Assessment of physico-chemical parameters of surface water quality in Chini Lake Area, Pahang, Malaysia

Youssif Hussin Abdusalam[1], Mir Sujaul Islam[1],, Zaied Bin Khalid[1], Salah Omar Abdulali Habberrih[1], Fadzil Mat Yahaya[1]*

[1] Faculty of Civil Engineering Technology, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Kuantan, Pahang, Malaysia

lncs@springer.com

ABSTRACT

Because of pollution from mining and agriculture that has been poured into the surface water, the contamination level in the Chini lake water-shed has increased. As a result, the current study was conducted to assess the surface water quality of Chini Lake in Pahang, Malaysia. The principal compo-nent analysis was utilized to classify the investigated data into five categories based on the sources of pollutants, and the correlation between all of these groups was shown. Cluster analysis, on the other hand, divided ten monitoring sites into two groups (high and moderate pollution). The experimental results were analyzed and categorised using the Department of Environment Water Quality Index (DOE-WQI) in accordance to the Malaysian National Water Quality Standard (NWQS). The most contaminated parameters in the study area were pH and ammoniacal nitrogen, according to the findings. In fact, the worst situation (class III) was found at station T4, where tributaries were heavily con-taminated, followed by farmland and mining areas at stations 3 and 4. Finally, according to the WQI Malaysia, the lake water quality was classed as class II. Furthermore, the water quality has been confirmed to be acceptable for safe human body contact and a variety of recreational activities.

KEYWORDS

Chini Lake; Mining and agricultural area; Pollution; Water Quality Index (WQI)

REFERENCES

1. Reza R, Singh G. (2010). Heavy metal contamination and its indexing approach for river water. Int. J. Sci. Environ. Technol., 7, 785-792.

2. Sujaul I, Hossain M, Nasly M, & Sobahan M (2013). Effect of industrial pollution on the spatial variation of surface water quality. American Journal of Environmental Science, 9, 120–129.

3. Ahmed W, Vieritz A, Goonetilleke A, Gardner T (2010). Health risk from the use of roof-harvested rainwater in Southeast Queensland, Australia, as potable or nonpotable water, determined using quantitative microbial risk assessment. Appl. Environ. Microbiol., 76, 7382-7391.

4. Maznah W, & Makhlough A (2015). Water quality of tropical reservoir based on spatio-temporal variation in phytoplankton composition and physico-chemical analysis. International Journal of Environmental Science and Technology, 12(7), 2221–2232.

5. Molisani M, de Sousa B, Becker H, Moreira M, Hijo C, do Monte T & Vasconcellos G (2010). Trophic state, phytoplankton assemblages and limnological diagnosis of the Cas-tanhão Reservoir, CE, Brazil. Acta Limnologica Brasiliensia, 22(1), 1–12.