

## Estimation of Potential Risk for Flood Damage Occurrence

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The Potential Flood Damage(PFD) is widely used for representing the degree of potential of flood damage. However, this cannot be connected with the design frequency of river basin and so we have difficulty in the use of water resources field. Therefore in this study we develop the concept of Potential Risk for Flood Damage Occurrence(PRFD) which can be related to the design frequency. The RPFD has three important elements of hazard, exposure, and vulnerability. The hazard means a probability of occurrence of flood event, the exposure represents the degree that the property is exposed in the flood hazard, and the vulnerability represents the degree of weakness of the measures for flood prevention. The elements also have some sub-elements. Say, the hazard is explained by the frequency based rainfall, the exposure has two sub-elements which are population density and official land price, and the vulnerability has two sub-elements which are undevelopedness index and ability of flood defence. Each sub-elements are estimated and the estimated values are rearranged in the range of 0 to 100. The Analytic Hierarchy Process(AHP) is also applied to determine weighting coefficients in the equation of RPFD. We estimated the RPFD for the Anyang river basin and also the design frequency by using the maximum rainfall. The existing design frequency for Anyang river basin is in the range of 50 to 200. And the result of this study is in the range of 110 to 130. Therefore, we can use the developed method for the estimation of RPFD and the design frequency for the administrative districts and maybe we could apply the method for the watershed and the river channel in the future study.