



Disaster Vulnerability Assessment in the Korean Coasts

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Recently, the coastal environment has been receiving various and frequent threats due to storm surges and higher waves. In addition, coastal zone vulnerability to marine disasters has been gradually increasing due to climate change. In this study, the vulnerability of disaster in the coastal areas of Korea was assessed for safe utilization and value enhancement of coastal areas. The Coastal Disaster vulnerability Assessment System (CDAS), operated by Korea Hydrographic and Oceanographic Agency, has been designed based on the concept of climate change vulnerability of the IPCC basic framework. The CDVI (Coastal Disaster Vulnerability Index), as a primary part of the CDAS, is derived from the CDII (Coastal Disaster Impact Index) and the CAI (socio-economic and governmental adaptation). The CDII, defined as a function of exposure and sensitivity, were developed with CEI (Coastal Exposure Index: typhoon, surge, wave, tide, sea-level rise, and coastal erosion) and CSI (Coastal Sensitivity Index: human, physical and geographical sensitivity). The parameters for these indexes were gathered from government agencies for national statistics information, numerical model experiments and field surveys. Indicator database was generated with spatial data in coastal areas by GIS analysis after passing the data quality test. In turn, the analyzed data were standardized and classified into five categories by probability distribution. The results of the CDVI were classified by: 2,737.3km (28.4%) for 1st grade, 1,667.2km (17.3%) for 2nd grade, 1,402.3km (14.5%) for 3rd grade, 1,758.7km (18.2%) for 4th grade, and 2,083.8km (21.6%) for 5th grade of the total 9,649.3km. Coastal disaster vulnerability assessment results could be further used as reference indicators to identify the cause of coastal disasters, to establish countermeasures, to aid the decision-making process regarding the sustainable development in coastal areas, thus contributing to effective and safe coastal management.