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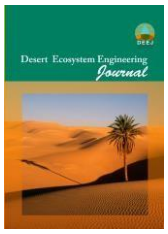

Statistical analysis the effect of rain water harvesting methods on reducing of flood and runoff in semi humid and semi-arid area of Iran (the case study 9 watershed in Esfahan province)

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Abstract

Lack of precipitation and it`s result water deficit is one of the most important problems in arid and semi-arid regions. Developing of (RWH) can be used as a method of increasing cultivation, play a significant role. (RWH) methods obviate water requirement and due to its properties can decrease flood risk and control sediments. In this article during a statistical analysis, determine effect of (RWH) methods to reduce flood and runoff in watersheds that have been implemented in their upstream Rainwater harvesting treatments this study was carried out the in 9 sub-catchment that all in Semi-arid and sub-humid climate in Isfahan province Watershed in terms of vegetation, soil and geology are almost homogeneous in terms of these conditions are the same period. Rain water harvesting treatments were carried out in all watersheds. Due to the variety of treatments, several hydrological response of runoff and flooding can be seen in each of the basins. Three types of treatment including pitting, planting on contours and terraces counter at this area is implemented and their effect on the amount of runoff and flood volume, In a randomized complete block design with three replications of three treatments (for each region) were examined. Results show that, (RWH) methods affect on flood control and decrease runoff obviously. Duncan Test classifies different (RWH) treatments in 3 statistical groups.

Keywords: rain water harvesting, arid and semi-arid regions, flood, statistical analysis, hydrological responses

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