Water Pollution Effects On Human Health

Water pollution has been an issue in Dhaka the capital city of Bangladesh. The study was done to find out the pollution situation of the Turag river and the health problem of the surrounding residents. The results of the experiment have found that the water isn't suitable for marine life and domestic purposes. This is known by the very low dissolved oxygen (DO) levels and other measured parameters in the river. The maximum recorded values of pH, color, turbidity, biochemical oxygen demand (BOD5), hardness, total dissolved solids (TDS), chloride (Cl-), carbon-dioxide (CO2) and chemical oxygen demand (COD) were 7.1 mg/L, 625 ptcu, 97.2, 4.65 mg/L, 1816 mg/L, 676mg/L, 5 mg/L, 15.5, and 78 mg/L, respectively. The maximum concentration of turbidity, BOD, hardness, TDS, and COD found in the Turag river is much higher than the standard permissible limit and therefore was not safe for the residents in the surrounding area. This study has also found that the local communities are suffering from a variety of health problems.

Keywords: Turag River, Pollution, Impact, Human Health, communities, ph, observation, canals, data, conditions

Introduction

Halder, Joshua, and Nazrul Islam. “Water Pollution and Its Impact on Human Health.” Water Pollution and Its Impact on Human Health , Jan. 2015, pdfs.semanticscholar.org/6ffd/2e86026c3825adca39f453cd3a61782676ca.pdf.

The article mentions how water is the most important natural resource and it is very critical to the survival of all living organisms including humans, food production and economic development (Halder & Islam, 2015). These researchers have found that many cities are facing a shortage of water and that almost 40% of the world's food supply is grown by using irrigation . Everything up to the environment, economic growth and development are influenced by water and its regional and seasonal availability, the quality of surface and groundwater, the water is affected by humans and it's on the decline due to various human activities. The water pollution is threatening earth and its people. Halder & Islam note that Bangladesh has numerous rivers like the, Turag, Buriganga, Dhaleshwari, Balu and Shitalakhya and the land is nourished by these waters. Pollution of river bodies has become a major problem for Bangladesh because of the poor sanitaion (Halder & Islam, 2015). Waste is poured into the different bodies of water with little regard for how it is treated and preserved. There is also the discharge of raw sewage, garbage and oil spills and these discharges are threats to the lagoons and rivers in the major cities. The rivers and canals are becoming increasingly polluted from industrial wastewater dumped by factories. Leather tanneries are also a big time offender for toxic pollutants to the air and water. The water pollution threatens food production and is raising both environmental and human health concerns (Halder & Islam, 2015). The city of Dhaka is surrounded by numerous rivers and canals but because of the lack of water management plans and policies the quality and quantity of the water has reached a critical point that doesn’t allow for use. The rivers Buriganga, Shitalakhya, Turag, and Balu have been so extremely polluted that these have turned into the rivers of poison theses rivers are unusable for the people (Halder & Islam, 2015). The rivers are so poisonous that its been killing all of its aquatic life and posing health

hazards to the people of the city. Sources of pollution of the water in these rivers also include various industrial discharge, etc. Because of this, water quality of these rivers is steadily getting worse everyday (Halder & Islam, 2015). The rivers surrounding the capital city, including the Turag have been steadily getting worse and worse making the value of it to the city less valuable, The pollution of the Turag river are the most polluted in two points with extreme pollution especially coming from the Buriganga third bridge to the Tongi bridge. These two pollution points of the river homing in on the sources and causes of pollution, its impacts on the surrounding environment and possible fixes to the problem (Halder & Islam, 2015)

Methods

The study was done in a two km long strip of the Turag river that started from the Tongi bridge following the river that's by Ashulia road. The width of the river is between 15-20 meters, the average depth during the wet season is 4-6 meters and during dry season 2-4 meters. Halder and Islam divided the data into two categories, the data collected from the field or the area of study is called primary data, primary data was collected by interviewing the people of the study area and by making a survey on the topic. The secondary data is data collected from books, journals and any other previous research paper or documents related to the topic. In the study the primary data was the pictures, sampling data, interviews of people, field observation etc. The field observation obtain the physical condition of the study. The secondary data was map and information has been collected from the Department of Environment (DOE), Bangladesh Water Development Board (BWDB), Bangladesh University of Engineering and Technology (BUET) and Institute of Water Modelling (IWM). The steps taken to achieve the goal of the study was, primary data collected from the field of observation, secondary data collected from DOE, BWDB, BUET and IWM, special report from the DoF, MACH, the Turag project of the Bangladesh Center for Advance Studies, water samples and photos taken from different locations of the Turag river and water samples tested in the MIST Environmental Engineering laboratory, the recent surface water quality has been collected from DOE and Environmental laboratory in Civil Engineering department of BUET as test sample, the water pollution has been analyzed to find out present water quality scenario, trend of water pollution etc., focus group discussions and interviews with members of the community to shared their current and past health problems, the secondary data and the interviews with health workers in the area to determine whether the changes to health shown by the local population matched the health trends seen by local health professionals, Halder & Islam collected this data by interviewing the people of the area (Halder & Islam, 2015). Questionnaires were used to interview people. Surface water samples of the rivers were collected from four different points of the river in two seasons during April 2013 to July 2013 covering dry and wet periods, sample handling was used to ensure data quality clean plastic containers were used for inorganic samples, with glass containers used for organic analyses and all samples are placed on ice in the dark. The sample depth was taken 15-20 cm, the experiment was done in a four month period during the dry and wet season test was conducted on 13 water quality parameters. Halder & Islam found that water was more polluted during the dry season and better during the wet.

Results

The results have found that the dissolved oxygen at different locations along the river is very low, often far less than the minimum level as suggested for inland surface water. The DO varied from 0.76 mg/L to7.1 mg/L where the ECR 1997 standard is 6 mg/L. Maximum DO 7.1 mg/L

was recorded on 15 June 2013 from point 1 and the minimum value 0.76 mg/L was recorded on 25 April 2013 from point 3. The health aspect of the experiment showed that the interviewies mentioned that skin diseases, diarrhea, gastric ulcers, and respiratory illnesses (common cold, asthma) were the most common health problems amongst the population in the area and people suffered from indigestion, hypertension etc. At least 70 percent of the people involved in the discussions reported that they were suffering from skin diseases, diarrhea, gastric ulcers or other gastric problems at the time that the research was taking place (Halder & Islam, 2015). The qualitative data shows that there might be a link between pollution and the health problems, skin problems were widespread and common in the area of study, almost all of the participants claimed to have skin problems, the participants showed the team their skin lesions. In the area of study the communities complain that the river water is no longer of a quality in which people can bathe. The river is used for cattle bathing but they found that the cattle have sore mouths when they drink the water. At this point the water is so polluted hardly any hydro-organisms can stand it and they are turning up dead (Halder & Islam, 2015)

Discussion

The study has shown that water in these rivers are causing different health problems to the residents such as skin diseases, diarrhea, gastric ulcers or other gastric problems. The study has also shown that the water quality of the Turag river isn't in a position to sustain the aquatic life and people. The study provides evidence that the local communities are suffering from a variety of health problems related to the pollution of the water. The title of the article correctly states the subject of the paper, it goes in depth to show how water pollution effects human health by providing examples from the community. The methods used in this experiment was to collect samples from the river turag and to interview people of the community also they used past research papers related to the subject. The methods used in this research are valid because all the essential utensils are available to any scientist who want to replicate this experiment. The data is clearly organized by using pictures, steps, tables and charts. Data tables and figures were used in this experiment. Based on the results of this experiment it showed what the researchers intended to show that the water pollution is affecting health. The shortcomings of this study are shown, Halder and Islam state that the shortcoming is that they had a lack of time, the sampling program was limited to four months. The researchers cited previous research related to the topic.

Conclusion

The experiment done was practical and sustainable to the field of study, the experiment can be replicated and done by other scientist. The experiment is significant to the field of sustainability because it directly impacts human health. The experiment had its own strengths and weaknesses, the strengths being that the people affected by the water pollution were directly interviewed and the water affecting them was tested and four locations were used during the testing of this experiments. Another strength of the experiment was that they used past research related to the topic to double down on their findings and statements. A weakness that the experiment had was that there was a lack of time, the researchers only had four months to conduct the experiment.