

Water quality and quantity issues of urban lakes in Megacity Jakarta

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Abstrak

The lakes in urban megacity Jakarta, called as 'setu or situ' by the local people, play a central role in integrated water resources management. Despite its pivotal role in maintaining the balance of urban water system, they have not received sufficient attention. Rapid urban development in a very distinct urban watershed type of lake's surroundings has impacted on the water quantity and quality of urban lakes in megacity Jakarta. Chronic problems faced by downstream area in megacity Jakarta such as flash floods in the rainy season and water scarcity in the dry season have indicated that the lakes have not been managed and functioned well. Human and nature disturbances such as shoreline encroachment, shoreline erosion, garbage dump and inflow from untreated sewage and urban runoff have polluted the lake water and reduced its volume capacity. Nearly half of the existing lakes have reduced from 10 to > 50% of its water volume capacity due to lake area shrinkage, siltation and even excessive growth of invasive macrophytes. The lakes are mostly in disturbed to damaged environmental conditions. Lakes in urban and rural villages have less in water quantity and higher solids, organic matter, nutrients and even fecal bacteria concentrations than the lakes in planned residential, high-rise residential and industrial areas types of urban surroundings. As the lakes in the urban village and industrial area, elevated toxic metal concentrations have become public concern due to lake hygiene problems. Elevated nutrient concentrations have caused the lake eutrophication, where some lakes have suffered from excessive macrophyte coverage, algal bloom even toxic cyanobacterial bloom. The urban lakes in megacity Jakarta constantly have been degrading physically and ecologically affecting its water quantity and quality which is increasing the threat to human's health and impact future human's resilience in urban megacity Jakarta.