

Water Quality for River Basins after Post Earthquake Event

ABSTRACT

An earthquake with a magnitude of 5.9 on the Richter Scale struck Ranau, Sabah, on the 5th of June, 2015. It was recorded as the most significant earthquake occurrence in Sabah and had many implications, such as casualties, house and facilities damages, minor injuries, and environmental disruptions. In addition, the combination of continuous heavy rainfall triggered mudflow through landslides, which impacted the river's quality and disrupted the local water supply. The degradation of water quality will be due to the excess rainwater that cannot be absorbed by the soil, bringing the remnants of landslides into the river. Therefore, this study aims to monitor and assess the water quality of selected rivers affected by the earthquake and the mudflow to ensure it is safe to be utilised by the local residents. A total of five affected rivers were studied by analysing their physicochemical parameters, namely pH, temperature, turbidity, dissolved oxygen (DO) and electrical conductivity (EC). The results indicated that the mudflow overall creates a turbid, foamy and smelly river. High turbidity readings associated with high suspended solids were detected on specific dates for respective river stations. The high readings were associated with the cause of mass fish death in Sungai Kadamaian. Next, Sungai Mesilou faced a high-temperature reading above two celcius, which was not favourable for aquatic life. Physically, Sungai Mesilou also became shallower and flowed slowly. However, overall monitoring data revealed that the river's water quality was in good condition, except for the high turbidity dates. Nevertheless, the water quality of the respective rivers can recover on its own with the drop in turbidity levels found by the end of the monitoring dates, specifically at Sungai Panataran (S1), Sungai Kadamaian (S3) and Sungai Mesilou (S4). Hence, the water quality of such rivers, in general, is practically good and safe.