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Post-Typhoon Morakot Sediment Environment Assessment and Diagnoses for Tseng-wen Reservoir Watershed

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This study utilizes runoff ratio, denudation ratio, ratio of green vegetation cover and sediment concentration as watershed indicators for sediment environment assessment of Tseng-wen reservoir watershed, considering the effects of accumulated rainfall, sediment production, green vegetation growth and number of suspended solids respectively. In-situ measurements were analyzed to diagnose sediment environmental issues concerning water source, water quality, and water quantity in the reservoir watershed before and after typhoon Morakot. Results suggest the water resources capacity of the Tseng-wen watershed was maintained at a rational level before typhoon Morakot. However, The period of high intensity rainfall associated with typhoon Morakot exceeded the reservoir's capacity and caused the sediment environment of the reservoir to be deteriorated leading to worsening of water quality and endangering the water supply of downstream settlements. This assessment concludes that, due to the effects of typhoon Morakot, Tseng-wen reservoir has an immediate need for remediation and water conservation measures.
Keywords:sediment environment assessment, Tseng-wen reservoir, typhoon Morakot.