07)	Bibipet	Upperpally(17)	Issanagar(020)
2.	Karimnagar(20)	Ramadugu(37)	Vannaram(22)	Vannaram(019)
3.	Mahabubabad(11)	Korivi(23)	Rajole(11)	Rajole(010)
Villages with failed water samples for Sulphate test				
1.	Komaram Bheem Asifabad(10)	Kaghaznagar(39)	Durganagar	Nazrulnagar(019)
Villages with failed water samples for Total Dissolved Solids test				
1.	Adilabad(19)	Talamadugu(01)	Kuchlapur(03)	Kuchlapur(004)
2.	Nirmal(18)	Laxmanchanda(22)	Laxmanchanda(07)	Laxmanchanda(007)
3.	Nirmal(18)	Mudhole(18)	Ruvvi	Ruvi(019)
4.	Nirmal(18)	Nirmal(21)	Chityal(12)	Chityal(022)
5.	Nirmal(18)	Tanoor(17)	Nandgam	Nandgaon(026)
6.	Rangareddy(15)	Farooqnagar(12)	Dooskal(07)	Dooskal(008)
7.	Rangareddy(15)	Keshampet(14)	Santhapur(05)	Santhapur(005)
8.	Rangareddy(15)	Keshampet(14)	Santhapur(05)	Santhapur(005)
Villages with failed water samples for Bacteriological present/ absence test using H2S vials				

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S.No.	District name	Block name	Gram panchayat name	Village name
1.	Adilabad(19)	Neredigonda(12)	Kumari(01)	Gajili(001)
2.	Komaram Bheem Asifabad(10)	Kaghaznagar(39)	Durganagar	Nazrulnagar(019)
3.	Nagarkurnool(16)	Peddakothapally(4 8)	Kalwakole(14)	Kalwakole(020)