

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

State report

**Andaman and
Nicobar Island**



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 Andaman & Nicobar Islands the survey was conducted in 435 households from 29 villages in 3 districts.

4. Key Findings

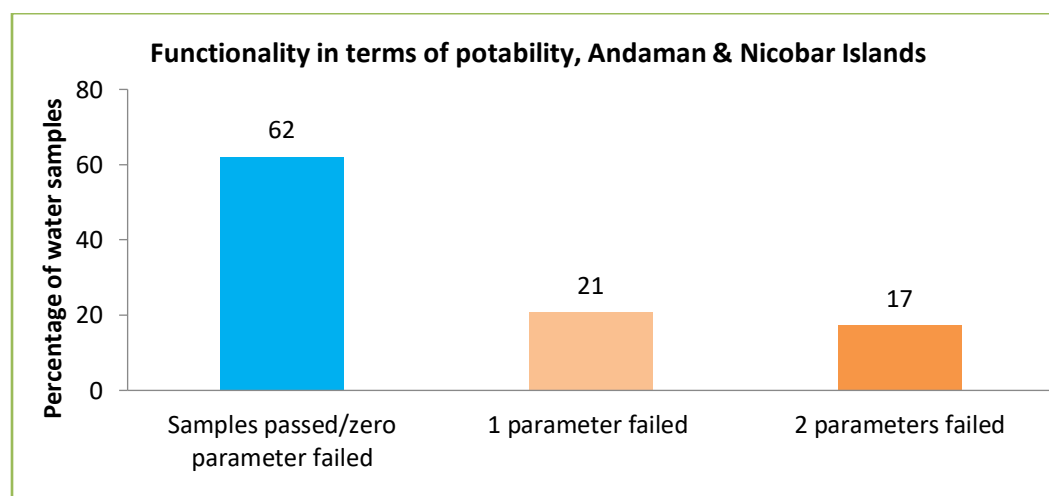
SL.	INDICATOR	Andaman & Nicobar Islands	India
Household level			
1	Average household size	5.7	5.6
2	Percent of households using FHTC for drinking purpose	86.0	88.9
3	Percentage of households reported working tap connections (supply at least one day in last 7 days)	87.4	93.6
4	Number of water supply days in a usual week		
4a	1 – 2 days	42.5	7.6
4b	3 – 4 days	52.4	10.4
4c	5 – 6 days	0.0	1.5
4d	7 days	5.1	80.5
5	Number of water supply days in the last week		
5a	0 days	0.0	2.4
5b	1 – 2 days	15.2	9.7
5c	3 – 4 days	80.2	14.8
5d	5 – 6 days	0.0	4.9
5e	7 days	4.6	68.1
6	Percentage of households reporting reliability of water supply days	48.0	86.5
7	Percentage of households reporting tap connections functioning continuously for more than 15 days in a month for last 12 months	96.6	84.6
8	Average number of times water is supplied on the days of supply		
8a	1 time	99.5	56.6
8b	2 times	0.0	28.2
8c	3 times	0.0	6.1
8d	4 times/24 hours	0.5	9.1
9	Percentage of households reporting reliability of supply for different supply timings	33.3	84.3
10	Percentage of households reporting adequate water pressure for different supply timings		
10a	Morning	60.9	80.1
10b	Afternoon	57.1	84.6
10c	Evening	50.0	84.8
11	Percentage of households reported paying water tariff – separately or along with other taxes	59.1	52.8
12	Percentage of households reported receiving 55 lpcd or more	68.7	83.5
13	Percentage of households having potable water *	62.1	61.3
14	Percentage of households reporting regularity of supply	84.8	87.2
15	Percentage of households reporting functional tap connections	35.9	47.8
Village level			
16	Percentage villages having functional water and sanitation committees	0.0	48.5
17	Percentage of functional schemes in the sample villages considering all	97.6	86.0

Functionality Assessment Survey 2020-21- Andaman & Nicobar Islands

SL.	INDICATOR	Andaman & Nicobar Islands	India
	schemes (supplying water any day in the last 7 days)		
18	Percentage of in-village schemes having O&M undertaken by village water and sanitation committee or by Panchayat	0.0	83.1
19	Percentage of sample schemes reported having faced challenges in the last one year		
19a	Inadequate infrastructure	23.1	40.2
19b	Poor water availability at the source	76.9	33.0
19c	Poor maintenance	23.1	46.2
19d	Natural calamity	46.2	63.4
20	Percentage of schemes reporting measure to improve source sustainability	58.6	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 Andaman & Nicobar Islands. 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.

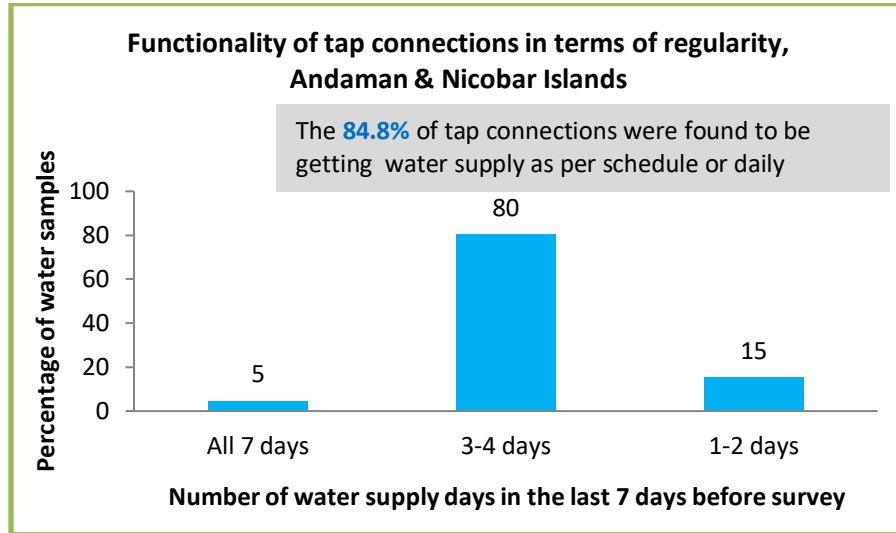
Fig 1: Functionality of the household tap connection in terms of potability - Andaman & Nicobar Islands



Base: Households with water quality testing done, N: 29

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.

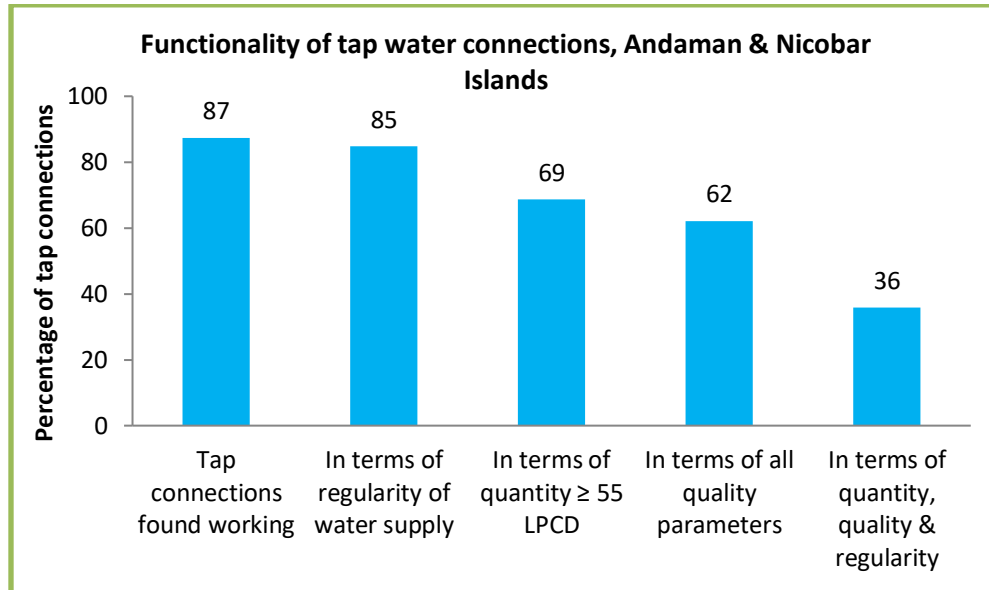
Fig 2: Functionality of the household tap connection in terms of regularity - Andaman & Nicobar Islands



Base: All Households, N: 435

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 - Andaman & Nicobar Islands

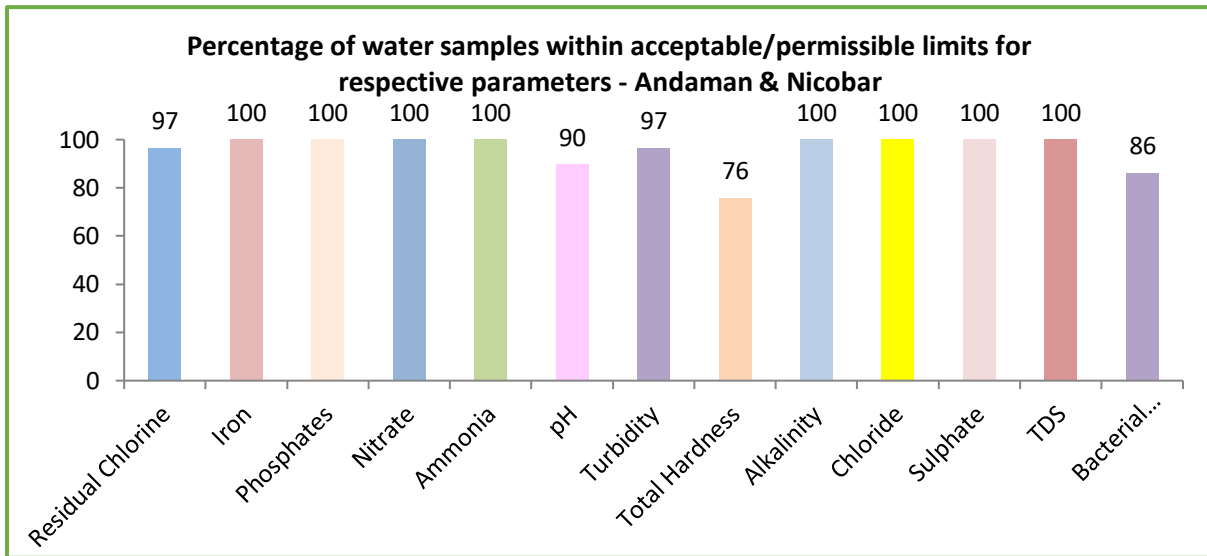


Base: Total count of tap connections considered for functionality assessment, N: 435

A total of 29 water samples were tested as per BIS: 10,500 standards for all 13 parameters. All the water samples were taken from a randomly selected head end household of selected sample PWS schemes in the sample villages of Andaman & Nicobar Islands – 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/permisible limits.

As can be seen, almost all the samples (98% or more) had Iron, Phosphates, Nitrate, Ammonia, Alkalinity, Sulphate, TDS and Chloride within acceptable/permisible limits. Bacterial presence and Total Hardness were the key issues with the samples which were not found potable.

Fig 4: Percentage of water samples within acceptable/ permissible limits for respective parameters – Andaman & Nicobar Islands



Pic 1: Household survey being undertaken in one of the villages in Andaman & Nicobar Island



Pic 2: Water quality sample testing being undertaken in a village in Andaman & Nicobar Island



5. Conclusions

Andaman & Nicobar Islands had significantly lower functional tap connections (35.9%) as compared with the national average. About 85 percent of the households were estimated to be supplied with regular water. However, the proportion of households receiving potable water is less - about 62 percent. The same is the case with receiving 55 lpcd or more water (69%). 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 quantity and potability (42.8% households having adequate quantity and potable water; 50.8% households having potable water received on a regular basis; while 58.9% households had adequate quantity of water supply on a regular basis).

For majority cases of the schemes water supply was scheduled for 3-4 days but there seems to be variation from the schedule. Almost all of the households have reported being supplied water once on the days of supply. While only a third of the households have reported a reliability of water supply timings, only half reported adequate water pressure.

However, despite good quality water supply service delivery, the fact that around 59 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.

None of the villages surveyed have reported having water and sanitation committees. As reported by the communities 'natural calamities, and poor water availability at source' were the main challenges faced by the schemes. Fifty nine percent of the schemes had taken any 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.	Nicobar	5.2
2.	North And Middle Andaman	56.7
3.	South Andaman	42.7

Annexure 5: List of villages where 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.	North And Middle Andaman	Rangat	Nilambur	Nilambur (Rv)
Villages with failed water samples for pH test				
1.	Nicobars	Car Nicobar	Car Nicobar Tribal Council	Malacca
2.	South Andaman	Ferrargunj	Ferrargunj	Ferrargunj (Rv)
3.	South Andaman	Port Blair	Sippighat	Taylorabad(Rv)
Villages with failed water samples for Total Hardness test				
1.	Nicobars	Car Nicobar	Car Nicobar Tribal Council	Arong
2.	Nicobars	Car Nicobar	Car Nicobar Tribal Council	Big Lapati
3.	Nicobars	Car Nicobar	Car Nicobar Tribal Council	Tamaloo
4.	Nicobars	Car Nicobar	Car Nicobar Tribal Council	Tapoiming
5.	Nicobars	Car Nicobar	Car Nicobar Tribal Council	Teetop
6.	Nicobars	Great Nicobar	Govind Nagar	Govinda Nagar
7.	Nicobars	Nancowry	Kamorta Tribal Council	Pilpilow
Villages with failed water samples for Residual Chlorine test				
1.	South Andaman	Port Blair	Sippighat	Taylorabad(Rv)
Villages with failed water samples for Bacteriological present/ absence test using H2S vials				
1.	Nicobars	Car Nicobar	Car Nicobar Tribal Council	Big Lapati
2.	Nicobars	Car Nicobar	Car Nicobar Tribal Council	Malacca
3.	Nicobars	Car Nicobar	Car Nicobar Tribal Council	Tapoiming
4.	Nicobars	Nancowry	Kamorta Tribal Council	Pilpilow