

HOUSEHOLD WATER QUALITY, SOURCES, STORAGE AND TREATMENT IN KORANGI AND LANDHI TOWN OF KARACHI

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ABSTRACT

Water is essential human need in world there is a lack of awareness regarding water sources, storage, treatment and the quality of drinking water. This study aimed to study and compare the quality sources, storage and treatment of drinking water in Korangi and Landhi towns in Karachi. A random 50 sample 25 from each town the data was obtained. The tools used to collect data through observation cum questionnaire through survey method. The research concludes that both Korangi and Landhi Town has no difference in their quality of household water. But they have some difference in storage, sources and treatment.

Keywords: *Water quality, Karachi, Water storage*

1. INTRODUCTION

Water covers over 71% of the earth's surface and found to be a very important natural resource for people (National Environment Research Council, 2007). Yet, only 2.5% of the earth's water is fresh and thus suitable for consumption. Not only that, but of that 2.5%, more than two-thirds is locked away in glaciers and not particularly able to help meet the growing demands of society (Ward, 2003).

Universally, necessity for freshwater will continue to increase significantly over the coming decades to meet the needs of increasing populations, growing economies, changing lifestyles and developing drinking forms. This will greatly increase the pressure on limited natural resources and ecosystems. Unsafe water and sanitation reason for almost one tenth of the global problem of disease (Fewtrell, 2007). Total 768 million and 2.5 billion people in the world are living without access to clean water and proper sanitation, respectively (UNICEF, 2013a; WHO, 2002). According to the World Commission on water for the 21st century, more than half of the world's major rivers are depleted and contaminated to the extent that they threaten human health and poison the surrounding ecosystems (Interpress, 1999). Contaminated drinking water can cause various diseases such as typhoid fever, dysentery, cholera and other intestinal diseases (Adeyemi, 2004; Dixit & Shanker, 2009; Udoh, 1987).

In developing countries, about 1.8 million people, mostly children, die every year as a result of water related diseases (Onda, LoBuglio, & Bartram, 2012; Payen, 2011; UNICEF, 2013a; WHO, 2006; WHO, 2011; Wolf, Bonjour, & Prüss-Ustün, 2013).

In Pakistan, water supply coverage through piped network and hand pumps is around 66%. It is estimated that, in Pakistan, 30% of all diseases and 40% of all deaths are due to poor water quality. Diarrhea, water borne disease is reported as the leading cause of death in newborns and children in the country while every fifth citizen suffers from illness and disease caused by the polluted water. Unfortunately, little attention is being paid to drinking-water quality issues and quantity remains the priority focus of water supply agencies. There is a lack of drinking-water quality monitoring and surveillance programmed in the country. Weak institutional arrangements, lack of well-equipped laboratories and the absence of a legal framework for drinking-water quality issues have serious situation (Haydar, Arshad, & Aziz, 2009)

The quality of drinking water I have selected Landhi and Korangi Town because of high number of water diseases identification in this locality (Indus Hospital Korangi Sources). There is the lack of town wise researches in Karachi, Pakistan. My Aim is to get into the knowledge of concern Authorities about the quality of Water in my related town to take positive action in this regard. This study is beneficial for the people of Landhi and Korangi Town as well as the Water Board to judge the quality and distribution cycle of water in this locality.

2. METHODOLOGY

The data was collected convenient from the subject of this research study were the household water quality in Korangi and Landhi towns of Karachi. With a convenient 50 sample 25 from each town the data was obtained. The study will be conduct through the questionnaire cum interview through survey method. The tool use for this research is questionnaire, survey from local resident and sterilized bottle from collection.

3. RESULTS

The Korangi and Landhi Town have around 9 and 12 union councils having the population size of 546504 and 666748 respectively. The household in this locality have around 3264 and 4850(approximate). The water is supplied through line water.

According to the research statistics 60% people used piped water as a main source of drinking in Korangi town. Whereas, in Landhi town 92% peoples use piped water as a main source. While 44% of Household of Korangi town use bottle to store their drinking water, 28% used barrel or drum and 20% used bucket for storage purpose. In comparison 28% used bottle, 36% of household uses bucket to store drinking water in Landhi town. As comparison of the storage of water both towns are following different sources to store water for daily purpose. According to the lab test report from COD Hill Lab Unit, Karachi Water and Sewerage Board 88 % of Korangi town found satisfactory water quality where as 88% of Landhi town respectively.

The study reveals the fact while comparison of water smell in both towns according to the study, in Korangi town 36% household comments on musty water smell whereas, 32% smell chemical and 16% report chlorine smell respectively. In Landhi town 28% call musty smell, 32% chemical smell and 8% report for chlorine smell while drinking water.

Furthermore, the study about the household treatment regarding the efforts to make it safe for their family. According to the statistics of Korangi and Landhi town 16% and 4% household boiled water, 12% and 8% add chlorine, 12% in both town using the technique of strain it through a cloth, 0% and 4% using three pot method and 4% using solar disinfection and sedimentation to make water more safer and clear for drinking purpose.

Table 1. Water source

Towns	Korangi Town		Landhi Town	
	Yes	No	Yes	No
Shared Tape	0%	100%	4%	96%
Well	0%	100%	0%	100%
Hand Pump	4%	96%	0%	100%
Piped	60%	40%	92%	8%
Water Board Supply	40%	60%	28%	72%
Water Bottle	4%	96%	0%	100%
Tanker	0%	100%	4%	96%

Table 2. Water storage

Towns	Korangi Town		Landhi Town	
	Yes	No	Yes	No
Bucket	20%	80%	32%	66%
Barrel/Drums	28%	72%	36%	64%
Clay Pot	8%	92%	4%	96%
Sauce Pan	0%	100%	0%	100%
Jug	0%	100%	4%	96%
Kettles	0%	100%	0%	100%
Bottles	44%	56%	28%	72%
Any Other	0%	100%	0%	100%

Table 3. Water Quality

Towns	Korangi Town		Landhi Town	
	Yes	No	Yes	No
Any Unpleasant	72%	28%	44%	56%
Sulphur Taste	4%	96%	0%	100%
Metallic Taste	4%	96%	16%	84%
Soapy Taste	0%	100%	0%	100%
Bitter Taste	0%	100%	8%	92%
Oily Taste	0%	100%	0%	100%
Any Other	4%	96%	4%	96%

Table 4. Water Treatments

Towns	Korangi Town		Landhi Town	
	Yes	No	Yes	No
Boil	16%	84%	4%	96%
Add Bleach	0%	100%	0%	100%
Chlorine	12%	88%	8%	92%
Strain it through a cloth	12%	88%	12%	88%
use a water filter	0%	100%	0%	100%
Solar Disinfection	4%	96%	0%	100%
Sedimentation	4%	96%	12%	88%
Three Pot Method	0%	100%	4%	96%
Any Other	0%	100%	0%	100%

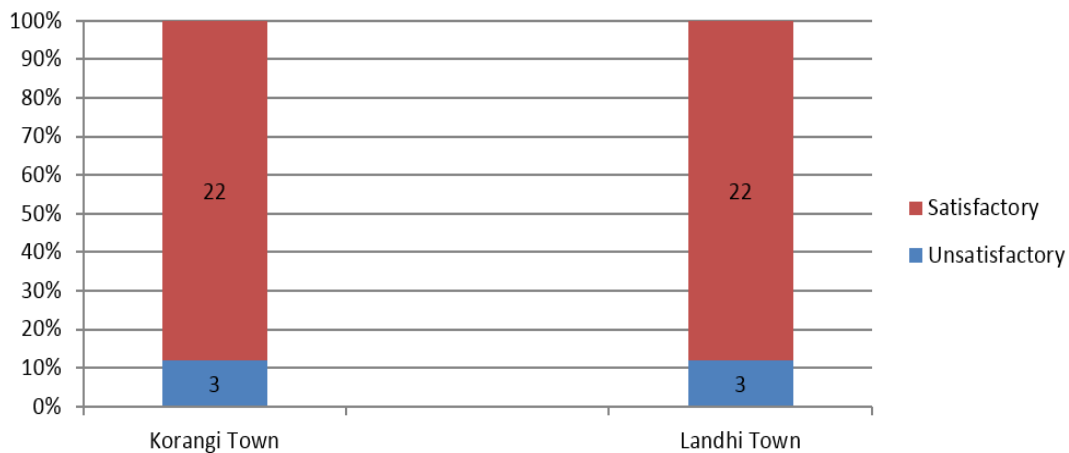


Figure 1. Quality of Drinking Water.

4. DISCUSSION

According to research it is clear that both urban and rural drinking water supplies in Pakistan are largely contaminated and pose serious health risks to the consumer. To ensure safe water supplies for drinking, there is need to formulate an effective management strategy (Aziz, 2005). While as comparison of this study reveals the fact that the quality of drinking water in both Korangi and Landhi town of Karachi 88% are satisfied and 22% are unsatisfied to drink.

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CONFLICT OF INTEREST

The authors declare that they have no competing interests.

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REFERENCES

- Adeyemi, O. (2004). Oil exploration and environmental degradation: The Nigerian experience. *Environmental Informatic Archives*, 2, 389-393.
- Dixit, U., & Shanker, R. (2009). Detection of water-borne pathogens: Culture plate to genomics. *Indian Journal of Science and Technology*, 2(11), 59-71. Available at: <https://doi.org/10.17485/ijst/2009/v2i11.16>.

- Fewtrell, L. (2007). *Water, sanitation and hygiene: quantifying the health impact at national and local levels in countries with incomplete water supply and sanitation coverage*. Geneva: World Health Organization.
- Haydar, S., Arshad, M., & Aziz, J. (2009). Evaluation of drinking water quality in urban areas of Pakistan: A case study of Southern Lahore. *Pakistan Journal of Engineering and Applied Sciences*, 5, 16-23.
- Interpress, I. P. (1999). Most rivers in the world are polluted (pp. 38-41). Washington D.C: Inter-press Service Wire Service.
- National Environment Research Council. (2007). *The oceans: Scientific certainties and uncertainties*.
- Onda, K., LoBuglio, J., & Bartram, J. (2012). Global access to safe water: Accounting for water quality and the resulting impact on MDG progress. *International Journal of Environmental Research and Public Health*, 9(3), 880-894. Available at: <https://doi.org/10.3390/ijerph9030880>.
- Payen, G. (2011). *Worldwide needs for safe drinking water are underestimated: Billions of people are impacted*: Aquafed.
- Udoh, R. (1987). Geographical regions of Nigeria, Ibadan (pp. 22-27). Nigeria, Ibadan: Heinemann Educational Books (Nigeria) Ltd.
- UNICEF, W. A. (2013a). *Joint monitoring programme: The different faces of disparity in access to water and sanitation*. New York: UNICEF, WHO.
- Ward, A. (2003). Weighing earth's water from space. in NASA Earth Observatory.
- WHO, W. H. (2002). Quantifying selected major risks to health. In: *The World Health Report 2002: Reducing risks, promoting healthy life* (pp. 47-49). Geneva: World Health Organization.
- WHO. (2006). *Guidelines for drinking-water quality, incorporating first addendum*.
- WHO. (2011). *Valuing water, valuing livelihoods: Guidance on social cost-benefit analysis of drinking-water interventions, with special reference to small community water supplies*: John Cameron, P. H.
- Wolf, J., Bonjour, S., & Prüss-Ustün, A. (2013). An exploration of multilevel modeling for estimating access to drinking-water and sanitation. *Journal of Water and Health*, 11(1), 64-77. Available at: <https://doi.org/10.2166/wh.2012.107>.