

# **SURFACE WATER QUALITY AT THE BRANCHES ADJACENT TO HAU RIVER IN CAN THO CITY**

**Nguyen Thanh Giao**

## **Summary**

The study aimed to assess the quality of surface water of main and tributary rivers in Can Tho city and to estimate the amount of waste discharged by socio-economic development activities into the rivers. Monitoring data was collected during 2016 - 2018 with water quality parameters including temperature (T), pH, dissolved oxygen (DO), total suspended solids (TSS), chemical oxygen demand (COD), biological oxygen demand (BOD), orthophosphate ( $P-PO_4^{3-}$ ), ammonia ( $N-NH_4^+$ ), nitrate ( $N-NO_3^-$ ) and coliforms. The assessment of water quality was based on the WQI (Water Quality Index) and the identification of potential polluting sources was conducted by Principal Component Analysis (PCA). The loads of certain water pollutants have been estimated based on the population growth rate, socio-economic development planning and water pollutant emission factor. The results showed that surface water quality in Can Tho was organically polluted and tended to increase over years. The parameters such as DO, TSS, BOD, COD and coliform were higher than the permitted levels regulated in QCVN 08-MT: 2015/BTNMT. The concentrations of pollutants on the tributary rivers were higher than those in Hau river. Water quality index (WQI) ranged from 74 - 89 in 2016 and 51 - 67 in 2018, which showed that water quality has declined over the years. The results of PCA analysis indicated that the causes of water quality in the study area were from domestic activity, agricultural production, industrial and service activities. The amounts of pollutant load were estimated in 2020 from domestic wastewater from 648 – 27,864 kg/day, industry from 5,480 – 12,760 kg/day and service from 9,942 – 37,938 kg/day; this load was forecast to increase from 1.1 to 1.8 times by 2030. The forecast results showed that the environmental management agencies need to collaborate with the relevant agencies to solve the increasing environmental problem due to the development of socio-economic, contributing to improving and maintaining the quality of surface water.

**Keywords:** *Surface water quality, organic pollution, dissolved oxygen, microorganisms, total suspended solids, Can Tho.*