



Efficient River Management Plan for Urban Flood Disaster Prevention

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In recent years, inundation damage of rivers in major metropolitan cities has become a serious problem in Korea. In major national rivers, damage was reduced through a large-scale river maintenance planning by central and local governments, however, the maintenance of small and medium-sized rivers that pass through flooded cities has been not successful. Therefore, a new approach to evaluating the safety of existing levee and selecting a flood hazard zone along the river is needed. The existing flood hazard area selection has a limitation that it does not reflect the effect on the levee by applying the simple method of calculating the difference between the elevation of terrain and water surface which extending the flood level of the river to inland area. In addition, the evaluation of the levee safety should be prioritized in order to establish the overflow and failure scenarios for the levee.

Therefore, the results of hydraulic analysis are used to select dangerous levee through the evaluation of the physical hazards of the levee and the characteristics of the levee itself and use it for the selection of the flood hazard area. Furthermore, a specialist questionnaire was conducted to estimate the weight factors to be used for MCDM analysis of hazard and vulnerability.

In order to apply this methodology, the safety assessment of the levee was applied to major rivers in Korea and the flood awareness map was made by setting the overflow and failure scenarios for the levee which show the highest risk. The study suggests that comprehensive levee evaluation techniques can be used as baseline data for selection of river reinforcement priority and flood hazard area.

Acknowledgement

This research was supported by a grant (18AWMP-B079625-05) from Water Management Research Program funded by Ministry of Land, Infrastructure and Transport of Korean government.