ASSESSMENT OF CATCHMENT CONDITIONS AFFECTING WATER-RELATED ECOSYSTEM

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Abstract

Sustainable Development Goal 6 (SDG 6) is developed to ensure the availability and sustainable development of water sanitation for all by 2030. SDG 6 includes monitoring changes in the extent of water-related ecosystems over time. Water-related ecosystems provide ecological functions and biodiversity for nature and humans, however, they are at risk from human activities. Asian Water Development Outlook (AWDO) also considers environmental water security as one of the key dimensions. It is reported in AWDO 2020 that an effective assessment of aquatic ecosystem health is vital to understanding this key dimension. The environmental water security in AWDO 2020 assessed the health of rivers, wetlands, and groundwater systems and measures the progress in restoring aquatic ecosystems to health on a national and regional scale which is divided into two main indicators which are catchment and aquatic system condition and environmental governance. This study focuses on catchment conditions, including change in riparian land cover and groundwater depletion that affects water-related ecosystems on a basin scale. The objective of this study is to analyze changes over 10 years during 2009-2018 of riparian land cover, groundwater depletion, riverine connectivity, and water quality in Chao Phraya, Tha Chin, and East Coast Gulf River Basins and the year 2000 is selected as a baseline. The results show that the central region has relatively high pressures from riparian land cover change particularly tree cover loss, low riverine connectivity, and the water quality index has remained in poor condition. The impacts from agricultural, livestock, and industrial activities, as well as urbanization in the three river basins, are prominent. Restoring the ecological system and proper management of water resources to support livelihood and economic development is very important.

Keywords: *water-related ecosystem, environmental water security, land cover, riverine connectivity, groundwater depletion*