Accessibility of Water and Sanitation in India

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Abstract

This paper discuss about water and sanitation condition in India. Water and sanitation most important fundamental elements of households amenities. This paper is based on secondary data of Census of India. According to 2011 census of India 43.5 percent of Indian household access tap water facility and 46.9 percent of household access sanitation facility. 30.8 percent of rural households and 70.6 percent of urban households have access tap water facility. 30.7 percent of rural households and 81.4 percent of urban households have sanitation facility. This data indicated most of the Indian households still not access basic water and sanitation facility. This paper divided four section first section provide on water condition in India, second section describe state level water and sanitation facility, third section rural and urban water and sanitation facility and fourth section conclusion.

Key words: *Water, Sanitation, Households, Rural, Urban.*

Introduction

There is direct relationship between health, drinking water and sanitation. Safe drinking water and better scientific toilet facilities as one of the major social determinants of health of the households. The improved piped water and good sanitation facilities such as latrine facilities sharply reduced diarrhea morbidity. Water and sanitation facility in India continue to be inadequate. In India 18 percent of account for world population and about only have 4 percent of world water resources, it was very low level compere to other countries. (Tariq Ahanad Bhat 2014). According to Water Aid (2017) India is the second most populous country in the world and 63 million people lacking in access to safe water. 732 million people lack access to improved sanitation, almost 344 million people practice open defecation. The World Bank and World Health Organisation (2015) evaluation that 21 percent of transmissible infection in India related to unsafe water, sanitation and poor hygiene practices. More than 321 children below the age of 5 die each day from diarrhea in India alone.

Majority of households in not access the adequate drinking water and sanitation facilities. However, National Water Supply and Sanitation Programmes was introduced by Government of India in 1954, Minimum Need Programme in fifth five year planning and in 1986Central Rural Sanitation Programmes was launched. In addition to this state and local government also distributed major segment of their resources to safe drinking water and sanitation facilities. While, in rural household 51.9 per cent were using hand pump and tube well water as the main sources of drinking water in 2001. In urban area, 70.5 percent of households had to access

the tap water facility, but the quality was very poor compared to developed countries. In 2001, 39 percent only had accessibility of water within the premises which has increased to 46.6 percent in 2011.

At the same period the availability of drinking water in India 'away' from the households has also increased form 17 percent in 2001 to 18 percent in 2011. Still most of rural people are going very long distance (outside 100 meter in urban areas and outside 500 meters in rural areas) for brining drinking water, cooking and other household task. Census of India 2001, 64 per cent of total households in India had no toilet facility within premises and more than sixty per cent of population was contributing open defecation in 2011 Census of India, data depict that 53 percent of households in India had no toilet facility within premises and nearby 50 per cent. At the all India, 49.8 per cent of households were contributing open defecation Indian population 600 million were contributing open defecation it was largest share in the world. Through, improvement had been observed in percentage of households with toilet facility within the premises form 36.4 percent in 2001 to 47 percent in 2011. In this context, this study explore the drinking water and sanitation condition in India. This paper as organized as follows. After introduction, second part of the paper is sources of data, third part deals on sources of drinking water, fourth section of the paper deals on sanitation facilities ad final section of the paper provide on conclusion.

Data

Generally there three sources provided information on household amenities India. This sources are Census of India, National Sample Survey Organisation (NSSO), and National Family Health Survey (NFH). Among these sources Census covered all geographical place of India than NSSO and NFH. This NSSO and NFH used sample survey method and failed to cover all geographical areas of India. Household amenities in the Census enumerated on housing facility, sources of drinking water facility, toilet facility, different sources of cooking facility, and sources of lighting. In this study to explore the different sources of drinking water and availability of toilet facilities of the households. In this context, this study used Census report of 2011.

Sources of Drinking Water

For only 43.5 per cent of households in India had the sources of tap water, 42.0 per cent were used hand pump or tube well sources, 11.0 per cent were used well water and 3.5 per cent were other sources (see table 1). In the regional perspective, southern zone state had tap water sources, followed by west zone, north zone, northeast zone and central zone. At the state, level top five Indian state access tap water facilities had Himachal Pradesh (89.5 per cent) Goa (85.4 per cent) Sikkim (85.3per cent) Tamil Nadu (79.8 per cent) Andhra Pradesh (69.9 per cent). Bottom five Indian state access tap water facilities Bihar (4.4 per cent) Assam (10.5 per cent) Jharkhand (12.9 per cent) Odessa (13.8 per cent) Chhattisgarh (20.7 per cent).

For hand pump or tube well as the second major drinking water in India (42.0 per cent). At the state level, Bihar had the highest proportion (89.6 per cent) and other major hand pump states were Uttar Pradesh (67.9 per cent), West-Bengal (66.8 per cent), Chhattisgarh (65.6 per cent) and Odisha (61.4 per cent). Major

well water sources state were Kerala (62.0 per cent), Jharkhand (36.5) and north east states also depend on well as one of the major sources of drinking water.

Spatial Accessibilities of Drinking Water

Rural and urban accessibilities of different sources of drinking water indicated that 70.5 per cent of urban household was accessed on tap water and rural areas was 30.08 per cent (see figure 1). For well water, 13.3 per cent were accessed in rural area and 6.2 per cent in urban areas. In the hand pump or tube well, 51.9 per cent were accessed in rural and 20.08 per cent in urban. For other sources of water access, 4 per cent in rural and 2.5 per cent in urban.

Sanitation Facilities

Table 2 provide on percentage of household not have toilet facilities and on the basi 53 per cent of households had no toilet facilities in India as per 2011 Census. In the rural urban variations, 69 per cent of rural households and 18.6 per cent of urban households had no toilet facilities At the state level, Jharkhand 78 per cent, Odisha 78 per cent, Chhattisgarh 75.4 per cent and Madhya Pradesh 71 per cent. Further, not have toilet facilities in rural area were 92.4 per cent in Jharkhand, 87 per cent in Madhya Pradesh, 86 per cent in Odisha, 85.5 per cent in Chhattisgarh, 82.4 per cent in Bihar and 78.2 per cent in Uttar Pradesh. The interesting fact the highest proportion of having the facilities of toilet was registered in the state of Kerala. West zone states and south zone state had comparatively higher proportion of toilet facilities in India. Urban area had better toilet facilities than rural areas.

Overall India 46.9 percentage household have toilet facility available within premises (see table 3). It distributed 12 percent piped sewer system, 22.2 percent septic tank system, 2.3 percent other system, 7.6 percent pit toilet with slab, 1.8 percent pit latrine without slap , 0.5 percent night soil disposed into open drain, 0.3 percent night soil removed by human and 0.2 percent night soil serviced by animal. Overall India 53.2 percentage of household has toilet facility not available within premises. It divided 3.2 percent of household used public toilet and 49.8 percent of household used open defecation. Kerala state is a highest percentage of household have toilet facility available within premises almost 95.2 percentage. Jharkhand is a highest percentage of household not have toilet facility within premises almost 78 percentage.

Conclusion

Scarcity of drinking water in India as miss management of demand and supply. This miss management rose due to population pressure, failure of monsoon and urbanization. This above analysis reveals that deprivation of basic needs in India and this deprivation worst in rural area than urban. At the state level, western region state and southern region state were better accessibility of safe drinking water and had more proportion of toilet facilities. However, over the periods sources of drinking water and sanitation facilities had increased due to various public policy framed by union, state and local government. This deprivation level as varied between rural and urban, different religion, caste deserve further examination. Further, this study used 2011 Census and this data failed to recent development of household amenities. The poor quality of water supply and sanitation has led to more

dysentery and diarrhea morbidity in India, particularly child health. Unavailability of toilet facilities in the households adversely affected women than men. Women cannot open space deification in day time and use they prefer to before sunrise and after sunset. This make more health problem for women. In recent decades, India has introduced many programmes on drinking water and toilet schemes. Recent NFH 4 will be used to examine the present condition of drinking water and available of toilet facilities for further examination.

Table - 1

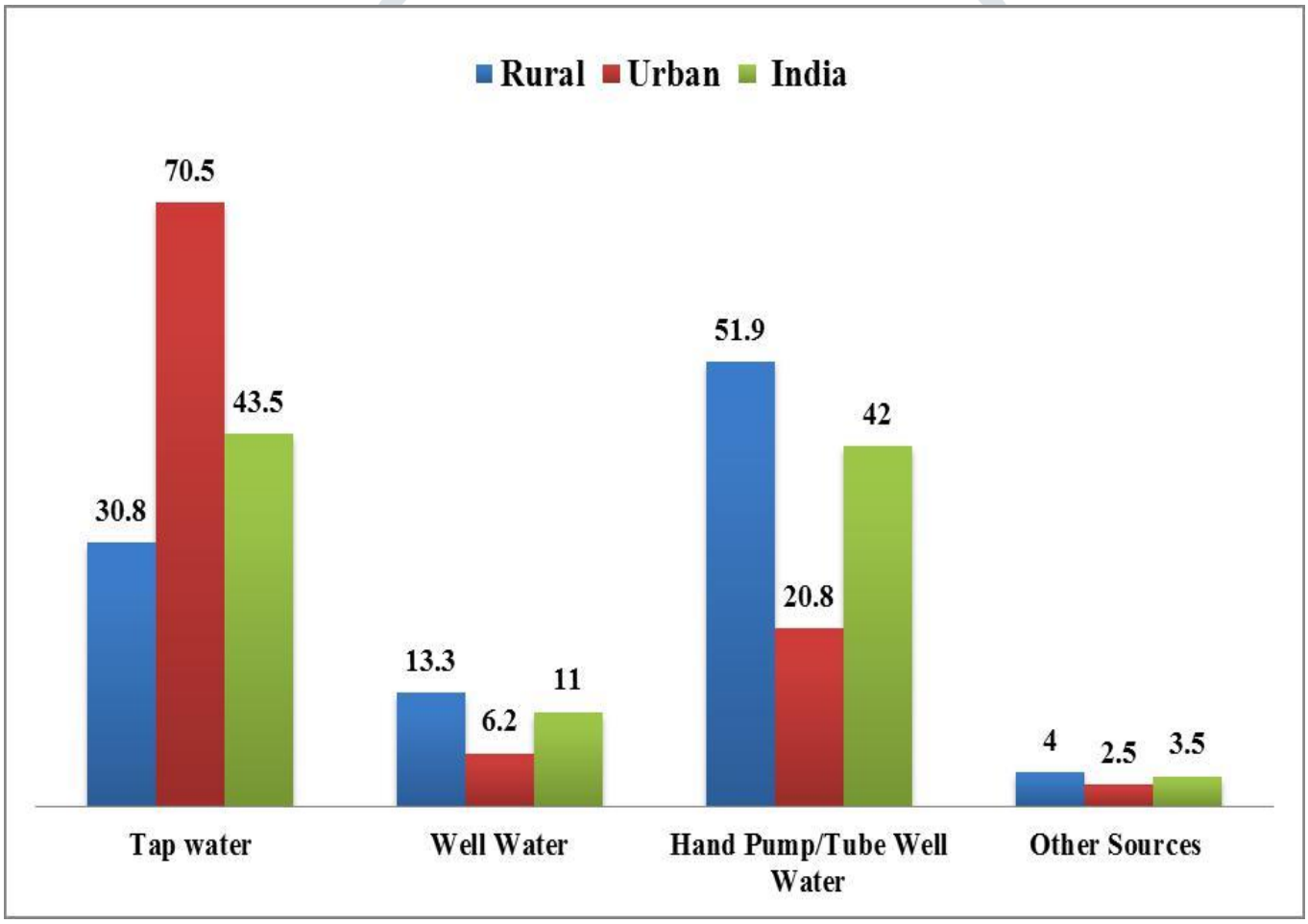
Different Source of Drinking Water in 2011

S. No	India/ State/ UT *	Total Household (in Number)	Tap Water (%)	Well Water (%)	Hand pump/ Tube well Water (%)	Other Sources of Water (%)
	India	**24,66,92,667**	**43.5**	**11.0**	**42.0**	**3.5**
	North Zone					
1	Haryana	47,17,954	68.8	3.0	25.0	3.2
2	Himachal Pradesh	14,76,581	89.5	2.9	4.2	3.4
3	Jammu & Kashmir	20,15,088	63.9	6.5	12.8	16.7
4	Punjab	54,09,699	51.0	0.4	46.6	2.0
5	Rajasthan	1,25,81,303	40.6	10.8	37.5	11.1
6	Uttarakhand	19,97,068	68.2	1.1	24.0.	6.7
	Central Zone					
7	Chhattisgarh	56,22,850	20.7	11.4	65.6	2.3
8	Madhya Pradesh	1,49,67,597	23.4	20	54.6	2
9	Uttar Pradesh	3,29,24,266	27.3	4	67.9	0.9
	East Zone					
10	Bihar	1,89,40,629	4.4	4.3	89.6	1.7
11	Jharkhand	61,81,607	12.9	36.5	47.3	3.4
12	Odisha	96,61,085	13.8	19.5	61.4	5.2
13	West Bengal	2,00,67,299	25.4	6.0	66.8	1.7
	North East					
14	Arunachal Pradesh	2,61,614	65.5	5.7	13.1	15.7
15	Assam	63,67,295	10.5	18.9	59.4	11.3
16	Manipur	5,07,152	38.6	7.5	6.8	47.1
17	Meghalaya	5,38,299	39.3	25.4	5.4	29.9
18	Mizoram	2,21,077	58.7	4.7	1.7	34.9
19	Nagaland	3,99,965	47.2	25.7	6.7	20.5
20	Sikkim	1,28,131	85.3	0.6	0.1	14.1
21	Tripura	8,42,781	33.2	27.4	34.3	5.1
	West Zone					
22	Goa	3,22,813	85.4	11.1	0.3	3.2
23	Gujarat	1,21,81,718	69.0	7.1	21.2	2.7
24	Maharashtra	2,38,30,580	67.9	14.4	15.5	2.1
					South Zone	
25	Andhra Pradesh	2,10,24,534	69.9	6.4	20.6	3.1
26	Karnataka	1,31,79,911	66.1	9.0	21.5	3.5
27	Kerala	77,16,370	29.3	62.0	4.2	4.4

28	Tamil Nadu	1,84,93,003	79.8	5.1	12.8	2.4
Union Territory*						
29	A & N Islands *	93,376	85	7.3	0.5	7.1
30	Chandigarh *	2,35,061	96.7	0.1	2.6	0.6
31	Dadra &Nagar Haveli*	73,063	46.5	7.2	45	1.3
32	Daman & Diu *	60,381	75.2	0.7	23.5	0.5
33	Lakshadweep *	10,703	20.3	71.7	2.5	5.5
34	NCT of Delhi *	33,40,538	81.3	0.1	13.7	4.9
35	Puducherry *	3,01,276	95.3	1.9	2.5	0.3

Sources: Census of India 2011

Figure 1: Different Type of Drinking Water Sources in India



Source: Census of India 2011

Table 2: Percentage of Household Not Having Toilet Facility in 2011 Census

S. No	Indian State/UT *	Total Households	Rural	Urban	Total
	India	**24,66,92,667**	**69.3**	**18.6**	**53.1**
	North Zone				
1	Haryana	47,17,954	43.9	10.1	31.4
2	Himachal Pradesh	14,76,581	33.4	10.9	30.9
3	Jammu & Kashmir	20,15,088	61.4	12.5	48.8
4	Punjab	54,09,699	29.6	6.6	20.7
5	Rajasthan	1,25,81,303	80.4	18.0	65.0
6	Uttarakhand	19,97,068	45.9	6.4	34.2
	Central Zone				
7	Chhattisgarh	56,22,850	85.5	39.8	75.4
8	Madhya Pradesh	1,49,67,597	86.9	25.8	71.2
9	Uttar Pradesh	3,29,24,266	78.2	16.9	64.4
	East Zone				
10	Bihar	1,89,40,629	82.4	31.0	76.9
11	Jharkhand	61,81,607	92.4	32.8	78.0
12	Odisha	96,61,085	85.9	35.2	78.0
13	West Bengal	2,00,67,299	53.3	15.0	41.2
	North East				
14	Arunachal Pradesh	2,61,614	47.3	10.5	38.0
15	Assam	63,67,295	40.4	6.3	35.1
16	Manipur	5,07,152	14.0	4.2	10.7
17	Meghalaya	5,38,299	46.1	4.3	37.1
18	Mizoram	2,21,077	15.4	1.5	8.1
19	Nagaland	3,99,965	30.8	5.4	23.5
20	Sikkim	1,28,131	15.9	4.8	12.8
21	Tripura	8,42,781	18.5	2.1	14.0
	West Zone				
22	Goa	3,22,813	29.1	14.7	20.3
23	Gujarat	1,21,81,718	67.0	12.3	42.7
24	Maharashtra	2,38,30,580	62.0	28.7	46.9
	South Zone				
25	Andhra Pradesh	2,10,24,534	67.8	13.9	50.4
26	Karnataka	1,31,79,911	71.6	15.1	48.8
27	Kerala	77,16,370	6.8	2.6	4.8
28	Tamil Nadu	1,84,93,003	76.8	24.9	51.7
	Union Territory*				
29	A & N Islands *	93,376	39.8	12.9	29.9
30	Chandigarh *	2,35,061	12	12.4	12.4
31	Dadra & Nagar Haveli *	73,063	73.5	18.7	45.3
32	Daman & Diu *	60,381	48.6	14.6	21.8
33	Lakshadweep *	10,703	1.9	2.3	2.2
34	NCT of Delhi *	33,40,538	23.7	10.2	10.5
35	Puducherry *	3,01,276	61.0	18.0	31.6

Sources: Census of India 2011

No. 3 Availability of Different Types of Toilet Facility in India

S.NO	Indian State/Union Territory*	Distribution of Households by Type of Toilet Facility												
				Flush/Pour Flush latrine connected to			Pit Latrine		Other Toilet			Toilet Not available within Premises		
0	**India**	**246692667**	**46.9**	**12**	**22.2**	**2.3**	**7.6**	**1.8**	**0.5**	**0.3**	**0.2**	**53.1**	**3.2**	**49.8**
North Zone														
1	Haryana	4717954	68.6	21.9	25.4	3.1	14.5	2.9	0.7	0	0.1	31.4	1.5	29.8
2	Himachal Pradesh	1476581	69.1	7.4	51.6	1.7	7.1	1	0.2	0	0	30.9	1.2	29.7
3	Jammu & Kashmir	2015088	51.2	10	17.7	5.3	3.3	2.2	3.2	8.9	0.7	48.8	2.7	46.1
4	Punjab	5409699	79.3	28.3	27.7	3.3	16	3.2	0.5	0.1	0.2	20.7	1.2	19.5
5	Rajasthan	12581303	35	7.2	18.6	1.9	4	2.5	0.8	0	0.1	65	0.7	64.3
6	Uttarakhand	1997068	65.8	11.8	40	1.4	11.3	0.6	0.3	0.2	0.1	34.2	1.1	33.1
Central Zone														
7	Chhattisgarh	5622850	24.6	2.5	16.6	1.9	2.1	1.3	0.1	0	0.1	75.4	1.4	74
8	Madhya Pradesh	14967597	28.8	5.8	19.1	1.3	1.7	0.7	0.3	0	0.1	71.2	1.2	70
9	Uttar Pradesh	32924266	35.7	8.1	19.9	1.8	3.4	0.7	0.5	1	0.2	64.4	1.3	63
East Zone														
10	Bihar	18940629	23.1	1.8	16	2.3	1.7	0.8	0.2	0.1	0.2	76.9	1.1	75.8
11	Jharkhand	6181607	22	3.7	15.7	1	1.1	0.3	0.2	0	0.1	78	1	77
12	Odisha	9661085	22	2.5	13.6	1.6	2.1	1.4	0.3	0.3	0.3	78	1.4	76.6
13	West Bengal	20067299	58.9	5.6	20.7	5.6	22.3	3.2	0.4	0.7	0.4	41.2	2.5	38.6

North East Zone														
14	Arunachal Pradesh	261614	62	6	22.4	10	4.4	14.4	0.7	0.4	3.7	38	3.2	34.8
15	Assam	6367295	64.9	5.2	14.9	8.4	10.5	24.2	0.9	0.4	0.6	35.1	1.9	33.2
16	Manipur	507152	89.3	6.1	24.7	15.9	15.7	19	5.5	2	0.6	10.7	1.8	8.9
17	Meghalaya	538299	62.9	5.8	23.7	8.6	6.9	16.4	0.3	0.4	0.8	37.1	2.8	34.3
18	Mizoram	221077	91.9	5.7	48.4	6.7	15.1	15.5	0.3	0.1	0.3	8.1	1.5	6.6
19	Nagaland	399965	76.5	3.3	34.4	10	11.2	16.4	0.3	0.2	0.6	23.5	7	16.5
20	Sikkim	128131	87.2	11.8	59.8	3.4	6.6	5.5	0.1	0	0.1	12.8	1.5	11.3
21	Tripura	842781	86	3.5	14.2	7.2	44.8	15.4	0.5	0.1	0.4	14	2.5	11.5
West Zone														
22	Goa	322813	79.7	14.5	56.5	3.3	3.7	0.7	0.2	0	1	20.3	3.9	16.4
23	Gujarat	12181718	57.4	29	22.8	0.8	4.2	0.3	0.2	0	0	42.7	2.3	40.4
24	Maharashtra	23830580	53.1	18.4	23.5	1.6	8.3	0.5	0.7	0	0.2	46.9	12.9	34
South Zone														
25	Andhra Pradesh	21024534	49.6	12.4	29.7	1	5	0.5	0.8	0.1	0.3	50.4	2.5	48
26	Karnataka	13179911	51.2	22.7	13	1.2	13.2	0.3	0.5	0.1	0.2	48.8	3.8	45
27	Kerala	7716370	95.2	12	50.3	4.4	27.6	0.7	0.2	0	0	4.8	1.1	3.8
28	Tamil Nadu	18493003	48.3	14.4	25.7	1.1	5.7	0.3	0.8	0.2	0.1	51.7	6	45.7
Union Territory*														
29	A & N Islands *	93376	70.1	2.6	62.5	1.9	0.5	2.4	0.2	0	0.1	29.9	2.5	27.5
30	Chandigarh *	235061	87.6	85.9	1	0.2	0.4	0.1	0.1	0	0	12.4	9.1	3.2
31	D & N Haveli *	73063	54.8	4.9	48.2	0.6	0.7	0.1	0.1	0.2	0	45.3	5.3	40
32	Daman & Diu *	60381	78.2	5.3	71.5	0.4	0.8	0.2	0.1	0	0	21.8	11.3	10.5
33	Lakshadweep *	10703	97.8	2.4	94.6	0.4	0.4	0	0	0	0	2.2	0.4	1.8
34	NCT of Delhi *	3340538	89.5	59.3	25.5	0.9	1.6	0.2	2.1	0	0	10.5	7.2	3.3
35	Pondicherry *	301276	68.5	14	53.1	0.3	0.7	0.1	0.2	0	0	31.6	4.4	27.1

Source: Census of India 2011

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