



HEALTH EFFECTS OF WATER POLLUTION

Prof. (Dr.) P. S. Kamble¹, Mr. Amol Chandrakant Kamble²

¹Senior Professor, Department of Economics, Shivaji University, Kolhapur

²Research student, Department of Economics, Shivaji University Kolhapur.

ABSTRACT

DOI No: 10.36713/epra11200

Article DOI: <https://doi.org/10.36713/epra11200>

Water is an essential resource for human life. According to the 2021 World Water Development Report released by UNESCO, global consumption of freshwater has increased six fold over the past 100 years and has been increasing by about 1% annually since the 1980s. Water quality is facing serious challenges due to increasing water consumption. Industrialization, agricultural production and urban life have led to environmental degradation and pollution, adversely affecting life-sustaining water resources (rivers and oceans), ultimately affecting human health and sustainable social development. Globally, approximately 80% of industrial and municipal wastewater is released into the environment without any pretreatment and it is adversely affecting human health as well as ecosystems. This ratio is higher in less developed countries, where sanitation and sewage treatment facilities are largely lacking.

KEYWORDS: - Water, Pollution, Health, Effects, Injurious, Contaminated, Ecosystems, Hazardous.

INTRODUCTION

Today, there is a big crisis due to pollution in our country. Most importantly, water, air and land pollution has affected the entire world. Water is a necessity for all living things to exist in our world. Not just water, but clean water is essential. Water makes up, on average, 60% of the weight of an adult human body. From this we will know how much we need water. Like humans, every animal and plant on this earth needs water to survive. Some plants are 95 percent water. There is enough water available on our earth. But it is only 2 to 7 percent like fresh water. And only 3 percent of that water is pure and potable. Some water is in the form of oceans, glaciers, and ice peaks. But today this water is getting polluted day by day.

Mixing some hazardous and toxic substances in water completely changes the natural properties of water and makes it unfit for drinking. Injurious to

health or reduced in its capacity, it is called "water pollution". The problem of water pollution is increasing today. And today it has spread throughout the district. According to WHO (World Health Organization), the Ph of drinking water should be between 7 and 8. But today, due to mixing of many dangerous chemicals in water, the Ph level in water is getting lower and higher. All human life on earth depends on water. Sources of drinking water for humans and other living species are rivers, lakes, wells. We know that water has the ability to purify itself. But when the rate of water pollution is higher than the rate of water purification process, problems like water pollution arise. Water pollution occurs when harmful and toxic chemicals, animal excrement, many harmful substances mix in water and due to this reason most of the water sources i.e. rivers, streams, lakes and seas are polluted. And this

contaminated water is having dangerous and bad effects all over the world.

REVIEW OF RESEARCH LITERATURE

Dwivedi Anil K (2017) in his study “researches in water pollution: a review” There are many sources of water pollution, including excessive sawdust, industrial effluents, agricultural runoff, and finally, human waste. In this particular research paper, the researcher will only be discussing the problem of water pollution. He has explained the problem of water pollution clearly with the help of a significant number of references. The potential and extent of numerous elements that pollute the water are also included in the report.

Mumbi Anne Wambui and Watanabe Tsunemi (2022) “Cost Estimations of Water Pollution for the Adoption of Suitable Water Treatment Technology” This study was able to determine values that represented the costs and advantages of a proposed project to employ diatomaceous earth for wastewater treatment by using a limited scope as well. These facts and figures can be given to financial institutions, governments, and accountants for their consideration while making judgments. Using CVM analysis, it was determined that the project's benefits outweighed its operational expenses by a factor of more than seven. Finally, the researcher will understand the data so that governments and other official organisations can levy taxes and levies on polluters while maintaining accurate financial records for interested parties. This would assist build "green accounting."

Mehtab Hasina et al., (2017) in their research study entitled "Water Pollution and Human Health" they will discuss the problem of water pollution and its impact on human health. Contaminated water creates a cost burden on society which adversely affects human development. Therefore, they will recommend that there should be a proper waste disposal system and the waste should be treated before it enters the river. Educational and public awareness programs should be organized for pollution control.

Yang Li Lin Haoran and Xu Xiaocang (2022) in his research study entitled “Effects of Water Pollution on Human Health and Disease Heterogeneity: A Review” In this study, the effect of water pollution was systematically analyzed and heterogeneity of diseases from different disease perspectives, focusing on a detailed review Relationships, mechanisms and influencing factors between water pollution and disease. From the point of view of limitations, this paper mainly focuses on the research of environmental science and environmental management, and research on pathology is less involved. Based on this, future research can strengthen research at the clinical and pathological levels.

RESEARCH GAP

The previous review of some of the research studies reveals that, yes there are some research studies relating to the present topic of the research, i.e. water pollution. But all research studies reviewed above are concerning the identification of the quality of the water by water testing and taking into account its various aspects and parameters. All these research studies are especially in the subject Environmental science. But the uniqueness of that particular research article is that it shows the various problems generated from environmental degradation just like water pollution and their effect on peoples health is a very important, broader and comprehensive missing area in the above review of research literature; hence it is taken up in the present research study.

RESEARCH METHODOLOGY

In this analytical and descriptive research study the researcher has used secondary data and to get this data he has consulted internet websites and reports of Central Pollution Control Board (CPCB) and State Pollution Control Board (SPCB) as well as Ministry of Health, Family Welfare, Government of India.

OBJECTIVES OF THE STUDY

- 1) To study the problems of water pollution.
- 2) To assess the health impact of water pollution.
- 3) To identify the various water borne diseases.
- 4) To suggest the appropriate measure for control water pollution.

RESULTS AND DISCUSSIONS

Source of water pollution

Water is the number two requirement out of the three basic needs of human namely air, water, food. It is very important for our health to have clean and pure water. Polluted water causes stomach disorders and many other diseases. There are many causes of water pollution and we are all responsible for it. Water is getting polluted in many ways. Polluted water from various factories is discharged into the river in streams. Village, city sewage, solid water is discharged into the river bed. Due to both these reasons water pollution increases to a large extent. Washing of animals in the river, washing of drug spray pumps, release of different chemicals into the water, direct release of spent wash of factories into the water. Water pollution is 100% man-made. It is not natural. Therefore, if everyone participates in the clean water, pure water campaign by deciding that I will not pollute the water, surely we will be able to reduce the water pollution and we will be able to get clean water, pure water for ourselves.

Diseases Caused By Water Pollution

Water borne diseases occur worldwide and are caused by pathogenic microorganisms that often enter water through human or animal waste. Cholera, Typhoid, Paratyphoid, Dysentery, Diarrhea, Tuberculosis, Jaundice and Amoebiasis are some of the deadly waterborne diseases. Waterborne diseases are the most important factor responsible for about 80% of human deaths in India. Children are particularly affected in rural areas and urban slums. Unsafe drinking water when contaminated with excreta or excreta contributes to high infant mortality. Cholera spread due to lack of safe water and poor environmental conditions along with inadequate sanitation. Cholera and the problems of water pollution are therefore closely related, with cholera currently being the leading cause of morbidity and mortality in India. Cholera is a noticeable disease in many countries.

Effects of water pollution on human health

Unsafe water has a serious impact on human health. According to the UNESCO 2021 World Water

Development Report, About 829,000 people die each year from diarrhea caused by unsafe drinking water, sanitation and hand hygiene. Including about 300,000 children under the age of five, representing 5.3 percent of all deaths in this age group. Data from Palestine indicate that people who drink municipal water there is a possibility of direct disease such as diarrhea than those using desalinated and household filtered drinking water (Yasin et al., 2006). In a study comparing tap water, purified water, and bottled water, tap water was a significant source of gastrointestinal disease (Payment et al., 1997). Lack of water and sanitation services increases the prevalence of diseases such as cholera, trachoma, schistosomiasis and helminthiasis. Data from studies in developing countries show a clear link between cholera and contaminated water, And domestic water treatment and storage can reduce cholera (Gundry et al., 2004). Apart from disease, it can also be caused by unsafe drinking water and poor environmental sanitation Prevents gastrointestinal illness, preventing absorption of nutrients and Malnutrition these effects are especially pronounced for young children.

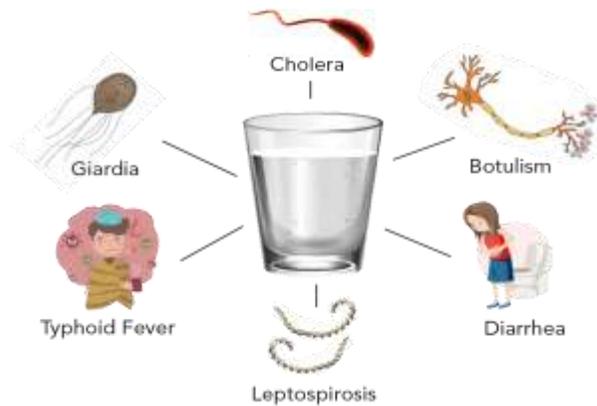


Table No.1

Year	Cases	Deaths	Year	Cases	Deaths	Year	Cases	Deaths
1986	1,76,307	86997	1997	27,165	9,403	2008	30,997	2,189
1987	86,835	42,070	1998	56,988	20,309	2009	21,955	2,320
1988	1,01,248	48,404	1999	56,436	19,836	2010	17,492	861
1989	2,10,239	93,323	2000	43,285	12,947	2011	9,091	538
1990	22,065	10,669	2001	13,027	2,788	2012	10,708	263
1991	23,797	10,555	2002	13,658	3,122	2013	5,638	312
1992	39,759	17,120	2003	22,587	4,472	2014	8,717	309
1993	56,007	22,996	2004	19,280	3,757	2015	6,073	200
1994	66,076	28,180	2005	17,268	3,801	2016	4,693	217
1995	1,14,937	15,418	2006	17,140	3,595	2017	9,202	432
1996	14,167	5,250	2007	21,344	2,908	2018	2,642	68
CGR (1986 to 2018)							-8.76	-7.49
MEAN (1986 to 2018)							40,813	16813.88
C.V (1986 to 2018)							118.771	130.7537

Source: - Health statistics of india published by the ministry of health and family welfare, government of india, new delhi.1986-2018.

The above table indicates the number of cholera cases and resulting deaths during 1986-2018. The data will showing that with the exception of 1990, 1991, 1996 and 1999, the highest number of cholera cases occurred especially between 1986 and 2000, followed by a steady decline in the number of cholera

cases. The number of cholera cases in India reached its peak in 1989. Even today cholera epidemics occur regularly in India and cholera is unlikely to be eradicated. However, vaccination has recently been widely used to control Cholera.

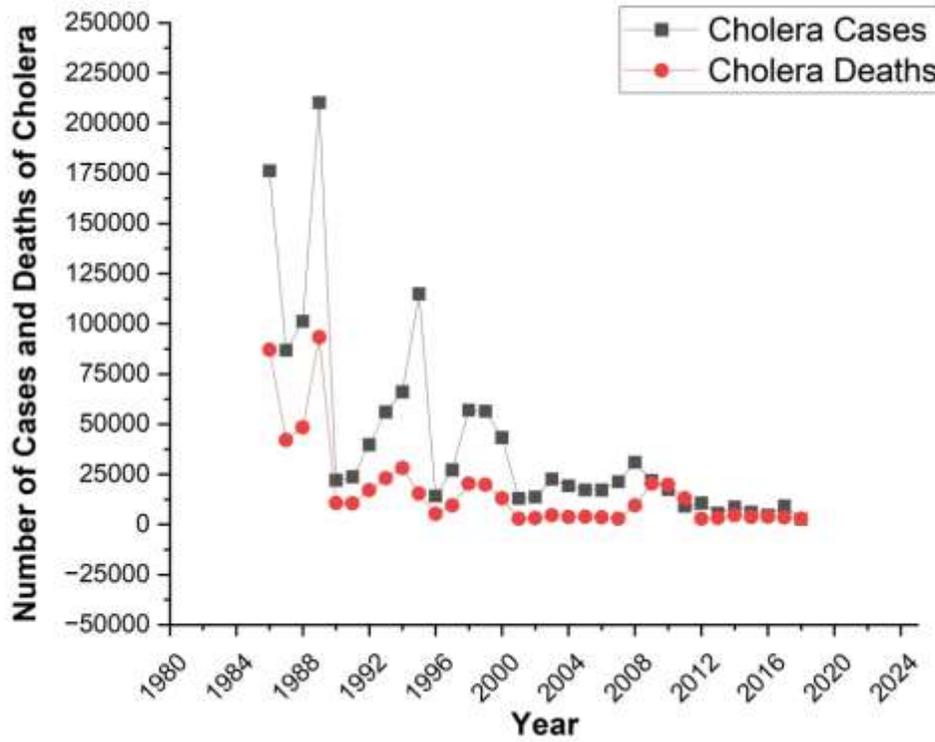


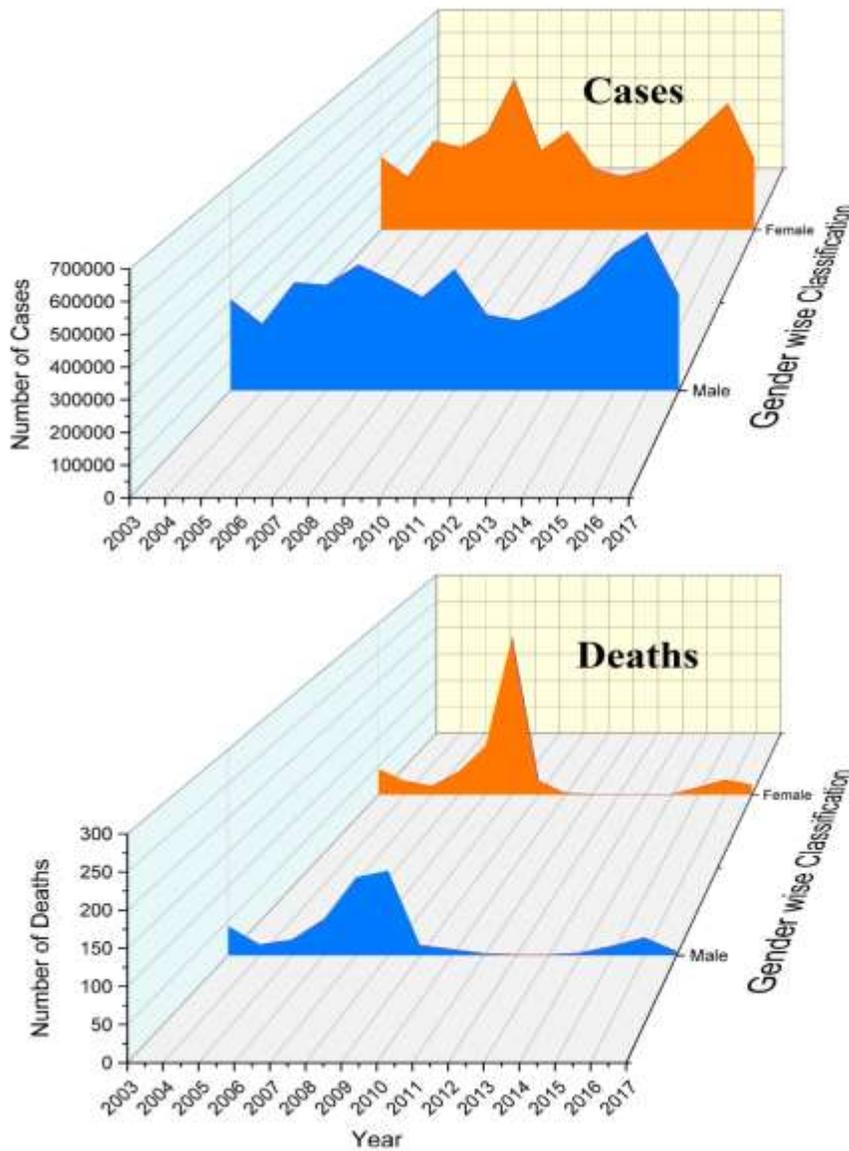
Table No.2

Year	Cases			Deaths		
	Male: Acute Diarrhoeal Diseases	Female: Acute Diarrhoeal Diseases	Total: Acute Diarrhoeal Diseases	Male: Acute Diarrhoeal Diseases	Female: Acute Diarrhoeal Diseases	Total: Acute Diarrhoeal Diseases
2003	310323	296009	606332	43	45	88
2004	226310	215862	442172	16	24	40
2005	366905	363012	729917	23	15	38
2006	359411	336312	695723	53	40	93
2007	428033	397011	825044	114	85	199
2008	375897	614402	990299	124	277	401
2009	317633	322423	640056	15	24	39
2010	411980	401465	813445	9	3	12
2011	257702	249344	507046	3	1	4
2012	238155	218846	457001	1	1	1

2013	282048	245067	527115	1	1	1
2014	349959	314055	664014	4	1	4
2015	466193	411445	877638	14	13	27
2016	535535	515910	1051445	26	26	52
2017	324838	287082	611920	6	17	23
MEAN	350061	345883	695944	30	41	68
C.V	24.5	32.0	26.7	130.3	176.2	155.1
C.G.R	1.51	0.57	1.03	-15	-16	-17

Source: - <https://epwrfits.in>

The study will be funded based on the preceding table, which provides statistical data on Acute Diarrheal Diseases and a comparison of male and female cases. Drinking contaminated water, including diarrheal illnesses, inadequate sanitation, and intake of hazardous and unclean water, results in more than two million deaths worldwide each year. As a result, water pollution is to hold responsible for approximately 90% of deaths. The table also demonstrates that poor drinking water quality contributes to more than 50 different diseases, affects more women than men in terms of acute diarrheal disorders, and is responsible for 50% of child victims.



CONCLUSION AND SUGGESTIONS

Water pollution is a global problem and the global community is suffering the worst effects of polluted water. Major sources of water pollution are discharging domestic and agricultural waste, population growth, overuse of pesticides and fertilizers, and also increasing urbanization. Due to polluted water, bacterial, viral and parasitic diseases are spreading and adversely affecting on human health. It is recommended that proper waste disposal should be in place and the waste should be treated before entering the river water. The necessary steps should be taken is crucial important and also awareness programs of water pollution should be organized to control the problem of water pollution.

REFERENCE

1. Dwivedi, A. K. (2017). *Researches In Water Pollution: A Review. International Research Journal of Natural and Applied Sciences*, 4(1), 118-142.
2. Kamble, P. S., Ambedkar, V. V., & Ovhal, V. V. (2022). *Empirical Analysis of Health Status of Western Maharashtra. North Asian International Research Journal of Business Economics & Management*, 6 (7), 6-15.
3. Kamble, P. S., Ambedkar, V. V., & Ovhal, V. V. (2022). *Health Infrastructure Development in Rural Maharashtra. North Asian International Research Journal of Social Science & Humanities*, 8 (7), 5-14.
4. Li Lin, Y. H., & Xiaocang, X. (2022). *Effects of Water Pollution on Human Health and Disease Heterogeneity: A Review. Frontiers in Environmental Science*, 10, 10-16.
5. Mehtab, H., Muhammad, M. F., Asma, J., Sidra, A., Nayab, A., Sharon, Z., et al. (2017). *Water pollution and human health. Environ Risk Assess Remediat*, 1(3), 16-19.
6. Mumbi, A. W., & Watanabe, T. (2022). *Cost Estimations of Water Pollution for the Adoption of Suitable Water Treatment Technology. Sustainability*, 1-16.
7. Ovhal, V. V. (February, 2019). *Inclusive Health Development in Rural Maharashtra, Aarhat Multidisciplinary International Education Research Journal (AMIERJ), ISSN-2278-5655/ Vol. VIII Special Issue No-X /Impact Factor:6.236/Pp-419-428*
8. Vadrade, K. S., & Ovhal, V. V. (April, 2016). *Facts About Child Mortality in India with Special Reference to Kolhapur District (Maharashtra), EPRA International Journal of Environmental Economics, Commerce and Educational Management, ISSN:2348-814X/ Vol.3/Impact Factor:4.138.*