

Impact of Expected Climate Change on the Flash Flood Phenomena in Sinai Peninsula

H. M. Moghazy^{1,*}, S. A. Kantoush², E. H. Ouda³

¹Head of Irrigation Engineering and Hydraulics Department, Professor of Irrigation Engineering and Drainage, Faculty of Engineering, Alexandria University, Egypt

²Prof, Water Resources Research Center (WRRC), Disaster Prevention Research Institute (DPRI), Kyoto University, Japan

³Civil engineer, General directorate of Irrigation Improvement projects – West Delta, Ministry of water resources and irrigation, Egypt. PhD student, Faculty of Engineering, Alexandria University, Egypt.

*Corresponding author

Email: Hossam_Moghazy@Yahoo.com

Keywords: Flash Flood, Climate Change, Sinai Peninsula, Hydrological Model RRI

Flash flood is considered one of the most important problems that cause large disasters such as loss of human lives, damage of infrastructures and soil erosion. On the other hand, climate changes became very effective due to development of industry and increasing in human activities that lead to increasing of GHG emissions (greenhouse gases) which cause the global warming and then climate changes. These climate changes may affect surface runoff rates that indicate to flash flood rates.

From this point, the main objective of this research is study of impact of expected climate change on flash flood phenomena in Sinai which was selected because it is the most prone area to flash flood risk in Egypt.

Study will be done according to future data for climate change using hydrological model (RRI) to simulate flow in wadi basins in Sinai Peninsula for getting the peak runoff values in which we can forecast occurrence of flash flood in different zones of study area during the study period. The expected results from this study include: determination of relationship between expected climate change & peak runoff values or (flash flood rates), determination of the most affected zones by flash flood risk in study area during the study period, presentation of risk analysis maps for study area, proposing of mitigation measures from flash flood risk and their required locations and proposing of rain water harvesting methods and utilize it especially in areas have limited water resources. Analysis of flood occurred on wadi Watier in south Sinai has been done using RRI model as a case study in the beginning of this research.