AOGS 2006

Flood Damage Estimation in Korea

HUNG SOO KIM[1], KEON HAENG LEE[1], MYUNG PIL SHIM[1], SEUNG AN CHOI[1], CHOONG SUNG LEE[1]

[1] *Inha Uiversity, Inchon, Korea*

We had used a simple and an improved methods in the economic analysis for the flood control project in Korea. In 2004, the Multi-Dimensional Flood Damage Analysis(MD-FDA) was developed and now it is widely used for the economic analysis. However, the MD-FDA was developed for general damage assessment and analysis without consideration of specific regional characteristics such as urban and rural areas. So, we modify the MD-FDA for the application in urban area. Say, we modify a part of damage estimation components and suggest a component for the flood damage estimation in urban area. The component we suggest is for the consideration of the capability of stormwater pump stations in the study area. When flood is occurred in the urban area, the damage potential is larger than the rural area because of the concentration of human lives and properties. So, many stormwater pump stations are located in the urban area and the inundation depth is estimated by considering the capabilities of pump stations. We also modify and improve the damage components such as the damages of human life, industrial area, residential structure and contents, and public facilities for the flood damage estimation of the urban area. When we consider the MD-FDA method, the damage of human life might be underestimated and so the death damage is modified by willing-to-pay(WTP) method. The flood damage in industrial area is divided into tangible and stock properties. By the way, the MD-FDA method includes the land value in the tangible property, so we do not consider the land value for the damage estimation of the tangible property. The damage for the contents of the residential structure is estimated by using Expenditure on Gross Regional Domestic Product, (EGRDP). The damage rate of public facilities to the damage of general properties is re-estimated by using damage data by heavy rain, heavy rain/typhoon in the disaster annual report for 7 years on 7 capitals. We compare the results by the modified MD-FDA for the urban area application with those by original MD-FDA. As a result the B/C ratio showed 6.75 and 5.51 respectively for the modified and original MD-FDA. This difference might be largely affected by the damage rate of the public facilities.