Water quality monitoring and water quality index of the Tuikual River in the vicinity of Aizawl city, Mizoram

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The Tuikual River is a major source of potable water for the people of Aizawl city in the state of Mizoram. Domestic and municipal waste from Aizawl's western suburbs and biomedical effluents from the Civil and Ebenezer Hospitals are getting discharged into it. Agricultural run-off adds to the river's pollution. Here we examine the water quality of the Tuikual River over two years (October 2019 to September 2021) at four sampling stations selected along the river course both upstream and downstream of the city. The water quality index was computed as 287, 310, 162 and 135 at sites 1, 2, 3 and 4 respectively. The findings depict that the river water at all the sites is unfit for drinking because the weighted arithmetic water quality index exceeds 100 at all the stations.

Keywords: Biomedical effluents, contaminants, parameters, statistical analysis, water quality index.

downstream of Aizawl city in Mizoram state of Northeast India.

Study areas and study sites

The capital of Mizoram state, Aizawl (lat. 23°30′N and long. 92°15′E), is situated in the northern part of Mizoram state at an altitude averaging 1132 m amsl. The Tuikual River is an important source of drinking water for the people of Aizawl city. Its water is getting polluted due to the discharge of domestic and municipal wastes from Aizawl's western suburbs, as well as by biomedical effluents from Civil Hospital and Ebenezer Hospital.

Four sampling sites have been selected upstream and downstream of Aizawl, considering the nature of pollutants released into river water (Figure 1). The stretch of the river is 9.45 km, and the catchment area is characterized by [illegible]