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Capacity Building for a Better Future

प्रकृतिः रक्षति रक्षिता
Nature Protects if She is Protected

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From Editors Desk…

Greetings!!!

It gives me great pleasure to bring out the issues of Population and Environment Bulletin for the year 2017. IIPS publishes Population and Environment Bulletin (ISSN No. 0975-7287) at regular interval. The Bulletin and Envis website (www.iipsenvis.nic.in) are supported by Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India.

The present volume presents the research article on Drinking Water Facilities in India: An Evidence. The paper tries to capture the different sources of drinking water and its quality at household level, also looks into the issues of water quality in terms of safe and unsafe and also highlighted what kind of precautionary measures to be taken while using the water for drinking.

The volume also includes the report of painting competition which was conducted by Pop-Envis on the occasion of "World Soil Day & National Pollution Control Day". The interschool painting completion was organised in various schools of Atomic Energy Centre Schools (AECS 1-6), to create an awareness among the students about the Environment and its safety, on the broad theme of "***Save Soil and Pollution Control***", during December 19-20, 2016.

I hope you will find this bulletin interesting and useful.

I encourage readers to contribute articles related to Population, Human Settlement and Environment for the future volumes.

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Drinking Water Facilities in India: An Evidence

Santosh B. Phad, Priyanka V. Janbandhu*, Dhananjay W. Bansod***

Introduction

International World Water Day has held annually on 22 March as a means of focussing attention on the importance of freshwater and advocating for the sustainable management of freshwater resources. An International day to celebrate freshwater was recommended at the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro. The first decade, 1981–1990, devoted to water was declared by UN and it was reported to have brought water to over a billion people and sanitation to 770 million (Gujja & Shaik, 2005). Water can't be manufactured, it is a gift to the earth through groundwater, snow melts, run through rivers, and rainfall which to a greater extent help replenishment of ground-water and preservation of water in the artificial or natural reservoirs, tanks, ponds, etc. excessive and imprudent use of water make shortage, exhaustion and even complete lack of this item. Hence, it is much essential, especially in the contemporary situation when the population is growing, and the need for water is increasing. Instances are quiet well known regarding desiccation, uprooting of civilizations and intermittent drought in the countries and continents due to lack of water. A watch over the rational use of water over periods and development of same in the regional set-up are most important, specially these days, when the water needs have increased for agricultural and population needs and to readjust the ecological set-up and environs in relation to these parameters (Roy, 1990).

By the end of 2011, about 90 percent of the world population used an improved source drinking-water, and slightly half (55%) benefitted from the convenience and associated health benefits of a piped supply on premises. An estimated 768 million people did not use an improved source of drinking water in 2011, including 185 million who relied upon surface water to meet their daily drinking-water needs. Urban drinking water coverage has remained high over the past two decades, and currently, only four percent of the urban population relies on unimproved sources of water. However, in spite of the high urban drinking-water coverage rates, issues of service quality remain. Supplies are often intermittent and this increases contamination risks. Of the 2.1 billion people who gained access since 1990, almost two-thirds, 1.3 million lived in urban areas. By the end of 2011, above four-fifths (83%) of the population without access to an improved source of drinking-water are living in rural areas (WHO & UNICEF, 2013).

Water is essential for human existence. Hence, the right to adequate drinking water is considered to be the most fundamental of human rights. This is ostensibly the reason why governments everywhere called upon to give top priority for programs to provide safe drinking water. But the question is whether this has been done efficiently in the third world countries remains to be answered. India has utilizable water of 110 million hectare meters (mhm) - 70 mhm surface water and 40 mhm ground water. But annually we utilize only 50 mhm water, comprising 30 mhm surface water and 20 mhm ground water. The per capita availability of fresh water has come down from 5,150 cubic meters in 1947 to 1,700 cubic meters in 1997.

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It is thus clear that we are now under **water stress** (Water stress occurs when the demand for water exceeds the available amount during a certain period. Water stress causes deterioration of fresh water resources regarding quantity). But the percent- age of population which has access to safe drinking water had increased from 38 percent in 1981 to 62 percent in 1991. In India, 37,000 villages, but no town, face the problem of excessive fluoride and 26,300 villages have water with excessive salinity. About a million people drink water contaminated with arsenic and approximately two lakh people have arsenical skin manifestation. In India nearly 70 percent of the inland water is insecure for human consumption.

Review of Literature:

In India alone, it is estimated that municipal sewage accounts for 3,650 million cubic meters against 750 mcm of industrial effluents dumped into our rivers. Besides, coastal areas are also affected by seawater intrusion, which increases the salt content in ground water. In some areas, the water is affected by the presence of excess chemicals such as nitrates, arsenic, and nickel. In India, 37,000 villages, but no town, face the problem of excessive fluoride, and 26,300 villages have water with excessive salinity. About a million people drink water contaminated with arsenic and approximately two lakh people have arsenical skin manifestation. In India, nearly 70 percent of the inland water is unfit for human consumption. It was estimated that water-borne diseases are responsible for 42 percent of the deaths below the age of six. In India nearly 80 percent of diseases occur due to poor quality of-drinking water. Water-borne epidemics and diseases alone cause 15 lakh deaths in India annually (Kanmony, 2003). Water crises are developing because the government and the people are not looking beyond temporary, non-sustainable measures to alleviate scarcity. Water crises lead to water conflicts at several levels, a problem that depletes considerable amounts of India's time, money and energy. The UN decade for action, "**Water for Life**" may be an invaluable opportunity to look at some of the broader issues of after management and mismanagement (Gujja & Shaik, 2005).

The chief reason is that in predominantly informal water economies of poor countries, majority of water users depend either on self-provision of water or local informal institutional situations is close to impossible. The integrated water resources management paradigm of direct demand management is not wrong, but it is infeasible in informal water economies. The rise of a class of intermediaries between users and natural source of water- in the shape of water service providers-is a precondition to meaningful demand management. We should base policy on a comprehensive understanding of how the water economy actually functions; complete with myriad institutional arrangements communities have devised to serve their own ends. We must pay close attention to understand what works on the ground and what does not; and devise indirect policy instruments to entire or compel private institutional arrangements to serve public policy goals (Shah & Van, 2006).

According to *Ahmed (2006)*, the popularity of tube wells reflects the reduced incidence of diarrheal disease when drinking groundwater, instead of untreated surface water, and the modest cost of installation (about

one month of household income). Today perhaps 100 million people in India, Bangladesh, Vietnam, Nepal, and Cambodia (and possibly other countries) are drinking water with arsenic concentration up to 100 times the World Health Organisation (WHO) guideline of 10 g per litre (2-4). Whereas technologies for treating either surface water or groundwater periodically receive considerable attention, the record to date suggests that more widespread testing of wells to identify those aquifers that do not require treatment is presently far more promising. Groundwater from deep well is a good source of drinking water in many parts of Bangladesh because it does not require treatment. Deep wells nevertheless should be tested at least once a year; as small fractions are likely to fail over time. Presently, not even deep wells installed by the government are periodically tested for arsenic. One source of confusion has been that the depth to older aquifers that are systematically low in arsenic varies from <30 m to >200m across the country and can vary even between adjacent villages.

Further, *Desai (2010)* in the report about Human development in India analysed and discussed about the '**Water and Sanitation**' – clean water and sanitation form the backbone of the effective public health system. However, the challenges of providing these services in a large and heterogeneous country can be vast. The provision of piped water in villages, at best, remains sketchy. More than half (55 %) of urban households get piped water in their homes; another 19 percent get piped water outside their homes. In villages, only 13 percent get piped water in their homes; another 15 percent have piped water outside their home. Hand pumps (39 %), open wells (18 %), and tube wells (13 %) are more common in rural areas.

Whether in villages or towns, piped water is rarely available 24 hours a day. Only six percent of households with piped water report that water is available all day. Slightly less than two-thirds (63%) have water available fewer than three hours on a typical day. The inconsistent supply means that most households have to store their water in household containers, allowing the potential for contamination. However, household income does not fully explain either the urban –rural difference, or the state differences. For those without tap, water in their households, the burden of collecting water can be time consuming. The typical Indian household without indoor water the typically one Indian household without indoor water spends more than one hour per day collecting water. But some households spend much more time collecting water, so the mean time spent is even higher, at 103 minutes a day. As might be expected, the time spent collecting water is substantially greater in rural areas (109 minutes a day) than in urban areas (76 minutes). Thus, not only are villagers less likely to have indoor water than town and city dwellers, they have to go farther when they do not have it. When averaged over households that have piped water and those that do not, the average time spent per household fetching water is 53 minutes per day. This is a substantial loss of time that could be used for other purposes.

The time spent collecting water takes time away from the household's quality of life and its productivity. In addition, poor water supply has obvious health costs for both urban and rural households. Research on health outcomes suggests that both the quality and the quantity of water are important determinants of the prevalence of gastrointestinal diseases. This problem is further compounded by lack of access to sanitation.

About 58 percent of Indian households do not have a toilet, 19 percent have a pit or some other type of latrine, and 23 percent have a flush toilet. The absence of toilets is particularly stark in rural India, where 72 percent of households have no toilet, compared to 27 percent in urban areas. Moreover, among urban households that do not have a toilet, nearly half can use some form of public or shared toilet, a facility available to only nine percent of the rural households without a toilet. Although household wealth is associated with access to piped water and sanitation, contextual factors play an even greater role. Many of these systems cannot be set up by individuals for their own use. They require a societal investment. Hence, even rich households are far less likely to be able to obtain piped water or a flush toilet if they live in villages or poorer states.

Need for the Study:

Housing is the basic requirement of the human, and for its well-being, as well the other housing characteristics are also vital. Here, while dealing with the water and sanitation, the sources of drinking water, distance, and sufficiency along with the sanitation level from sources of drinking water to the household, people's behavioral, in other words, water consumption related, are need to be scrutinized. Using the collected information from the NSSO 69th round, important indicators of living facilities need to undertake to present the situation at household level. Those important indicators are – proportion of households – using improved sources of drinking water, getting sufficient drinking water, fetching drinking water from outside the premises, and sanitation and hygiene are also studies in detailed. It will reflect the status of Indian households regarding the sources of drinking water, prevalence of improved or non-improved; the level of sanitation and hygiene, and other concerned information.

Research Questions:

1) What are the principal sources of drinking water for the households in India?
2) How many households in India are having access to better/improved sources of drinking water?
3) Which kind of precautions has been taken in the households for the safe drinking water?

Objective(s):

The aim of this study is to examine the quality of drinking water and sources at household level in India. Also to scrutinize the affected water sources and water quality along with the precautions accepted for it.

Data Sources and Methodology:

The data for this study is used from the National Sample Survey (NSS) 69th round, July 2012 - December 2012. The survey is conducted at National level, consequently we could able to analyse all the above mentioned parameters of the household at national level. For the subsequent analysis of this data, primarily the chi-square test is applied for the significances of the variables studied thoroughly. The tabulation and/or

graphical representation will be useful to spotlight the characteristics and vital issues of the households according to the directed objectives of the study.

Findings:

Principal Source of Drinking Water:

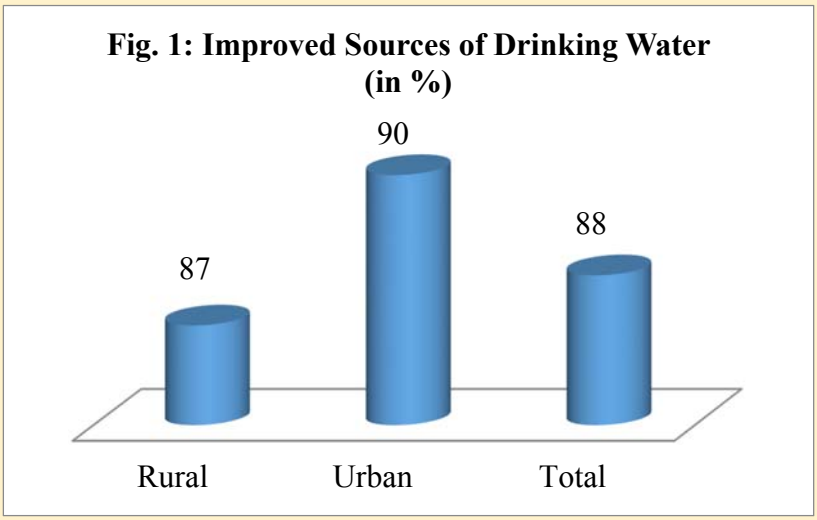
From the analysis, it is clear that Tube-well or Bore-well is the principal source of drinking water for Indian households with the share of 42 percent. But, the prime source of drinking water in urban areas is different, it is Piped water into dwelling (35%), followed by piped water to yard/plot (21%) and Tube-well or Bore-well is at third with 20 percent share; while looking at the rural set up the sequence and share varies, again, although the Tube-well/Bore-well shares highest among drinking water sources with more than half of the rural households (52%), followed by public/standpipe (14%) and piped water to yard/plot (10%). It is worth noting that the proportion of households in rural areas is 68 percent and in urban areas is 32 percent. Here, other possible sources of drinking water at both set up are Bottled Water (3%), Protected well (2%) and Unprotected well (7%). Similarly, the share of protected and unprotected springs, Rainwater collection, and Tank or Pond and other surface water with less than one percent, and finally the other sources of water with share of less than two percent (Table 1).

Besides, while analysing the households through improved sources of water, taking the sources under these category - Bottled Water, Piped water into Dwelling, Piped Water to Yard/Plot, Public/Standpipe, Tube well/ Bore well, Protected well, Protected Springs, and Rainwater Collection. All these collectively termed improved drinking water sources, which contribute around 88 percent; it means that 88 percent of households have access to the improved sources of drinking water and 12 percent of the households are accessing the drinking water from unimproved sources. Out of the improved sources, tube well/bore well, piped water into dwelling, piped water to yard/plot and public/standpipe are the major sources of drinking water for the households, 96 percent for rural and 99 percent for urban area.

Whereas, the Non-improved sources of drinking water are enclosed with the –

- Bottled Water
- Unprotected well
- Unprotected Spring
- Surface Water –
  - Tank/Pond
  - Other Surface Water (River, Dam, Stream, Canal, Lake, etc.)
- Others (Tanker-Truck, Cart with small tank or drum, etc.)

Fig. 1: Improved Sources of Drinking Water (in %)



Although their mutual share is very less compared to improved sources still the share may have considerable impact on the households, at least in the countries like India. Among these unimproved sources of drinking water, unprotected well has a large split, i.e. more than half of the households with unimproved sources of drinking water are accessing the drinking water from unprotected well, followed by bottled water with 23 percent (approx.). But in case of urban set-up, the concentration of bottled water is higher, 52 percent, after that other resource with 24 percent and unprotected well with 22 percent. And when it's about the insufficiency of the drinking water, 13 percent of the households replied for the insufficiency of the drinking water. Moreover, in case of households with improved sources of drinking water, there are around 88 percent of the households with enough/sufficient water, this percentage changes a little with the rural and urban set-up; in rural area this percentage is 87 percent and in urban it is 89. Even this difference between rural and urban is varies with the season, with in summer 12 percent for rural sector and almost 10 percent for urban sector.

Fig. 2: Households with the Drinking water Facilitiy within the premises (in %)

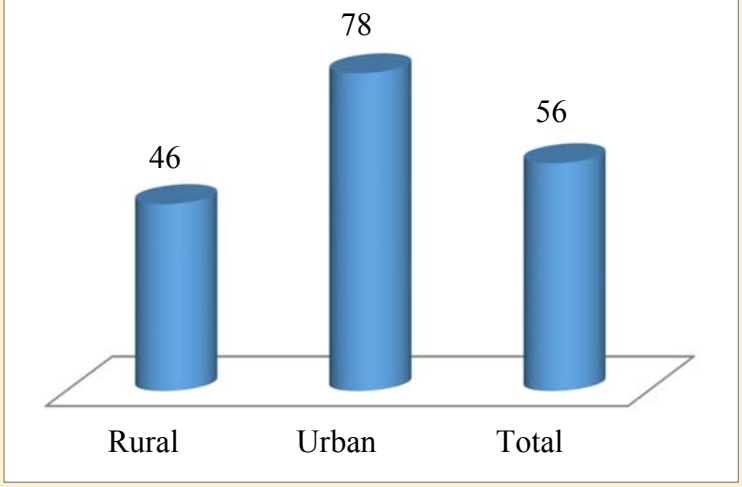
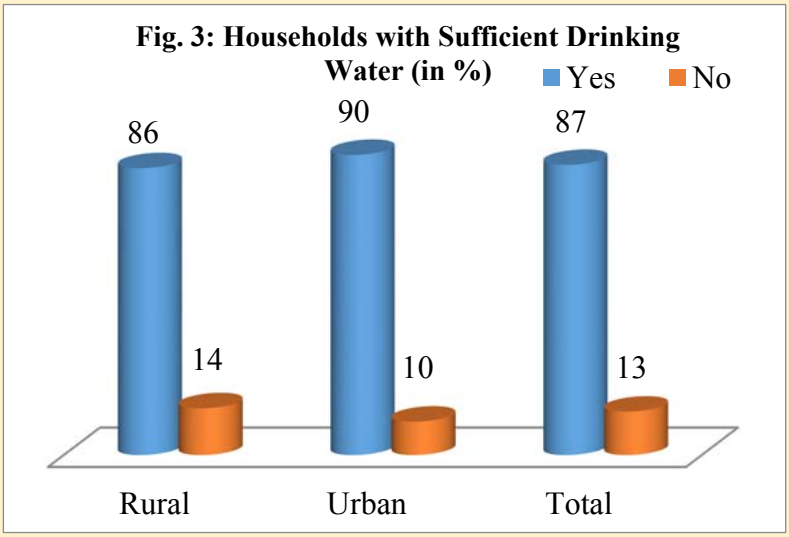


Table 2: In India more than half (56%) of the households have the better drinking water facility, here better meaning within the premises. In case of urban unit, this percentage is higher i.e. more than three fourth households (77%), but in rural area this proportion is less than half, i.e. only 46 percent households. Along with this the Table presents the information about the distance of the drinking water source from the household. In general, the higher number of source(s) is/are at some distance mostly in rural sector compared to urban.

It also has been noted that only 87 percent of households are with the sufficient satisfied availability of drinking water. This proportion little high in urban area, i.e. around 90 percent, and in lower in rural area (around 86%).

Fig. 3: Households with Sufficient Drinking Water (in %)



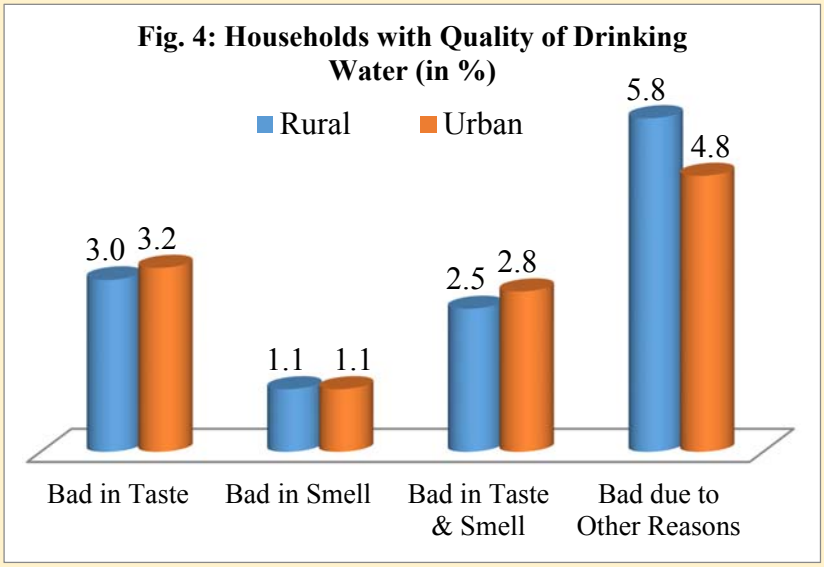
Further, the time has been recorded according to the insufficiency of the drinking water, where summer period (February-May) is most recorded period for lack of drinking water with 12 percent of households out of total,

then rainy (June-September) with 10 percent and winter (October-January) with only one percent. For urban area this proportion changes from nine percent in summer to less than one percent in winter, but in rural area it's 13 percent in summer to one percent in winter.

Table 3: When came across the methods accepted by the households for water treatment, it has found that still (around 61%) every six households are using untreated water out of 10 households. And this proportion increases for rural sector about two-third of the total households are having untreated water, in urban sector this fraction lesser with around 46 percent. Still, among the households using treated water are most likely to filter water with clothes, in both the segments rural as well as urban.

Table 3a provides the similar information but regarding the improved sources drinking water consumption treatment method. Among total households with improved drinking water sources about 62 percent of using non-treated drinking water. If they go for the purification of the drinking water, then around 17 percent households are using filtered water with cloth, followed by boiling method sand water filter (6%). While dealing with the rural and urban sector this proportion is vastly changing, although the quantity of non-treated water using households is higher among both the set-ups, i.e. roughly 44 percent in urban and 71 percent in rural region. Then urban have higher proportion filter with cloth (17%), followed by boiling (11%) and using water filter (10%); while in rural region the same algorithm with different amount, i.e. higher share of filter with cloth (18%), boiling water and use of water Filters (both, 4%).

Table 4: The quality of water has been described in this Table, with certain options to examine the quality of water, like – bad in taste, bad in smell, bad in taste and smell, bad due to other reasons, no defect.



Around 88 percent of the households have access to water with 'No Defect' quality in both set up, urban as well as rural. While looking at the quality of drinking water received through all kinds of water sources, the quality is dire due to other reasons, followed by bad in taste, then both, taste and smell, and smell. Whereas, same principle is applied for households with better drinking water facilities, and the results are very minutely changed, round about same situation obtained.

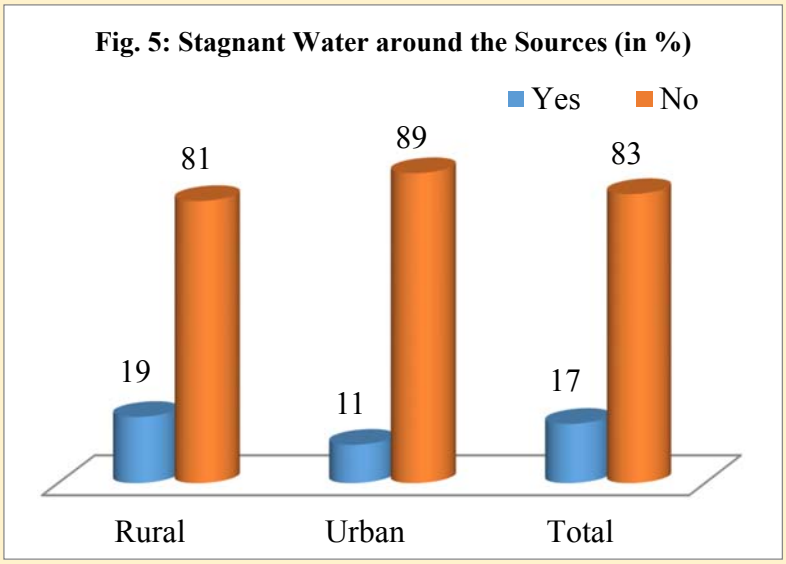


Table 5 provides consequent to table 4, the idea about stagnant water around the source for the households with improved drinking water facilities. In general, 18 percent of the households have the stagnant water around sources, but this outcome is slightly higher for rural area (19%) and efficiently less for urban (12%). It will help to portray the actual scenario of households with quality of water sources, then water.

Table 6: This table puts some light on the behavioural structure of the household while using the drinking water, further, at the time of use how many households have it through –

- Tap
- Vessel with Handle
- Vessel without Handle
- Poured Out

As an area of interest, when the study has tried some insights on the use of improved sources of drinking water with some of the useful dimensions like –

- Whether drinking water is sufficient
- The methods used to treat the water
- Quality of Water
- Stagnant water around source, and
- Method of use of the water

The last Table 6a gives the idea about the method of water consumed in the households. In general, more than half of the households (58%), are taking out drinking water from the container by vessel without handle, same aspect is higher in both regions but for rural areas it is high, with 64 percent, as compared to urban areas with 44 percent, followed by vessel with handle.

Conclusion & Discussion:

Around 90 percent of total households of India are having drinking water from improved sources. Within this, tube well or bore well is the major source of drinking water in rural sector of India, and piped water within premises is the major source of drinking water in urban sector. Unprotected well is the foremost source within non-improved sources for rural areas and bottled water for urban areas.

More than three-fourths of the urban households have drinking water facility within premises; this fraction is less than half for the rural households. Just about every four rural households have this facility outside the premises but at most distance of 0.2 km. The insufficiency of drinking water is slightly higher for rural

households compared to urban households, which particularly higher in summer days in the both setups, even the case is same for the drinking water from improved sources.

The portion of households is using untreated water for drinking is higher in the rural region. As around six households out of ten are using untreated water, and this part is about seven households for rural region and less than half for the urban; it's similar or slightly higher for drinking water of improved sources.

And the households using any purification method, then the priority is given to filtering water with cloth. Quality of water has been found more or less same in both setup, still with minute change better in urban areas compared to rural, but when the same is analysed further more for the improved sources again the change is very small but improved in rural areas weigh against urban.

Two out of ten rural households have access to source of drinking water with stagnant water around it, while the same scenario is around one out of ten urban households; which is unchanged for the improved source of drinking water also. From five rural households around three preferred to use vessel without handle to take out the drinking water from container, and two from the urban segment; when it doesn't matter of sources.

References:

Ahmed, M. F. & et. al. (2006). Ensuring Safe Drinking Water in Bangladesh. Science, New Series, Vol. 314 (5804), pp. 1687 – 1688.

Arimah, B. C., & Branch, C. M. (2001). Slums as Expressions of Social Exclusion: Explaining the Prevalence of Slum in African Countries. United Nations Human Settlement, Nairobi, Kenya: United Nations Human Settlement.

Bernard, H. R. (2006). Research Methods in Anthropology (Frourth ed.), USA: AltaMira Press.

Beser, A., Topcu, S., Coskun, A., Erdem, N., Gelisken, R., & Ozer, D. (2010). Traditional Child Care Practices Among Mothers with Infants less than 1 year old. DEUHYO ED, 3(3), 137-145.

Chattopadhyay, A. (2012). Planning commission Poverty Estimation for 2011-12.

Desai, S. & et. al. (2010). Human Development in India: Challenges for a society in Transition.

Gujja, B., & Shaik, H. (2005). A Decade for Action: Water for Life: When Will India Cover the 'Uncovered'? *Economic and political weekly*, pp. 1086-1089.

International Institute for Population Sciences (IIPS), (2015). Population and Environment Bulletin, Housing water and Sanitation (HWS) Survey of Slums in Mumbai, A Pop Envis Initiative. ISSN No. 09757287, Vol. 12 No. 3 (Special Issue).

Kanmony, J. C. (2003). Drinking water in Kanyakumari. Economic and political weekly, pp. 3633-3636.

Ndugwa, R. P., & Zulu, E. M. (2008). Child Morbidity and Care-Seeking in Nairobi Slum Settlements: The Role of Environment and Socio-Economic Factors. Journal of Child Health Care, 12(4), 314-328.

NSSO (2005), 65th report on 'Slum in India', GOI.

NSSO (2012), 69th report on 'Drinking Water, Sanitation, Hygiene and Housing Condition in India, GOI.

Pongou, R., Ezzati, M., & Salomon, J. (2006). Household and Community Socioeconomic and Environmental Determinates of Child Nutrition Status in Cameroon. Journal of BMC Public, 6, 1-19.

Roy, B. K. (1990). Water in India with reference to agriculture and population: some issues and patterns—dynamic approaches needed for development. GeoJournal, Vol. 20 (3), pp. 271-284.

Sangameswaran, Priya. (2010). Rural Drinking Water Reforms in Maharashtra: The Role of Neoliberalism. Economic and Political Weekly, Vol. 45 (4), pp. 62-69.

Shah, T., & Van Koppen, B. (2006). Is India ripe for integrated water resources management? Fitting water policy to national development context. Economic and Political Weekly, pp. 3413-3421.

State Slum Policy. (2010). Support Programme for Urban Reforms in Bihar, Government of Bihar. http://www.un.org/en/events/waterday/background.shtml

WHO & UNICEF. (2013). Progress on Sanitation and Drinking-water. World health Organization.

WHO and UNICEF. (2006). Meeting the MDG Drinking Water and Sanitation Target: The Urban and Rural Challenge of the Decade. Retrieved from http://www.who.int/water_sanitation_health/monitoring/jmpfinal.pdf

Appendices:

Table 1: Percent distribution of Principal Source of Drinking Water in Indian Households

Principal Source of Drinking Water***	Rural#	Urban#	Total Freq.	Total# %
Bottled Water	1.65	5.18	1759	2.77
Piped water into Dwelling	6.47	35.07	16825	15.52
Piped Water to Yard/Plot	10.44	21.20	13632	13.84
Public/Stand Pipe	14.34	12.80	15183	13.85
Tube Well/Bore Well	52.40	19.89	34796	42.11
Well:				
Protected	2.68	1.08	2444	2.17
Unprotected	8.95	2.21	6411	6.82
Spring:				
Protected	0.39	0.02	968	0.27
Unprotected	0.33	0.02	660	0.23

Rainwater Collection	0.15	0.04	116	0.11
Surface Water:				
Tank/Pond	0.51	0.07	671	0.37
Other Surface Water (River, Dam, Stream, Canal, Lake, etc.)	0.63	0.02	598	0.43
Others(Tanker-Truck, Cart with small tank or drum, etc)	1.07	2.40	1474	1.49
Total	**53386 (68.36%)**	**42151 (31.64%)**	**95537**	**100.00**

*Note: *** Sig. at 1% l.o.s. &# Weighted figures*

Table 1a: Improved sources of Drinking Water in India

Improved Source of Drinking Water***	Rural# (%)	Urban# (%)	Total Freq.	Total# (%)
Bottled Water	1.86	5.44	1759	3.05
Piped water into Dwelling	7.31	36.81	16825	17.12
Piped Water to Yard/Plot	11.79	22.25	13632	15.27
Public/Stand Pipe	16.20	13.44	15183	15.28
Tube Well/Bore Well	59.20	20.87	34796	46.45
Protected Well	3.02	1.13	2444	2.40
Protected Spring	0.44	0.03	968	0.30
Rainwater Collection	0.17	0.04	116	0.13
Total	**46383 (66.74%)**	**39340 (33.26%)**	**85723**	**100.00**

*Note: *** Sig. at 1% l.o.s. &# Weighted figures*

Table 1b: Non-Improved sources of Drinking Water in India

Non-Improved Source of Drinking Water	Rural# (%)	Urban# (%)	Total Freq.	Total# (%)
Unprotected well	77.90	46.84	6411	72.94
Unprotected Spring	2.89	0.42	660	2.50
Surface Water:				
Tank/Pond	4.46	1.47	671	3.98
Other Surface Water	5.45	0.38	598	4.64
Others	9.29	50.89	1474	15.93
Total	**7467 (84.03%)**	**4106 (15.97%)**	**9814**	**100.00**

*Note: *** Sig. at 1% l.o.s. &# Weighted figures*

Table 2: Accessibility to Drinking water by the Indian Households

Drinking Water within premises	Rural[#](%)	Urban[#](%)	Total Freq.	Total[#] (%)
Within Dwelling	16.55	46.32	24315	25.94
Outside Dwelling but within Premises	29.77	31.19	28120	30.22
Out Side the Premises:				
Less than 0.2 km	41.08	18.38	33428	33.92
0.2 to 0.5 km	9.34	2.93	6601	7.31
0.5 to 1.0 km	2.15	0.57	1384	1.65
1.0 to 1.5 km	0.68	0.21	399	0.53
1.5 km or more	0.44	0.40	353	0.43
Total	**52935 (68.45%)**	**41665 (31.55%)**	**94600**	**100.00**

*Note: *** Sig. at 1% l.o.s. &[#] Weighted figures*

Table 3: Method used/accepted to treat the water

Treatment Method	Rural[#] (%)	Urban[#] (%)	Total Freq.	Total[#] (%)
Treatment:				
Electronic Purifier	0.96	13.48	4438	4.92
Boiling	5.90	11.35	11643	7.62
Chemically treated:				
With Alum	0.38	0.54	515	0.43
With Bleach/Chlorine tablets	0.89	0.72	729	0.84
Filtered:				
With Water Filter (Candle, Ceramic, Sand, etc.)	3.50	9.43	8136	5.38
With Cloth	18.64	16.48	15463	17.96
Others	2.04	2.40	1950	2.16
Not Treated	67.68	45.59	52663	60.70
Total	**53387 (68.36%)**	**42150 (31.64%)**	**95537**	**100.00**

*Note: *** Sig. at 1% l.o.s. &[#] Weighted figures*

Table 3a: Water Treatment Method Accepted by those Households, having Improved Source of Drinking Water

Treatment Method	Rural[#] (%)	Urban[#] (%)	Total Freq.	Total[#] (%)
Treatment:				
Electronic Purifier	1.01	13.96	4348	5.32

Boiling	4.07	10.45	8435	6.19
Chemically treated:				
With Alum	0.34	0.52	394	0.40
With Bleach/Chlorine tablets	0.69	0.70	556	0.69
Filtered:				
With Water Filter (Candle, Ceramic, Sand, etc.)	3.58	9.63	7653	5.59
With Cloth	17.38	16.33	13506	17.03
Others	1.81	2.38	1700	2.00
Not Treated	71.12	46.03	49123	62.78
Total	**45915 (66.75%)**	**38041 (33.25%)**	**83956**	**100.00**

*Note: *** Sig. at 1% l.o.s. &# Weighted figures*

Table 4: Quality of Drinking water

Quality of Drinking Water	Rural#(%)	Urban#(%)	Total Freq.	Total#(%)
Bad in Taste	2.95	3.16	2637	3.02
Bad in Smell	1.08	1.10	1082	1.09
Bad in Taste & Smell	2.46	2.77	2341	2.56
Bad due to Other Reasons	5.81	4.83	5538	5.5
No Defect	87.70	88.14	83912	87.84
Total	**53367 (68.36%)**	**42143 (31.64%)**	**95510**	**100.00**

*Note: *** Sig. at 1% l.o.s. &# Weighted figures*

Table 4a: Quality of Drinking Water by those Households, having Improved Source of Drinking Water

Quality of Drinking Water	Rural#(%)	Urban#(%)	Total Freq.	Total#(%)
Bad in Taste	3.01	3.19	2400	3.07
Bad in Smell	1.00	1.15	985	1.05
Bad in Taste & Smell	2.43	2.86	2145	2.57
Bad due to Other Reasons	5.55	4.86	4795	5.32
No Defect	88.01	87.94	75367	87.99
Total	**45896 (66.74%)**	**38037 (33.26%)**	**85692**	**100.00**

*Note: *** Sig. at 1% l.o.s. &# Weighted figures*

Table 5: Quality of Drinking Water - stagnant water around sources

Is there any Stagnant Water around Source	Rural#(%)	Urban#(%)	Total Freq.	Total#(%)
Yes	18.72	11.36	9786	17.44
No	81.28	88.64	48801	82.56
Total	**40465 (82.52%)**	**18122 (17.48%)**	**58587**	**100.00**

*Note: *** Sig. at 1% l.o.s. &# Weighted figures*

Table 5a: Stagnant Water Around Source by those Households, having Improved Source of Drinking Water

Any Stagnant Water around Source	Rural# (%)	Urban# (%)	Total Freq.	Total# (%)
Yes	18.85	11.69	8760	17.54
No	81.15	88.31	43434	82.46
Total	**35625 (81.67%)**	**16569 (18.33%)**	**52194**	**100.00**

*Note: *** Sig. at 1% l.o.s. &# Weighted figures*

Table 6: Drinking water is taken out from Main Container with

How drinking water is taken out from main container	Rural# (%)	Urban# (%)	Total Freq.	Total# (%)
Through Tap	3.50	19.21	8848	8.56
Vessel with Handle	16.89	22.29	21996	18.63
Vessel without Handle	63.45	43.28	44610	56.95
Poured Out	16.17	15.23	15356	15.86
Total	**50402 (67.76%)**	**40408 (32.24%)**	**90810**	**100.00**

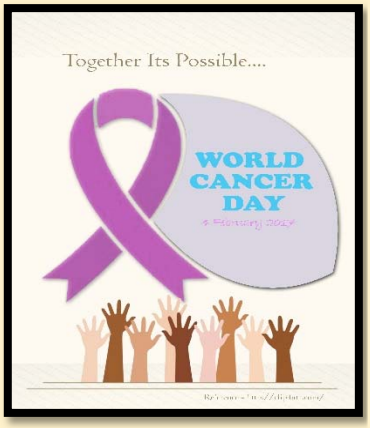
*Note: *** Sig. at 1% l.o.s. &# Weighted figures*

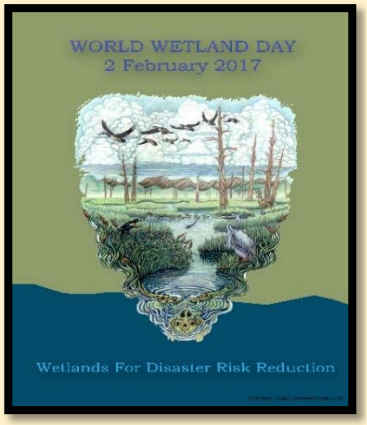
Table 6a: Method of Drinking Water is taken out from container by those Households, having Improved Source of Drinking Water

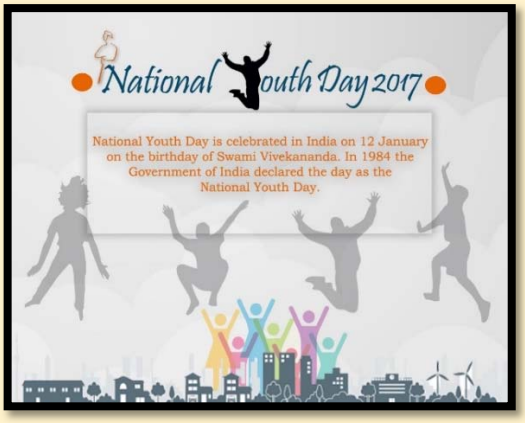
How drinking water is taken out from main container	Rural# (%)	Urban# (%)	Total Freq.	Total# (%)
Through Tap	3.73	19.81	8509	9.20
Vessel with Handle	16.54	22.18	19172	18.46
Vessel without Handle	64.14	43.12	40247	56.99
Poured Out	15.59	14.89	13131	15.35
Total	**43428**	**37631**	**81059**	**100.00**

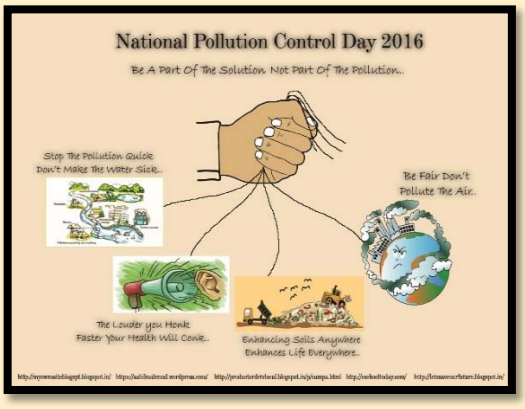
*Note: *** Sig. at 1% l.o.s. &# Weighted figures*

Poster Designed by Pop-Envis Project









World Soil Day & National Pollution Control Day Celebration

Event

On the occasion of **World Soil Day& National Pollution Control Day** IIPS, POP-ENVIS conducted painting competition on 19th and 20th of Dec 2016 in six different schools of Atomic Energy Central School (AECS), Anushakti Nagar, Mumbai. The objective of this competition was to create awareness on pollution prevention and importance of soil.

Participation:

The event was conducted for students of class I to X, divided into three groups in each school. Group 1 consisting of class I to V, Group 2 consisting of class VI to VIII and Group 3 consisting of class IX to X. We received a total of 321 entries, 99 from Group 1, 100 from Group 2 and 77 from Group 3.

Painting Competition held on 19th& 20th Dec 2016

Painting Exhibition conducted at IIPS campus for IIPS staffs and Students

Jury members - Dr. Laishram Ladu Singh, Dr. Archana K. Roy and Dr. Dhananjay W. Bansod finalizing winners

Winners of Group I	Winners of Group II	Winners of Group III
		
1st Prize – Pranjal Gurnule, STD-V, AECS No. 4	1st Prize – Swastik Ray, STD-VI, AECS No. 2	1st Prize – Vaishnavi Maruti Patil, STD-X, AECS No. 5
		
2nd Prize – Shrinavya Chitturu, STD-V, AECS No. 1	2nd Prize – Priyanka Gupta, STD-VII, AECS No. 2	2nd Prize – Raj U. Kolambekar, STD-X, AECS No. 5

3rd Prize – 3rd Prize – Avnish Patro, STD-IV, AECS No. 4

3rd Prize – Ridddhidipta Pal, STD-VIII, AECS No. 2

3rd Prize – Abin Benny, STD-X, AECS No. 3

Prize Distributed to winner on the occasion of National Cleanliness Day

1st Prize – Swastik Ray, STD-VI, AECS No. 2

2nd Prize – Priyanka Gupta, STD-VII, AECS No. 2

3rd Prize – Ridddhidipta Pal, STD-VIII, AECS No. 2

1st Prize – Vaishnavi Maruti Patil, STD-X, AECS No. 5

2nd Prize – Raj U. Kolambekar, STD-X, AECS No. 5

3rd Prize – Abin Benny, STD-X, AECS No. 3

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