The Evaluation of Hydrological Environment for Wetlands－Application of Hydrogeomorphic Approach

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ABSTRACT

The wetland classification and assessment are bases of proper management. The hydrogeomorphic (HGM) approach was developed by the U.S. Army Corps of Engineers in 1995. This approach to functional assessment estimates the change in functioning induced by alteration of a wetland, either positive or negative. Functions normally fall into one of three major categories, i.e. hydrologic, biogeochemical and physical habitat. The HGM Approach is based on three fundamental factors that influence how wetlands function, i.e. geomorphic setting, hydrology and hydrodynamics. The assessment model results in a functional capacity index, which estimates the capacity of a wetland to perform a function relative to other wetlands from the same regional subclass in the reference domain. In this study the Guandu riverine wetland was applied to evaluate and analyze its functional performance through HGM approach. There were 13 model variables and 8 functions assessed. Due to lack of detail data only 11 variables were scored except factors of “ frequency of subsurface flooding ” and “ decomposition of organic matter ” . Also, there were 7 functional capacity index evaluated except function of “ nutrient cycling ” and the results showed that the function display in Guandu was ranked in common class and was partial to descend. The influence was mainly induced by flood blocking of dike. Nevertheless, proper operation of gates and main channel can actually conduct river water into wetland to maintain the flooding capacity. Besides, the vegetation community was approaching monotonous state with herbage only. Diversity was apparently inadequate.

Keywords : Wetlands ; hydrogeomorphic (HGM) approach ; functional capacity index (FCI) ; riverine wetlands ; Guandu wetland

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