

Flood Planning Based on Risk Optimization: A Case Study in Phan-Calo River Basin in Vinh Phuc Province, Vietnam

Authors : Nguyen Quang Kim, Nguyen Thu Hien, Nguyen Thien Dung

Abstract : Flood disasters are increasing worldwide in both frequency and magnitude. Every year in Vietnam, flood causes great damage to people, property, and environmental degradation. The flood risk management policy in Vietnam is currently updated. The planning of flood mitigation strategies is reviewed to make a decision how to reach sustainable flood risk reduction. This paper discusses the basic approach where the measures of flood protection are chosen based on minimizing the present value of expected monetary expenses, total residual risk and costs of flood control measures. This approach will be proposed and demonstrated in a case study for flood risk management in Vinh Phuc province of Vietnam. Research also proposed the framework to find a solution of optimal protection level and optimal measures of the flood. It provides an explicit economic basis for flood risk management plans and interactive effects of options for flood damage reduction. The results of the case study are demonstrated and discussed which would provide the processing of actions helped decision makers to choose flood risk reduction investment options.

Keywords : drainage plan, flood planning, flood risk, residual risk, risk optimization

Conference Title : ICDEM 2018 : International Conference on Disaster and Emergency Management

Conference Location : London, United Kingdom

Conference Dates : March 15-16, 2018