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An Analysis Unveiling the Habitation Coverage of Different States and Union Territories under the National Rural Drinking Water Program in India

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ABSTRACT

Background: National Rural Drinking Water Program (NRDWP) attempts to provide each and every individual a sufficient amount of safe water for drinking, cooking and other essential household needs on a maintainable premise, with a base water quality standard, which ought to be helpfully open consistently and in all circumstances.
Aim: The aim of this study was to analyze and unveil the habitations covered by the National Rural Drinking Water Program in different states and union territories of India.
Materials and method: Secondary data regarding the total households in each states/ union territory and the households covered by the National Rural Drinking Water Program, Households Having Safe Drinking Water supply in India as per Census 2011 and availability of safe drinking water in households and the source of drinking waters was extracted from the 2018 National Health Profile's annual publication by the Central Bureau of Health Intelligence (CBHI).
Results: In India,43% of the households use tap water and 11% use well water.46.6% of the households have water within the premises, 35.8% of the households have water near the premises and 17.6% have it far away. 81.08% are fully covered habitations under the program and only 3.34% of the habitations in India are quality affected habitations.
Conclusion: Although the targets have not been achieved, this program has attempted to provide safe drinking water to many people in different states and union territories in India.

Keywords: Rural areas, Habitations, Drinking water, India.

INTRODUCTION

Water is a basic substance of life. Without water, people can't live for more than some days. It assumes a crucial role in almost every capacity of the body, securing the insusceptible framework-the body's regular protections and helping evacuate waste matter.

Drinking water has for quite some time been of concern. In the start of the nineteenth century, the early research in drinking water concentrated on the contaminants nitrite, Bacillus coli, and toxic germs. Cleansing of drinking water by ozone, UV radiation, and chlorine for the expulsion of these contaminants was too detailed. [1]

During the 1970s, the event of organohalides in chlorinated drinking waters pulled in researchers' consideration. An advanced parallel of consideration on drinking water happens at the point when adequate water is accessible yet is so contaminated or saline that its uses are confined. Ever since the Industrial revolutions, ensuing contamination issues have happened and consistently expanded for a significant stretch of time. Since there

has been a gigantic development in assembling and the utilization of manufactured synthetic substances from World War II, a significant number of these synthetic substances, for instance, bug sprays and herbicides, showed up and collected in the earth as overflow from farming area. [1]

An expected 80% of the total population faces an elevated level water security or water-related biodiversity chance. The issue of water security characterized as a worthy level of water-related dangers to people and environments, combined with the accessibility of water of adequate amount also, quality to help jobs, national security, human wellbeing, and biological system administrations is therefore getting impressive consideration.[2]

Rural Drinking Water Supply is a State subject. For improving the inclusion of satisfactory and safe drinking water to the provincial population, Ministry gives specialized and money related help through a Centrally Sponsored Scheme 'National Rural Drinking Water Program (NRDWP). The Program was started on 01.04.2009. The Program is being executed in all States and two Union Territories namely, Andaman and Nicobar Islands and Puducherry.[3]

The Program has been rebuilt in November 2017 to make it progressively aggressive, result based and result arranged. The help is to accomplish the expect to furnish each country individual with sufficient safe water for drinking, cooking and other residential fundamental needs on a feasible premise which is to be promptly and helpfully available consistently and in all circumstances. This is in accordance with United Nation's Sustainable Development Goal (SDG) Target number 6, for example 'By 2030, accomplish widespread and evenhanded access to protected and reasonable drinking water for all'.[3]

Despite all these attempts, there is still water scarcity and lack of safe drinking water in many rural areas of India. People travel long distances in order to get water. Hence, this study attempts to analyze and unveil the habitations covered by the National Rural Drinking Water Program in different states and union territories of India.

MATERIALS AND METHOD

The aim of this study was to analyze and unveil the habitations covered by the National Rural Drinking Water Program in different states and union territories of India. It was also aimed to identify the states that have the least coverage out of all the states and union territories in India. Details about all the states and union territories in India were collected.

Secondary data regarding the total households in each states/ union territory and the households covered by the national rural drinking water program was extracted from the 2018 National Health Profile's annual publication by the Central Bureau of Health Intelligence (CBHI).

State/Union Territory wise Distribution of the Households Having Safe Drinking Water supply in India as per Census 2011 was extracted from the annual publication. Data regarding the availability of safe drinking water in households and the source of drinking waters used in every household was also recorded.

All the data regarding the availability and source of drinking water in each state and union territory was assessed. The households covered in every state/ union territory was analyzed and compared to evaluate the total number of households covered and efficiency of national rural drinking water program.

As the study was conducted in Tamil Nadu, the percentage of households getting safe drinking water was highlighted and compared with that of others to get a clear picture.

RESULTS

This study was conducted to assess, evaluate and compare the habitations covered under the National Rural Drinking

Water Program in different states and union territories of India. The results were tabulated and compared as follows:

Table 1: State and Union Territory Wise Habitations Coverage under National Rural Drinking Water Program in India

S. No.	States	Total number of Habitations	Total number of Habitations With Population Coverage >=0 % and < 100%	Total number of Habitations with 100% Population Coverage
1	Andhra Pradesh	48,363	15,041	32,898
2	Arunachal Pradesh	7,582	4,641	2,910
3	Assam	88,099	24,313	52,738
4	Bihar	1,10,234	38,680	67,314
5	Chhattisgarh	74,685	3,045	70,459
6	Goa	347	2	345
7	Gujarat	36,066	4	36,062
8	Haryana	7,948	224	7,596
9	Himachal Pradesh	53,604	11,082	42,522
10	Jammu and Kashmir	15,958	7,011	8,930
11	Jharkhand	1,20,764	898	11,6774
12	Karnataka	60,248	39,106	19,877
13	Kerala	21,551	16,401	4,751
14	Madhya Pradesh	1,28,061	117	12,7,754
15	Maharashtra	99,732	12,522	86,917
16	Manipur	3,788	1,561	2,227
17	Meghalaya	10,475	8,688	1,755
18	Mizoram	738	272	466
19	Nagaland	1,452	766	643
20	Odisha	1,57,773	16,276	13,8,420
21	Punjab	15,384	1,796	9,845
22	Rajasthan	1,21,648	46,971	54,034
23	Sikkim	2,084	1,347	737
24	Tamil Nadu	1,00204	7,474	92,532
25	Tripura	8,723	1,614	4,526
26	Uttar Pradesh	2,60,027	2,346	25,6,302
27	Uttarakhand	39,360	17,406	21,938
28	West Bengal	1,05,905	36,497	50,098
29	Andhaman& Nicobar Islands	400	76	324
30	Telangana	24,562	9,715	13,455
31	Puducherry	266	113	153
	Total	**17,26,031**	**3,26,005**	**13,25,302**

As on 01.04.2017, Source: National Health Profile 2018 [4]

Table 1 shows the State and Union Territory wise Habitations Coverage under National Rural Drinking Water Program in India according to census 2011.While comparing the different states and union territories, it shows that the total Habitations covered in Goa is the least i.e. 347, the number of Habitations With Population Coverage more than or equal to 0 % and less than 100%is only 2, and the number of Habitations with 100% Population Coverage is 345. In the case of Tamilnadu, the total Habitations covered is 100204, the number of Habitations with Population Coverage more than or equal to 0 % and less than 100% is 7474, and the number of Habitations with 100% Population Coverage is 92532.

Table 2: State and Union Territory Wise Distribution of Households Having Tap and Well Water Supply in India According to census 2011

S. No	State	Number of Households	Household distribution by availability of drinking water						
			Tap water (%)			Well (%)			Others (%)
			Total	Treated source	Untreated source	Total	Well (Covered)	Well (Un-covered)	
	India	246740228	43.5	32.0	11.6	11.0	1.6	9.4	45.5
1	Andhra Pradesh	21024534	69.9	49.0	20.9	6.4	0.5	5.9	23.7
2	Arunachal Pradesh	261614	65.5	26.4	39.1	5.7	1.4	4.3	28.8
3	Assam	6367295	10.5	9.2	1.3	18.9	1.7	17.2	70.6
4	Bihar	18940629	4.4	3.1	1.3	4.3	0.7	3.7	91.3
5	Chhattisgarh	5622850	20.7	12.3	8.4	11.4	0.8	10.6	67.9
6	Goa	322813	85.4	82.0	3.4	11.1	4.0	7.1	3.5
7	Gujarat	12181718	69.0	39.9	29.2	7.1	2.3	4.8	23.9
8	Haryana	4717954	68.8	55.9	12.9	3.0	0.7	2.3	28.2
9	Himachal Pradesh	1476581	89.5	83.9	5.6	2.9	1.5	1.3	7.6

Table no.2 continued…									
10	Jammu and Kashmir	2015088	63.9	34.7	29.2	6.5	1.9	4.7	29.6
11	Jharkhand	6181607	12.9	10.0	2.9	36.5	1.9	34.6	50.6
12	Karnataka	13179911	66.1	41.2	24.8	9.0	1.0	8.0	24.9
13	Kerala	7716370	29.3	23.4	6.0	62.0	14.6	47.4	8.7
14	Madhya Pradesh	14967597	23.4	16.4	6.9	20.0	1.1	18.9	56.6
15	Maharashtra	23830580	67.9	56.3	11.6	14.4	2.2	12.2	17.7
16	Manipur	554713	38.8	24.7	14.1	7.6	2.7	4.9	53.6
17	Meghalaya	538299	39.3	27.8	11.5	25.4	6.9	18.4	35.3
18	Mizoram	221077	58.7	39.4	19.3	4.7	2.0	2.7	36.6
19	Nagaland	399965	47.2	6.1	41.1	25.7	6.6	19.1	27.1
20	Odisha	9661085	13.8	10.0	3.9	19.5	2.2	17.3	66.7
21	Punjab	5409699	51.0	41.1	9.9	0.4	0.2	0.2	48.6
22	Rajasthan	12581303	40.6	32.0	8.5	10.8	1.2	9.6	48.6
23	Sikkim	128131	85.3	29.2	56.1	0.6	0.5	0.2	14.1
24	Tamil Nadu	18493003	79.8	55.8	23.9	5.1	1.2	3.8	15.1
25	Tripura	842781	33.2	20.3	12.9	27.4	2.9	24.5	39.4
26	Uttar Pradesh	32924266	27.3	20.2	7.1	4.0	0.6	3.4	68.7
27	Uttarakhand	1997068	68.2	0.4	53.9	14.3	1.1	0.7	17.5
28	West Bengal	20067299	25.4	21.0	4.4	6.0	0.7	5.4	68.6
29	Andhaman& Nicobar Islands	93376	85.0	68.8	16.2	7.3	0.7	6.6	7.7
30	Chandigarh	235061	96.7	93.7	3.0	0.1	0.1	0.0	3.2
31	Dadra & Nagar Haveli	73063	46.5	26.0	20.5	7.2	1.4	5.7	46.3
32	Daman & Diu	60381	75.2	54.6	20.6	0.7	0.5	0.2	24.1
33	NCT of Delhi	3340538	81.3	75.2	6.1	0.1	0.1	0.0	18.6
34	Lakshadweep	10703	20.3	9.1	11.1	71.7	6.9	64.9	8.6
35	Puducherry	301276	95.3	90.8	4.5	1.9	0.1	1.8	2.8

Table 3: Distribution Based On Availability of Drinking Water Source among Different States and Union Territories In India

S. No.	State	Source of Drinking Water		
		Within the Premises (%)	Near the Premises (%)	Away (%)
	India	46.6	35.8	17.6
1	Andhra Pradesh	43.2	37.3	19.5
2	Arunachal Pradesh	41.1	37.4	21.6
3	Assam	54.8	26.7	18.5
4	Bihar	50.1	37.9	12.0
5	Chhattisgarh	19.0	54.5	26.5
6	Goa	79.7	15.5	4.8
7	Gujarat	64.0	23.5	12.4
8	Haryana	66.5	21.4	12.1
9	Himachal Pradesh	55.5	35.0	9.5
10	Jammu and Kashmir	48.2	28.7	23.1
11	Jharkhand	23.2	44.9	31.9
12	Karnataka	44.5	37.3	18.2
13	Kerala	77.7	14.1	8.2
14	Madhya Pradesh	23.9	45.6	30.5
15	Maharashtra	59.4	27.6	13.1
16	Manipur	15.5	47.3	37.2
17	Meghalaya	24.1	43.2	32.7
18	Mizoram	31.2	46.7	22.2
19	Nagaland	29.3	42.4	28.3
20	Odisha	22.4	42.2	35.4
21	Punjab	85.9	10.0	4.1
22	Rajasthan	35.0	39.0	25.9
23	Sikkim	52.6	29.7	17.7
24	Tamil Nadu	34.9	58.1	7.0
25	Tripura	37.1	30.5	32.4
26	Uttar Pradesh	51.9	36.0	12.1
27	Uttarakhand	58.3	26.6	15.2
28	West Bengal	38.6	34.7	26.6
29	Andaman & Nicobar Islands	60.6	27.0	12.4
30	Chandigarh	86.1	11.7	2.2
31	Dadra & Nagar Haveli	52.6	36.4	11.0
32	Daman & Diu	76.4	22.1	1.5
33	Delhi	78.4	15.4	6.2
34	Lakshadweep	83.7	14.3	2.0
35	Puducherry	77.4	21.5	1.1

Table 2 shows the State and Union Territory wise Distribution of Households having Tap and Well Water Supply in India according to Census 2011.While comparing the different states and union territories, it shows that in Sikkim, 56.1% of them use tap water from untreated sources. In Tamilnadu, 23.9% of them use tap water from untreated sources and about 3.8% of the households use water from uncovered wells.

Table 3 shows the Distribution Based on Availability of Drinking Water Source among Different States and Union Territories in India. It shows that in India,46.6% of the households have water within the premises, 35.8% of the households have water near the premises and 17.6% have it far away. In Tamilnadu, 34.9% of the households have water within the premises, majorly 58.1% of the households have water near the premises itself and only 7% have it far away.

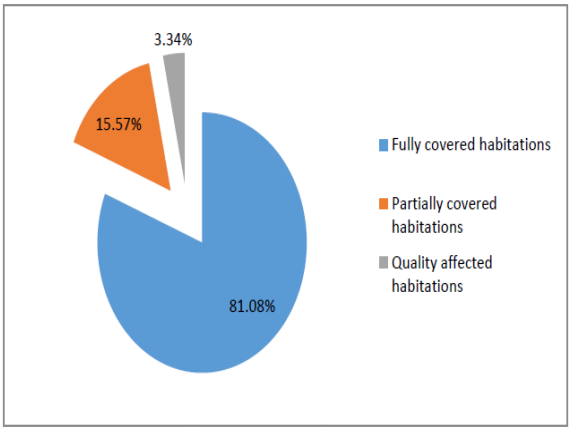

Figure 1: Status of Coverage of Habitations in India by National Rural Drinking Water Program

Figure 1 shows the Status of Coverage of Habitations in India by National Rural Drinking Water Program. It shows that about 81.08% are fully covered habitations under the program and only 3.34% of the habitations in India are quality affected habitations.

DISCUSSION

Safe healthy water and fundamental sanitation offices are human rights. With the fast increment in urban population, arrangement of open, reasonable and adequate safe drinking water and sanitation office in Indian households is a test.[5]

Nonavailability of adequate amount of clean water in family units necessitates the need for use of water from some polluted and other sources. This training contrarily influences the wellbeing of individuals, which is reflected by the expanded weight of waterborne ailments, particularly among under-five old children.[6]

National Rural Drinking Water Program (NRDWP) attempts to provide safe drinking water in India for all the rural households. It attempts to provide each and every individual a sufficient amount of safe water for drinking, cooking and other essential household needs on a maintainable premise, with a base water quality standard, which ought to be helpfully open consistently and in all circumstances. Accomplishing this point and target is a consistent procedure.[6]

The comparison between different states and union territories of India under NRDWP, shows that the total Habitations covered in Goa is the least i.e. 347, the number of Habitations with Population Coverage more than or equal to 0 % and less than 100% is only 2, and the number of Habitations with 100% Population Coverage is 345. In the case of Tamilnadu, the total Habitations covered is 100204, the number of Habitations with Population Coverage more than or equal to 0 % and less than 100% is 7474, and the number of Habitations with 100% Population Coverage is 92532 by National Rural Drinking Water Program. Lack of proper implementation of the program, distribution of resources, community involvement could be a reason behind this scenario.

While comparing the different states and union territories in table 2, it shows that in Sikkim, 56.1% of them use tap water from untreated sources. In Tamilnadu, 23.9% of them use tap water from untreated sources and about 3.8% of the households use water from uncovered wells. In studies conducted in Myanmar [7] and Vietnam [8]

there were higher proportion of household who use water from piped supply. In the present study, while this was assessed, about 43.5% of the households use piped water. Out of this only about 32% of the household use tap water from treated sources. Poor execution of work, poor contract managements, incomplete or abandoned works, non-functional sustainable structures, unproductive investments on equipments can be regarded as a reason to this scenario in India.

In the present study, according to table 3, about 17.6% of households have water availability far away from their house premises. Household individuals who don't need to head out to gather water possess more energy for child care, keeping up of individual cleanliness and can take an interest in beneficial financial exercises.[9,10] In a review of 45 developing nations in Eastern and Southern Africa, it was accounted for that in 12% of households where youngsters gather water, young ladies were included twice as regularly when contrasted with young men. They frequently need to walk long separations to bring water, promptly in the first part of the day, prompting poor school participation, and dropout.[11,12]

The present study results in Figure 1 shows that about 81.08% are fully covered habitations under the program and only 3.34% of the habitations in India are quality affected habitations. This shows that although there is an improved access to water in India other than any nation, there are still some people with no access to safe drinking water.

Although the targets have not been reached, many of the rural areas in India have been benefitted by the National Rural Drinking Water Program. Many people have access to safe drinking water nowadays, yet many people are to be educated about safe drinking water and its health effects. Many such programs are yet to be implemented to provide safe drinking water to all the people in the community.

CONCLUSION

This study evaluated the habitation coverage under National Rural Drinking Water Program among different states and union territories in India. As discussed earlier, even though the targets have not been achieved, this program has attempted to provide safe drinking water to many people in different states and union territories in India. Many such programs to provide adequate safe drinking water to all the people must be implements by organized community efforts.

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