Abstract

Limited financial resources and the extent of the watersheds is one of the most important factors that force executives to prioritize the sub basin to implement corrective actions.. Determining the sub-watersheds with high erodibility and flooding and Prioritization of watershed management practices using fuzzy logic and hierarchical analysis (AHP) is one of main objectives of the this research. Fakhrood watershed is located in Darmian County at south Khorasan province, and has an area 14640 hectares. In fuzzy logic, the hydrological and erosional behavior of basin using maps, aerial photos, techniques, GIS and field visits investigated, as well as statistical analysis was performed. To reduce calculations, the most important factors were selected by factor analysis. Then, these factors were be fuzzy and the relative importance of factors were calculated and watershed management practices place priority base on flood and soil erodibility factors were determined. In Analytic Hierarchy Process, the watersheds Prioritize criteria were identified and then the criteria in three levels of objective criteria and alternatives were designed. Academic experts and Executive experts from the General Office of Natural Resources and Watershed South Khorasan determine the parameters weight the final weight and relative importance of each criterion was based on the geometric mean of questionnaire. Using Expert choice software and ArcGIS software capabilities Executive Watershed management practices priority were identified. The results showed that the combination of GIS tools, AHP and Fuzzy logic techniques with traditional models significantly increased the accuracy of calculations and watershed selection with higher erodibility and flooding.

Keywords: Spatial Prioritization, Erosion Control, Flood Control, Fuzzy Logic, AHP, Darmian.

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The Thesis Submitted for the Degree of M.Sc

(In the Field of Natural Resources Engineering – Watershed Management)

Spatial Prioritization of Flood and Erosion Control Operations using Analytical Hierarchical Processing and Fuzzy Logic Method in South Khorasan Fakhrood Catchment

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September 2015