# Water Collection & Consumption behaviour in Rural Haryana

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#### Abstract

Provision of safe water supply is one of the most effective tools to improve the health status of the communities. It has been estimated that the burden of sickness in the world would be reduced by nearly 80% if it were possible to supply safe water to people everywhere. As of 2005, 12% of India's population or127million people (92million in villages &35 million in towns) were without clean drinking water supply. Intensive national and international efforts are being made to have potable water for all by the year 2010.

Latest assessment indicates that about 80% of rural population in India has access to safe drinking water & 36% has access to adequate sanitation facilities, out of which 9% is in rural area. About 70% of the population was using water from wells for drinking & cooking purposes and 8-19% from piped water supply and about 10-20% from hand pumps. The average distance traveled to fetch water from wells was about 1/2 -1 k.m., from piped water 300-400 m, & from hand pumps was 600-1400 m. It consumed 1 1/2; -2 hrs to fetch a bucket/pitcher of water from the source. Problems faced were like irregular supply (80%), less taps (80%), poor maintenance and fight at the source (90%), besides some personal factors.

## INTRODUCTION

Next to air, water is a necessity of life. We can not live without it for more than a few days, just as without air we cannot live for more than a few minutes. The United Nations has recognized access to water as a basic human right, stating that water is a social and cultural good, not merely an economic commodity 1. The availability of water resources in various river basins of the country is highly uneven. While 32% of the total water resources are still available in the Brahmaputra basin, and 28% of the total water resources in the Ganga basin, this availability is merely 0.2% in the Sabarmati basin 2. The water scarcity in river basins is growing fast with increase in population. The average annual precipitation is estimated to be 4000 billion cubic meters. Only 1000 billion m<sup>3</sup> / year of water is available as usable surface water and ground water. At present the water consumption in India is about 750 billion m<sup>3</sup>/year for all the applications, viz. agricultural, industrial, domestic and commercial 3. A region where renewable fresh water availability is below 1700 cubic meters/capita/annum is a 'water stress' region, and one where availability falls below 1000 cubic meters/capita/annum experiences chronic 'water scarcity'. Given the projected increase in population by the year 2025, the per capita availability is likely to drop to

below 1,000 cubic meters i.e., to levels of water scarcity. 4,5

Moreover, a large number of villages in various parts of the country are known to be suffering from excess salinity, fluoride, nitrate, iron, arsenic and microbial contaminations of ground water. These invariably lead to widespread water borne diseases and cause enormous hardships to the inhabitants.

The case of India is interestingly different from dominant western paradigm. In this country, nearly thirty percent population lives below the poverty line. Consequently, government has to give greater emphasis on 'subsistence' rather than 'sustainable' 6. Till April 2006, more than 1.4 million habitations were covered under national rural water supply programme  $_7$ . Over emphasis is given on population coverage rather than on continued functioning and utilization of the existing facilities. Lack of effective back-up support to communities particularly after the completion of the project and lack of community participation resulted in the near failure of the schemes in the past. Moreover because of improper behaviour regarding maintenance and utilization of resources the consequent loss in terms of economy and productivity is great and is difficult to access. The present study was conducted to know the water consumption pattern

of the rural people.

## AIMS AND OBJECTIVES

To know the different sources of water and consumption behaviour related to them.

To find out the difficulties encountered regarding consumption of piped (chlorinated) water.

# MATERIAL AND METHODS

The study was a cross-sectional type of descriptive epidemiological study conducted in Block Beri (distt. Jhajjar), field practice area attached to department of Community Medicine, Pt B. D. Sharma PGIMS, Rohtak between November 2003 to March 2004. Two stage simple random techniques were used for sampling. Initially 15 anganwaris were selected by simple random sampling technique using lottery method from existing 114 anganwaris of the block and subsequently 70 females residing in the selected anganwaris were chosen (also by simple random sampling technique using sub-centre registers) for the study to get a total sample size of 1050.

Data collection and statistical analysis: Data was collected by interviewing the females by house to house visits. Percentages and chi-square test were applied to analyze the data.

# RESULTS

Latest assessment indicates that about 73.2 % of rural population in India has access to safe drinking water & 49.6% has not any type of toilet in their houses.  $_{8}$ 

#### Figure 1

Table 1: Accessibility to safe drinking water.

Place	Urban (%)	Rural (%)	Total (%) 77.9 86.1		
India	90	73.2			
Haryana	97.3	81.1			

About 70% of the population was using water from wells, 8-9% from piped water supply and about 10-20% from hand pumps, for drinking & cooking purposes. Piped water was mainly used by higher caste females for washing clothes, bathing and washing utensils and in the same order by lower caste females but in small proportion as compared to higher caste females which may be due to less availability of piped water in their houses. For drinking purposes the consumption of piped water was the least.

#### Figure 2

Table 2: Consumption behaviour related to different sources of water among study subjects (n = 1050).

SOURCE OF WATER	Cooking & Drinking		Washing Clothes		Washing Utensils		Bathing	
	High Class	Low	High	Low	High	Low	High	Low
Wells	70.8	70.9	9.8	46.8	47.8	61.2	26.0	51.7
Piped water	8.3	9.3	77.2	42.7	43.4	29.0	60.0	37.9
Hand Pump	20.9	19.8	12.0	10.5	8.8	9.8	14.0	10.4

Problems faced were like irregular supply, less taps, poor maintenance and fight at the source, besides some personal factors such as taste.

## Figure 3

Table 3: Difficulties encountered regarding consumption of piped water by study subjects (n = 1050).

Difficulties	High Class	Low Class		
Less taps	81.8	83.8		
Irregular supply	81.2	82.1		
Poor Maintenance	86.3	77.4		
"Fights" at source	90.9	83.2		
Not 'tasty'	45.4	58.0		

#### DISCUSSION

In our study it was observed that the groundwater is the main source of drinking water. Reason may be that it has been available freely and easily and could be obtained flexibly from all available sources ((open-well, tube-wells, pond, river, lake, stream, canal, spring etc). The piped water available in the region is also made available by the treatment of water taken from the ground water resources, like - canals, tube-wells etc. While developing groundwater resources promises to help in poverty removal in many areas, the most formidable groundwater challenge is to attain the sustainable use and management of groundwater in vast and growing regions where the resource is under severe threat 6. In our study also it was reflected that poor maintenance and fights at source were the major difficulties faced, for which water scarcity may be the underlying reason.

Some authors had focused mainly on the interaction between society and the environment, covering the social factors that lead to environmental degradation and the influence of the environment on social conditions  $_{9,10,11}$ . It has been observed

that social institutions, cultures and beliefs of the people had bearing upon everyday water consumption pattern of the people  $_6$ . In our study we also found that poor taste of the water was the reason in more than 45% of the females for the non-consumption of piped water for drinking purposes and piped and chlorinated water was mainly used for washing and bathing purposes, because of its bleaching action.

Level of awareness can also determine the consumption patterns, which in turn ascertain the demand for infrastructure. In our study we can say that lack of awareness about the drinking water safety was the main reason for the faulty consumption behaviour mainly influenced by social and cultural beliefs.

Provision of safe drinking water is one of the important tools to decrease morbidity and mortality in the community. There is need to adapt the systems to suit local conditions, requirements and socio-cultural environment. Effective back-up support is vital. Planners should find an appropriate technology through the use of appropriate procedures for community involvement.

A holistic approach is therefore called for to cope with the fresh water needs of the country in the coming decades. These involve <sub>3</sub>;

i) Large water supply schemes to meet the urban as well as rural needs of water for both irrigation and drinking, and piped water supply schemes for drinking water;

ii) Rain water harvesting and artificial recharge of ground water sources;

iii) Treatment of chemically and biologically contaminated ground water sources in rural areas for provision of safe potable water;

iv) Augmentation of water resources in coastal areas by large scale desalination of abundant sea water, and

v) Treatment of domestic/industrial effluents and recycling of usable water for irrigation and commercial purposes thereby diverting the water used in these areas for domestic consumption.

We should bridge the existing knowledge gap and seeks an integrated approach for Indian society, which combines micro (individual level) and macro (institutional level) perspectives to understand sustainable water consumption.

#### References

1. Sampath A et al. Association for India's Development [updated 2005 Jan 7; cited on 2008 Oct 12]. Water Privatization and Implications in India [17 screens]. Available from:

URL:http://studentorgs.utexas.edu/aidaustin/water/water 2. RoulAAre Interbasin Water Transfers a Solution? by [updated 2006 March 14th,cited on 2008 Oct12]. India's Water Future. Available from:

URL:http://ecoworld.com/features/2006/03/14/indias-water-future/

3. Technologies for Better Quality of Life. [updated 2006 March 14th, cited on 2008 Oct12]. WATER. Technology Transfer & Collaboration Division Bhabha Atomic Research Centre, Trombay. Available from: URL: http://www.dae.gov.in/publ/betrlife/water/water.pdf. 4. Sharma S. Water Resources: Background and Perspective. Info Change News and Features, [updated 2003April, cited on 2008 Oct12]. Available from: URL: http://www. infochangeindia.org /WaterResourceIbp .jsp 5. Falkenmark, Malin and Widstrand C. Population and Water Resources: A Delicate Balance. Population Bulletin1992. Population Reference Bureau, 1992. 6. Swarnakar P and Sharma AK. Understanding Environmental Concerns: An Indian Experience of Sustainable Domestic Water Consumption[updated 2003April, cited on 2008 Oct12]. Available from:URL: http://www.michaelmbell.net/suscon-abstracts/swanarkar-ab s.doc.

7. CBHI. Socio-economic indicators. In: National health profile 2007. New Delhi (Ind ): MOHFW, GOI; 2007.p28 8. CBHI. Socio-economic indicators. In: National health profile 2007. New Delhi (Ind ): MOHFW, GOI; 2007.p40 9. Dunlap, R. E. and W. R. Catton, Jr. Environmental Sociology. Annual Review of Sociology1979 ;( 5):243-73. 10. Catton, W. R., Jr. and R. E. Dunlap. A New Ecological Paradigm for Post-Exuberant Sociology. American Behavioral Scientist 1980 ;( 24):15-47.

Behavioral Scientist 1980 ;( 24):15-47. 11. Dunlap, R. E., Kent D. Van Liere, A. G. Mertig and R. E. Jones. Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale. Journal of Social Issues 2000 ;( 56): 425-42.

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