

Effect of COVID-19 Movement Control Order Policy on Water Quality Changes in Sungai Langat, Selangor, Malaysia within Distinct Land Use Areas

ABSTRACT

For the first time in the 21st century, many nations have been forced to conduct a lockdown that restricts their industrial, transportation, and social activities to avoid the extensive COVID-19 spread. Therefore, our study aimed to analyze the status of water quality that was measured by suspended particulate matter (SPM) in Sungai Langat, Selangor, Malaysia using the remote sensing technique. The study was concerned with rivers located in distinct land-use areas such as high-density urban, low-density urban, and agricultural areas. The study period included before and after movement control order (MCO) periods that occurred in February 2020 and February 2021, respectively. The SPM levels in each period were calculated using the remote sensing technique through Landsat-8 OLI images then they were analyzed using statistical analysis. The results of the remote sensing technique showed the highest decrease of SPM levels during the MCO period was observed in Sungai Langat within a high-density urban area (34.1%). Then, the SPM levels in all Sungai Langat raised significantly after the MCO period with the highest change at 31.6%. Rainfall and erosion factors had a significant impact on the SPM level through natural processes but the COVID-19 restriction had a direct impact on the SPM level due to the restriction of industrial and social activities. The suspended activities have made the lower emission compared with before the COVID-19 period in 2019.