Flooding prioritization of Pol-Doab Shazand sub-catchments using hydrologic and statistical models

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ABSTRACT

Flood as one of the most destructive natural hazards causes huge damages every year all around the world. Land use change acts as one of major reasons of flood generation. Main objective of this research is investigation on flooding status of Pol-Doab Shazand sub-catchments due to land use changes and their prioritization using rainfall-runoff data. The prioritization results can be helpful to allocate proper flood control measures over critical flooding areas. To identify land use changes, land use maps of years 1973 and 2008 were created using MSS and LISS III data. Then to simulate design discharge, HEC-HMS model was applied and run in event-based format. After simulation of design discharge with different return periods, the best design discharge with the most appropriate return period was chosen using factor analysis method. The result is applied to evaluate and prioritize sub-catchments. The results showed that 25 years return period discharge is suitable to do analysis of flooding status of sub-catchments. The results also indicated that land use has clear impact in flooding events with smaller return periods.

Keywords: Flooding Prioritization, HEC-HMS, Factor analysis, Pol-Doab Shazand, Iran