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MULTICRITERIA APPROACH FOR SELECTING THE MOST VULNERABLE WATERSHED FOR DEVELOPING A MANAGEMENT PLAN

Abstract

Listing of watershed management goals/targets is one of the integral parts of the management plan for a watershed. In this paper, we have listed 18 watershed management targets for which the Malaysian watersheds could possibly be managed in future. Based on the listed watershed management targets, the priority ranking of 18 targets is developed from the relative importance weights obtained from a survey conducted from 29 stakeholders. Three weighting methods (SWING, SMART, and SMARTER) were applied to elicit weights. We found that the SMART (Simple Multi-Attribute Rating Technique) weighting method was a favorable method for eliciting stable sets of weights for the watershed management targets. The SWING weighting method produces better weights than the SMARTER method. The listed watershed management targets will assist watershed managers and decision makers in decision making to use available resources (e.g. water quality, land-use, groundwater, and many other resources) in a more efficient and sustainable manner. The efficient utilization of all resources within a watershed will ultimately save watersheds (more specifically the urbanized watersheds) from further deterioration caused by unchecked infrastructure development activities.

Key words: relative importance weights, SMARTER, SWING, watershed management targets, watershed vulnerability, weighting method