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Studying the Effect of Rain Water Harvesting from Roof Surfaces on Runoff and Household Consumption Reduction

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Highlights

- Much of the implemented rain water harvesting systems do not consider the multi-purpose nature of RWH.
- Hydrologic model was used for assessment of rain water harvesting
- This study was done in urban scale

ABSTRACT:

Flood is the greatest environmental challenge for Hamadan city. In the absence of urban sewage systems, in most parts of the study area, rainwater harvesting (RWH) from roofs, parking areas and roads could play a crucial role in reducing flood proneness and providing household consumption. In this study, to assess effect of RWH on magnitude of runoff volume and various household consumption, firstly, flood volume with various return periods was calculated by using SCS method in the HEC-HMS model as a popular and effective method in flood hazard studies. In the next step, to assess effect of RWH system on flood volume magnitude with the assumption that the entire residential buildings in the city of Hamadan use RWH system, a divert element with constant flow whose amount was as much as RWH from rooftops was

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