



## **A Long-term Early Warning System for Stream Assimilative Capacity Management to Respond to Climate Change**

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### **ABSTRACT**

The signal of climate change seems to be more and more obvious in recent years. The past studies have already found climate change would cause increasing water temperature, decreasing streamflow in arid periods, deepening the concentration of biochemical oxygen demand (BOD), and furthermore reducing the assimilative capacity of a river. Assimilation capacity is a very important natural constraint on regional development. For environmental policy implementation, a long-term early warning system should be established to strengthen adaptive capacity for sustainable water quality management system. The purpose of this study is to develop an early warning system which assesses climate changes impacts on assimilative capacity of a river and evaluate whether pollutant loadings will exceed the capacities in Taiwan. This early warning system computes early warning indicators in different periods to issue a warning and trigger associated adaptive strategies if it is necessary. The Touchen creek is selected as a study watershed. Based on the results, the response strategies are provided to mitigate the adverse effects.