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NUMERICAL FLOOD MODELS IN THE PROJECTED WASTE DISPOSAL SITE IN IZMIR

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Abstract: Determination the location of waste disposal sites has always been a challenge for researchers and government organizations. Since the problem on fundamental level is complicated and bound to several of parameters. The effects of the project from the perspectives of economic, social and environmental should be evaluated delicately. This study focuses on surface water accumulation and flood effects; one of the several criteria at the step of decision making to determine the location of waste disposal sites. As a candidate area Yamanlar region (Izmir), where is located on the caldera, is chosen for examining from surface water effects. The methodology that followed for the study was creating 1-D and 2-D numerical flood models through the objected land and evaluating the solution to keep candidate are safe from effects. Models geometrical data taken from ArcGIS via the Hec-Georas interface and build in one of the well know surface water simulation program Hec-RAS. The result show that the highest rainfall value was found to be 136.4 mm on 8 February 2010 in Izmir. Based on this meteorological data, flood analysis was done Hec-RAS. From the analysis result indicated that it is necessary to design a flood channel that can able to support 1.674 m³/sec for main channel upstream, 2.407 m³/sec for main channel downstream and 0.732 m³/sec for side channel flow rates under suitable hydraulic conditions.

Keywords: Numerical model, waste disposal site, flood effect, natural disaster