FICHAS BIBLIOGRÁFICAS - ESTUDIOS PROBABILISTAS DE RIESGO EN COLOMBIA

Título: Prioritizing interventions to reduce seismic vulnerability in school facilities in Colombia

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RESUMEN

Colombian seismic code NSR-98 establishes the requirement for the seismic vulnerability analysis and, if necessary, the strengthening of public facilities (schools). Due to the investments required by risk reduction programs, it is necessary to establish criteria for assigning priorities for the interventions. This article proposes a methodology for obtaining a Benefit-Cost Ratio (BCR) at the subnational level, by assessing the expected annual average loss of the built área of public schools and the retrofitting cost. The BCR is estimated as the difference between the estimates of the net present value for status quo and retrofitted states, these two divided by the retrofitting costs. According to the BCR, 47.3% of the total school built area of Colombia should be retrofitted where the retrofitting costs correspond to 25% of the total investment. Proposed BCR is useful for prioritizing regions in function of the feasibility of reducing the seismic vulnerability of the schools.

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Prioritizing interventions to reduce seismic vulnerability in school facilities in Colombia

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PALABRAS CLAVE	Seismic vulnerability, school facilities, Colombia

COMPONENTES DE LA EVALUACIÓN

AMENAZA	1. Tipo de amenaza: sismo 2. Métricas de intensidad: Peak Ground Acceleration (PGA) 3. Escala/resolución: Nacional 4. Resultados: Tasas de excedencia en roca para diferentes períodos estructurales, Mapas de amenaza integrada 5. Localización: Colombia 6. Metodología: Estudio general de amenaza sísmica de Colombia (AIS et al, 2009), CRISIS 2007 (Ordaz, 2007) 7. Períodos de retorno (años): 500
VULNERABILIDAD	1. Tipo de vulnerabilidad: Física 2. Metodología: ATC 13 (1985), HAZUS 99 (FEMA, 2003) 3. Tipología estructural: Madera, mampostería, concreto reforzado 4. Representación: Función de vulnerabilidad; PGA vs. Valor esperado de la pérdida
EXPOSICIÓN	1. Tipo exposición: Edificaciones 2. Portafolios: Educación 3. Localización geográfica: Colombia 4. Valor de reposición total: 11,327 Millones U$D 5. Área expuesta (m2): 20,710 * 10^3
RESULTADOS DE RIESGO	1. Modelo utilizado: Comprehensive Approach for Probabilistic Risk Assessment (CAPRA) 2. Métricas de riesgo: Pérdida Anual Esperada (PAE), Pérdida Máxima Probable (PML) 3. PAE: - 4. PML: - 5. Representación del riesgo: Curva de excedencia de pérdidas