

GEOG 371 Rural Water Supply and Sanitation

Name -----

Spring 2022

Dr. Mohamed Babiker Ibrahim

Mid-term Q(1)

What is the link between water, sanitation and hygiene education. Give 4 examples from peer reviewed journals.

Before the technical revolution people suffered very much in getting water.

They used to live in small groups around small water points.

Since water supply is an important part of development, the international community helped the developing countries with finance, technology and training.

However, **hundreds of thousands of boreholes** were drilled through technical revolution in the 1960s onwards.

With the use of technology water became available for domestic use, agriculture and industry.

At that point, people did not know availability of water supply will create many environmental problems such as water pollution, water-borne diseases, and desertification and soil erosion.

Concentration of people and animals around boreholes (Water points) were responsible for over-grazing which causes desertification (Mohamed and Abu Sin 1985; Perkins and Thomas 1993)

In the area of domestic use of drinking water the handling of water (drawing, carrying, storage and use of water) causes **water pollution** which results in **water-borne diseases** such as **diarrhea** and **cholera**.

In addition, water pollution takes place when human waste joins drinking water through **poor sanitation management** or **open defecation**.

On the other hand, water was made available for agriculture through building of dams.

Two problems were created because agricultural production: 1- **water pollution** and 2- increase of **water-related diseases**.

1- Water pollution takes place when the chemicals that used to increase crop production such as **chemical fertilizers, pesticides, and herbicides** find their way to sources of drinking water supply such as rivers, streams and canals. This pollutes drinking water and makes people sick.

Increase of water-related diseases. In South Africa, people drink the polluted dam water which enhances infant mortality (Mettatal, 2019)

Availability of water in agricultural canals and fields makes a favorable environment for increase of **malaria mosquitoes** and **snails of Schistosomiasis**. Of the 1268 existing dams, 723 are located in malaria's areas. Currently, about 15 million people live in close proximity (<5 km) to the reservoirs associated with these dams". (Kibert et al. 2015). In Ghana, it was found that children who visited Volta Lake 69% of them are infected with schistosomiasis, while children who didn't were 10.7% (Zakhary, 2020).

Both **Malaria** and **Schistosomiasis** have increased because of the availability of water for development (agriculture).

In addition, it was found that industry is also responsible for water pollution through the **spillage of water from industrial factories** and **mining of oil**.

One-third of oil extracted from the ground is polluted water which causes pollution of water and soils that makes great hazard to local people.

However, because of poor sanitation **human waste** find its way to sources of drinking water and to a large extent responsible for water **borne-diseases**.

Therefore, water experts see that provision of water has to go hand in hand with the improvement of sanitation facilities in order to avoid water pollution and water-borne diseases.

As a result, programs of **hygiene educations** were initiated by the UNICEF to educate students and local communities of the developing countries.

In conclusion, it was found that although water solved many problems and enhanced development, but it creates unknown problems that adversely affect human well-being such as water-borne diseases and environmental degradation. To solve this problem, the provision of water has to be connected with improvement of sanitation facilities and hygiene education.

References

Kibret, S., Lautze, J., McCartney, M., Wilson, G. G., and Nhamo, L. 2015. Malaria impact of large dams in sub-Saharan Africa: maps, estimates and predictions. *Malaria journal*, 14(1), 1-12.

Mettetal, E. 2019. Irrigation dams, water and infant mortality: Evidence from South Africa. *Journal of Development Economics*. 138: 17-40.

Mohamed, Y. A. and Abu Sin, M. E. 1985. Rural Population and Water Supplies in Sudan. In Clarke, J. I., Khogali, M. M. and Kosinski, L. A. (eds) *Population and Development Projects in African*. Cambridge: Cambridge University Press, pp. 254-264.

Perkins, J.S., Thomas, D.S.G., 1993. Spreading deserts or spatially confined environmental impacts- land degradation and cattle ranching in the Kalahari desert of Botswana. *Land Degradation and Rehabilitation* 4 (3), 179–194.

Zakhary, K. 2020. Factor affecting the prevalence of schistosomiasis in the Volta region of Ghana. *McGill Journal of Medicine*. 3(2): 93-101.

Dear students

You can copy this piece or write it in your own words. Each example should **NOT** be more than 2 sentences and show the citation from where you have got it. For example, In the district of --- in India, the population have experienced depletion of groundwater (Brown 2006). Please note that:

- 1- if the citation for one author, it should be written like this at the end of the sentence (Bryan 2010).
- 2- 2- If citation for two authors, you should write the last name of the two authors and the date i.e. (Brown and Tom 2011).
- 3- 3- If the citation for three and more authors, you should write the last name of the first author ONLY followed by et al. and the date, i.e. (John et al. 2014)