Building a digital database to support the surface water quality sustainable management in Cantho city, Vietnam

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Date: 2023/4/07

Abstract

Water resources were the most important, involving changing policies, management, and planning. The imbalance between water resources and the use of water demand has caused water scarcity, and this situation will become more and more serious under the pressure of population growth and global climate change. One of the main solutions to these problems is to improve the management of this resource, which database of water resources is important to help the management, research, and development of this resource model of socio-economic development in general. However, the water resources management in some provinces in the Mekong Delta of Vietnam still has many limitations. The above data is collected from different management units, so the database was many formats, many software as well as on many different spatial coordinate system standards, so the data sources can't often ability to integrate information sharing between specialized management units, and there is no synchronization at all management levels. In Vietnam, the Government has issued the Master Action Program on sustainable development of the Vietnamese Mekong Delta to adapt to climate change, in which updating and systematizing inter-sectoral data is one of the daily tasks groups need to be done. Therefore, WebGIS technology to share and manage a large volume of water quality databases will bring many advantages for sustainable management to help solve the above inadequacies.

In this study, a surface water quality digital database Can Tho city was built by using Java programming language and the spatial database on GeoServer. The base map is created on the 1/5000 administration map and irrigation map and processed on QGIS software. The surface water quality data of 2014 to 2018 were collected at the Center for Environmental and Natural Resources Monitoring. The WebGIS platform allows users to access data, read the information at one water quality monitoring point, display online thematic maps, and enable/disable the map layers. The authorized users could adjust and update data through a friendly interface. This platform needs to be tested for its reliability before being put into practice.

Keywords: water quality index WQI, surface water source, Can Tho city, WebGIS