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**The Thesis Submitted for the Degree of M. Sc**  
**In the field of Watershed Management**

**Watershed risk assessment on watershed flooding using HEC-  
HMS model (case study: Jiroft Dam)**

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**Abstract:**

Evaluation of watershed projects today is one of the most fundamental issues that are carried out in countries for future planning in the field of executive plans and natural resource management. In this research, with the aim of evaluating the impact of watershed management measures on the flooding of the watershed, the Sartang Ramon watershed has been selected and investigated. To carry out this research, first, the basic information of the area including topographic maps, geology, rainfall statistics and flood information of the area, as well as the details of watershed management measures were obtained from relevant authorities. Then, using Arc GIS capabilities, a map of elevation, slope, land use, geology and the location of the rain gauge and hydrometry station was prepared. Statistical parameters of explanation coefficient, relative error and Nash Sutcliffe coefficient for flood volume and flood peak show the high accuracy of the model. The results show that the peak discharge of the flood and the volume of the flow have decreased under the influence of watershed measures. And the results of the investigation of peak flood discharge increased with return periods of 5, 10, 20 and 50 years. These results indicate that with the increase of the return period of floods, water management measures will not have an effective role in the Sartang Ramon watershed. Because as the return period of the flood increases, the peak flow of the flood will increase and the risk of flooding will increase with the increase of the return period. Therefore, these results indicate that it is important that the watershed management measures on the flooding of the watershed using the HEC-HM model should be seriously considered by the relevant officials and experts in the fields of natural resources and urban watershed management.

Key words: watershed structures, flood control, dam, ditch