RESUMEN

A specific catastrophic risk model has been developed to evaluate, building by building, the probabilistic losses and pure premiums of different portfolios, taking into account the seismic microzoning of cities. Understanding probable losses and reconstruction costs due to earthquakes creates powerful incentives for countries to develop planning options and tools to cope with risk, including allocating the sustained budgetary resources necessary to reduce those potential damages and safeguard development. This model has been used to evaluate the fiscal contingency liabilities of the government and to build an optimal structure for risk transfer and retention, considering contingent credits, reserve funds, insurance/reinsurance, and cat bonds. In addition, an innovative insurance mechanism has been implemented for private housing, using the estate-tax payment and covering the all low-income homeowners through cross subsidies. Lastly, the model allows the evaluation of an exceedance probability curve of cost-benefit ratio, providing an innovative and ground-breaking tool for decision makers to analyze the net benefits of the risk mitigation strategies, such as earthquake retrofitting and seismic code enforcement. This paper describes the model and the derived abovementioned tools, using the results of loss scenarios and the strategies implemented in some earthquake prone urban centers.