
LEVEL OF DRINKING WATER QUALITY & ITS EFFECT ON HUMAN HEALTH IN HARYANA

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INTRODUCTION

The water is a necessary thing for humans being, without water nobody can survive in this environment. The water is a transparent and colorless substance. The water covers 71 percent of earth surface, in which 96.5 percent in seas and oceans, 1.7 percent in ground water and 1.7 percent in glaciers and ice caps.

It is a well-known fact that clear water is absolutely essential for health living. Adequate supply of fresh and clear drinking water is a basic need for all human being on the earth, yet it has been observed that millions of people worldwide are deprived of this.

WATER SOURCE IN HARYANA:

The yield potential characteristics of aquifers, the state can be divided into three zones. The first one compares of 26090 sq.km in parts of Sirsa, Hisar, Bhiwani, Mahendragraha and Jind districts, where tube wells can yield 50 m³/hr. the second one falls in parts of Hisar, Kurukshetra, Karnal, Bhiwani and Gurgaon districts, covering an area of 7100 sq.km tube wells in this zone, can yield between 50-150 m³/hr. the third one extends by 9200 sq.km in parts of Ambala, Kurukshetra, Karnal and Sonapat districts, where the yield varies between 150-200 m³/hr. An area of 1600 sq.km into parts of Gurgaon, Bhiwani and Mahendragraha districts is underlain by consolidated formations, where the yield prospects of aquifers are limited.

GROUNDWATER QUALITY IN HARYANA:

The Quality of groundwater in Haryana is not a good level, this is a big issue. On other hand Natural quality of ground water is dependent on geological characteristics and climatic conditions. It is further influenced and generally degraded by human activities. Indiscriminate extraction of groundwater for day to day uses, application of fertilizers in agriculture and unscientific disposal of industrial waste have great impact on ground water quality. The quality of ground water is normally ascertained through concentration values of number of physical, chemical and biological parameters present in it. Concentration of these parameters affects its acceptability and usefulness for domestic, agriculture, industrial and other purposes. It is, therefore, essential to know the chemical composition of ground water to determine its suitability for the intended use. Knowledge of quality of ground water not only helps in finding its suitability for various purposes, but it also helps in taking effective remedial measures for its improvement on scientific lines. In rural as well as in urban area of Haryana State, ground water is a major resource for drinking and other uses. Wherever surface water is inadequate or unavailable, ground water is exploited for drinking and irrigation purposes. In the backdrop of various uses of ground water, its quality is monitored annually by CGWB, NWR Chandigarh through dedicated ground water monitoring stations (GWMS) of dug wells and/or hand pumps of shallow depth.

CHEMICAL COMPOSITION IN GROUNDWATER IN HARYANA:

In Haryana 358 water samples were collected in 1-liter capacity good quality polyethylene bottle from National ground water monitoring stations distributed over 21 districts of Haryana during May 2014 and the result is very bad.

DISTRIBUTION OF CHLORIDE:

The distribution of chloride in ground water follows the distribution pattern of EC and it ranges from 6.7mg/l to 5088 mg/l. Chloride above 400 mg/l, in drinking water, may give salty taste to consumers. Bureau of Indian Standards (BIS 2012) has assigned a desirable concentration of 250 mg/l chlorides in drinking water. This limit can be extended to 1000mg/l in case no other source with desirable chloride concentration is available. Out of 358 samples analyzed, 62% have chloride below desirable limit (250mg/l), 31% have between desirable and permissible level (250-1000 mg/l) and the remaining 7% of samples have chloride more than the permissible limit of 1000 mg/l. Spatial distribution of chloride in ground water indicates that few sites at Bhiwani, Gurgaon, Hisar, Jhajjar, Jind, Kaithal, Mewat, Palwal, Rohtak and Sonapat districts have chloride concentration above 1000 mg/l. High concentration of chloride is mostly observed in samples having high sodium content indicating highly saline nature of these shallow ground waters.

DISTRIBUTION OF NITRATE:

Presence of nitrate above 5.0 mg/l in ground water reflects contamination at some stage of its percolation and circulation. The probable major sources of nitrate content in ground water are excessive application of fertilizers, bacterial nitrification of organic nitrogen, seepage from animal and human wastes and atmospheric inputs. In the State, nitrate varies from nil to 852mg/l. Exceptionally high concentration of are encountered at Bas (1270mg/l) district Hisar, Wazirpur (1452 mg/l), district Jhajjar, Dadri (1683 mg/l), district Bhiwani and Dighal (1844 mg/l) in Jhajjar district. Spatial distribution of nitrate indicates that nitrate is less than 45 mg/l in majority of the areas (Plate). Out of 358 samples analyzed, 72% of the samples have nitrate within BIS limit of 45 mg/l for drinking waters and 28% have nitrate more than 45 mg/l. Out of these 31% samples, 57% of samples, mostly from districts of Ambala, Bhiwani, Gurgaon, Hisar, Jhajjar, Jind, Kaithal, Palwal, Panipat, Rewari, Rohtak, and Sonapat districts have nitrate contents even more than 100mg/l.

DISTRIBUTION OF FLUORIDE:

Fluoride, in small amounts in drinking water, is beneficial in reducing dental decay but when present in large amounts, has deleterious effects ranging from staining of tooth enamel to skeletal fluorosis. The fluoride contents in ground water of the State ranges from 0.08 to 20.0 mg/l at Kurlan in Karnal district. Spatial distribution of fluoride indicates that fluoride is less than 1.5 mg/l in 70% samples. It is between 1.0 and 1.5 mg/l in 9% samples and is above 1.5 mg/l in the remaining 21% samples. Ground waters with fluoride above 1.5 mg/l are found mostly in parts of Bhiwani, Fatehabad, Gurgaon, Hisar, Jhajjar, Jind, Kaithal, Palwal, Panchkula, Rohtak, Sirsa and Sonapat districts (Plate) and are not suitable for drinking purpose. At many places, fluoride above 1.5 mg/l is observed in areas where agricultural activities are dominant. The likely causes for high fluoride in ground water are (i) leaching from phosphatic fertilizers where it is present as an impurity and (ii) depletion of calcium either due to precipitation or exchange phenomenon.

DRINKING WATER SUPPLIED BY GOVERNMENT OF HARYANA:

The drinking water of Haryana is not safe as good criteria. Most of water supplied by Haryana Govt. is depends on canal system, and the canal system is a open system so most of people who lives in rural area and bank of canal they dump their waste in canal so the water is polluted and without any special treatment same water is supplied by Govt. of Haryana second the tank system of Haryana P.W.D works is worst . the water tank also open every time so the water is being polluted every time if any one use this kind of water so definitely they suffering most of disease like Typhoid, Cholera, Hepatitis , Dental problem and Skin problem. Jaundice etc.

EFFECT ON HUMAN HEALTH:

Many people do not have enough water to meet their daily needs. When there is not enough water to wash, people can get infections such as scabies and trachoma. Not having enough water to drink and Wash with can also cause infections of the bladder and kidneys, especially in women. (To learn more about these illnesses,

see *Where There Is No Doctor, Where Women Have No Doctor*, or another general health manual.) In hospitals and other health centers, if there is not enough water for washing, cleaning and other needs infections can spread from person to person. Especially for children.

Water is used to reduce fevers and to clean wounds and skin infections. Drinking a lot of water helps to prevent and treat diarrhea, urinary infections, coughs, and constipation. Washing hands with soap and water after using the toilet and before eating or handling food also helps prevent many illnesses. On other hand unsafe Water contains germs, worms, or toxic chemicals. Germs and worms, such as whipworm, hookworm, and roundworm, cause many serious illnesses.

DENTAL PROBLEMS:

In Haryana every 2nd person is suffering from dental disease. Level of fluoride is very high in Haryana. Fluoride in the water is essential for protecting against dental caries and weakening of the teeth and bone also.

HAIR LOSS:

A healthy head of hair usually means moist and vibrant tresses. But, washing with contaminated water (and repeating) can literally wash away those locks. There are several water contaminants that can cause hair loss. One is selenium, which is an element found in other ores. Most commonly, this element gets into the water system from run-off from petroleum refineries and from mine discharge. However, this element is also found in compounds that make photocopier equipment. According to the Environmental Protection Agency (EPA), the best way to remove this element is by a reverse osmosis water filter.

BLADDER AND KIDNEY PROBLEM:

People who do not drink enough water can easily develop bladder and kidney disorders due to the heavy concentration of urine that is passed.

BLADDER:

It almost seems like a paradox. The bladder aids in the passing of fluid from our body. Yet, to remain healthy, it needs water. The urinary bladder is a hollow organ made up of elastic muscle fibers, which allow it to expand without damage. Ordinarily, the bladder has the capacity to hold up to 750ml of fluid. According to the amount of fluid collected, pressure is exerted on the walls of the bladder and, as it mounts, this triggers the feeling of needing to pass water, or urinate. A bladder infection (or urinary tract infections, UTI), caused by bacteria getting into the urine, creates the same urge, but often the patient is able to produce only a few drops of water while suffering pain and discomfort. This discomfort is avoidable. Drinking the recommended 6-8 glasses of water a day will keep the bladder active and bacteria-free. Also, avoiding coffee, tea, carbonated beverages and alcohol can help, as they irritate the bladder and cause a slight amount of bleeding to occur. When bleeding occurs, bacteria may enter the blood vessel.

OTHER DISEASE:

The other disease included namely Typhoid, Cholera, Hepatitis, Dental problem, Skin problem and Jaundice etc. Exposure to polluted water can cause diarrhoea, skin irritation, respiratory problems, and other diseases, depending on the pollutant that is in the water body. Stagnant water and other untreated water provide a habitat for the mosquito and a host of other parasites and insects that cause a large number of diseases especially in the tropical regions. Among these, malaria is undoubtedly the most widely distributed and causes most damage to human health.

CONCLUSION

Water-borne epidemics and health hazards in the aquatic environment are mainly due to improper management of water resources. Proper management of water resources has become the need of the hour as this would ultimately lead to a cleaner and healthier environment.

In order to prevent the spread of water-borne infectious diseases, people should take adequate precautions. The city water supply should be properly checked and necessary steps taken to disinfect it. Water pipes should be regularly checked for leaks and cracks. At home, the water should be boiled, filtered, or other methods and necessary steps taken to ensure that it is free from infection.

REFERENCES:

1. Haryana at a Glance". *Government of Haryana*. Retrieved 1 March 2016.
2. Groundwater in Urban Development". *Wds.worldbank.org*. Retrieved 2009-03-12.
3. "Earth's water distribution". United States Geological Survey. Retrieved 2009-05-13.
4. Annette Prüss; et al. (May 2002). "Estimating the Burden of Disease from Water, Sanitation, and Hygiene at a Global Level" (PDF). *Environmental Health Perspectives*. **110** (5): 537–542. doi:10.1289/ehp.02110537.
5. "Water Quality Database of Indian rivers, MoEF". Retrieved 15 September 2016.
6. "Guidelines for Drinking-water Quality, 4th Edition" (PDF). World Health Organization. 2011.
7. "Burden of disease and cost-effectiveness estimates". World Health Organization. Retrieved April 5, 2014.
8. Progress on Sanitation and Drinking-water: 2010 Update, UNICEF, WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, ISBN 978-92-4-156395-6
9. Centers for Disease Control and Prevention (CDC) (October 1998). "Outbreak of cryptosporidiosis associated with a water sprinkler fountain—Minnesota, 1997". *MMWR Morb. Mortal. Wkly. Rep.* **47** (40): 856–60. PMID 9790661
10. "Pollution of groundwater". *Water Encyclopedia, Science and Issues*. Retrieved 21 March 2015.
11. DiGiulio, Dominic C.; Jackson, Robert B. "Impact to Underground Sources of Drinking Water and Domestic Wells from Production Well Stimulation and Completion Practices in the Pavillion, Wyoming, Field". *Environmental Science & Technology*. **50** (8): 4524–4536.