Water Pollution: Concept Map Showing Pollutants

All water has a perfect memory and is forever trying to get back where it was. – Toni Morrison.

It can never be the same again. For centuries we have been plagued with one of the most serious disasters of all times. It has disturbed one of our most useful natural resources and is causing Earth to suffer in misery. Humans are said to be one of the main contributors which is affecting us in more ways than one.

Pollution is defined as the introduction of foreign matter into the environment which are normally a result of human activities which can cause harm. Pollution is normally caused by pollutants. These pollutants are the substances that contribute greatly in the destruction of the environment. There are five (5) major types of pollution that we face in our world today. These are: Air, Noise, Water, Soil and Light pollution. (Lower case letters) Although there are currently five (5) types of pollution, this research will focus mainly on one (1) which is water pollution.

Water pollution is defined to be the contamination of the water source by harmful substances. These are usually small micro-organisms and other harmful chemicals that come into contact with our streams and disturb the water quality; hence, causing it to become toxic to both humans and the environment at large. There is a myriad of pollutants that are associated with water pollution. These are sewage, industrial waste, pesticides, mineral salts, oil and in some cases fertilizers. These pollutants contribute negatively to the environment. For instance, when these pollutants and harmful chemicals come in contact with the water supply, aquatic animals and other habitats will be affected. It will destroy the mangrove swamps which is the home for many organisms such as birds, fishes and also other small micro-organisms. As we go more in depth, we will realize the negative effects these pollutants have on water supply.

Concept map showing pollutants

There are billions and billions of gallons of sewage that is discharged into our water supply on a daily basis. This is mainly because of the poor sanitary conditions that we have present within our world today. The problem of sewage contamination has been a major issue for centuries. It is one of the main pollutants that affect our water supply today. Sewage consists of feces and urine which is normally collected and stored in latrines and pits with other domestic wastes that exit from our house. Sewage is made up of pathogens which are made up of small micro-organisms which is said to be a threat to human health. The contamination of sewage in the water supply can lead to water borne diseases such as dysentery, typhoid, guinea worm disease, diarrhea and cholera. In this medium where the water is polluted by feces the hook worm parasite and also the Schistosoma can be contracted in this way. The disposal of feces in our water supply whether it be seas, oceans or rivers, accounts for the elevated volume of carbon compounds present. Sewage as we know is considered to be biodegradable, meaning it can be broken down by living organisms or other organisms (Gadd 2008).

Based on research carried out by the Chinese government, it showed that the waters of China are one of the most polluted water supplies on planet Earth right now. Based on studies carried out it was concluded that about 90 percent of the sewage that is flushed from the households

are liberated in the water supplies. It then further stated that most of the populations are short on clean water for consumption and almost two third of the population are currently consuming polluted water

In 2012, the Yale University in the United States of America carried out a research also to prove that the activities of both the industries and human are negatively affecting the water supply; which accounted for the inhabitants to be suffering greatly, due to the fact that there is a limited amount of treatment plants which are not able to manage the amount of waste that is being dispersed (Hays).

The improper disposal of sewage has been an ongoing issue and if not placed under control as soon as possible will lead to more destruction. Due to the fact that the sewage that comes from our house is contaminated with mineral salts, detergents and other soaps; and as such it will then further lead to another harmful effect called eutrophication. The process of eutrophication is a process that is said to be the accumulation of nutrients and other minerals. This will then affect the water oxygen supply in a negative way whereas it will cause the oxygen content to decrease and as such will prevent small micro-organisms from thriving; hence, they will suffocate. The water will then become stagnant and loaded with nutrients hence causing eutrophication which will result in the algal bloom. The water source will then attain an acidic pH and as such will result in a large fish kill (Gadd 2008).

Industrial Waste is defined to be the waste product of industrial activities. This also has a major impact on our water supply in our world today. In a world today, where there is a rapid growth in the industries so will the level of pollution increase. There are organic compounds that comes into the water supply in excess whether it be our rivers, seas, or lakes. This will also cause a decrease in the oxygen contents.

In some cases, the industries will pass out some harmful chemicals or substance such as mercury, cadmium, copper and lead. These metals when consumed by marine life such as fishes and other small organisms can be detrimental. Researches have proven that consuming fishes who have ingested these metals can be toxic to the human health. According to Dr. Terry Simpson, consuming fish with this harmful metal in its system can lead to food poisoning (“Your Doctor's Orders.” Your Doctors Orders).. Also, if we as human beings drink water that has been contaminated by these harmful metals it is likely that we will become sick, and have to visit the doctor, and even in some cases where medical attention is not administered quickly one will die. Not only does these metals enters the water by industrial actions, but in some cases how we dispose of certain electronic devices such as old computers can be a major contributor of water pollution.

Pesticides also plays a major role in the contamination of our water sources. These pesticides are normally man-made chemicals that are used to eliminate and keep pest infestation under control. Pesticides are considered to be harmful chemicals that are made up of compounds like chlorine, oxygen, sulfur and phosphorus. Pesticides are very important in the agricultural sector so as to assist with the thriving of crops. Without pesticides, the lives of crops will be in danger, due to that fact that rodents, insects, weeds and diseases would find it a pleasure to be in control. (The Permaculture Research Institute 2017)

Even though pesticides are a very important part of our crops, they have serious effects on our water supply when they are leached through the soil. When this happens and they come into

contact with the oceans, lakes, rivers and streams they will cause it to be unfit for many activities; hence, causing it to become toxic and as such will be deemed unfit for use. It will kill marine organisms, such as fishes which would not be able to thrive in the toxic environment. In some cases, it can even disrupt the food chain

Not only are pesticides dangerous to plants and water supply, but they can also affect human beings causing them to get sick. Depending on the amount of pesticides the individual is exposed to it will determine how acute or chronic the health issue will be. Based on research, it was noted that when the pesticide is less expensive, it will stay in the soil and water supply for years. Due to the harmful effect that it has on our soil and water supply, it was prohibited in certain countries; however though banned they are still used in some countries (Hancock 2016).

Did we know that oil also has an impact on our water supply? Oil spills, toxic wastes, sprawled plastics. Its choked, wrecked, bruised, but alas, everyone has turned a deaf ear to the cries of marine life. – Iram Malik. There are some cases when oil will come into contact with our water supply and as such will cause it to become contaminated. On a daily basis, our water supply is being plagued by oil spills and the activities of routine shipping. In most instances, when oil comes into contact with our water supply it has a tendency to float due to the fact that water is said to less dense than the oil (Gadd 2008).

The sheath that is formed over the surface of the water will prevent the entry of oxygen and as such will pose a threat to marine wildlife life such as birds, fishes and other aquatic animals. The oil will also trap the feathers of marine birds hindering them from being able to move around freely. For the fishes, the oil will clog their gills and their other organs preventing them from being able to carry through their daily processes. Hindering their daily activities, can cause the organism to die. Due to the fact that the oil is not able to be dissolved it will wash up on our sea and ocean shores which will in turn cause the shore to become smelly (“Oil Pollution in Water.” Water Pollution).

Not only does the contamination of oil affect our water supply but it also has a major impact on human health. The pollution of our water supply has been one of the major ongoing issue that has been jeopardizing the health of human beings (“Water Pollution: Everything You Need to Know.”).

“The United States National Research Council (NRC) published a report in 2002 that said that, globally, approximately 1.3 million tonnes of oil are released into the sea each year. The exact amount of oil pollution varies each year, generally between 470,000 and 8.4 million tonnes, depending on the frequency and severity of oil spills”. (Hancock 2016).

According to an article published by The Lancet, it was further stated that in the year 2015 water pollution caused 1.8 million deaths. “Every year, unsafe water sickens about 1 billion people” (The Lancet 2015). Though we are being plagued with this serious problems of water pollution there are several precautionary measures we as individuals and also as a nation can do to reduce the further deterioration of our water sources. Some of these solutions include:

The installation of proper sewage plants to handle/manage the amount of sewages that are being disbursed, reduce the amount of pesticides, herbicides and fertilizers that are used in agriculture, reduce the amount of detergents, bleach and other household chemicals used, limit the amount of chemicals we flush down our sink and also down our toilets and also as a nation

we must dispose of our garbage in a proper manner to reduce non-biodegradable items coming into contact with our water.