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Abstract : The aim of this research is the modelling and mapping of flood risk zones in the M'zab valley of Ghardaia city by combining the hazard map and the flood vulnerability map. The undertaken research utilizes the hydrologic engineering centre-hydrologic modelling system as the modelling tool to simulate the runoff in the watershed and hydrologic engineering centre – river analysis system to model the water levels of different river locations based on steady flow analysis and to define flood-prone areas. The flood risk map allows the identification of five classes ranging from a low to a very high risk of flooding. Thus, the low to very low-risk areas extend over roughly 70.58% of the total surface area of Ghardaia city. These areas, which are located in the southern part of the alluvial plain, are considered as low vulnerability regions, while areas with high-risk cover more than 20% of the city.

Key words : Hydrological modelling ; HEC-RAS ; Flooding hazard ; Vulnerability ; Flood risk ; Touzouz ; River (Ghardaia)

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