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An indexing approach to assess flood vulnerability in the western coastal cities of Mazandaran, Iran

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Abstract

River flooding is a common natural disaster in the southern coastal strip of the Caspian Sea and is of great concern in cities in which the flood risk, mostly due to the high level of vulnerability, is significant. The principle aim of this study is to invent an indexing method for the assessment of vulnerability toward floods in the western coastal cities of Mazandaran Province, Iran. The developed indexing method assesses the vulnerability through identification and evaluation of effective criteria by scoring technique. These criteria are categorized into three indices (technical, socio-economic and population-environmental ones) and cover the factors of vulnerability toward floods, i.e. exposure, susceptibility and resilience. The method defines the flood vulnerability by a quantitative magnitude called relative vulnerability score and results in the vulnerability zoning of the area under assessment. The method was applied in Nowshahr (a city in Mazandaran) and the obtained results showed that: (1) the indexing method leads to a relative sense and an overall picture of the urban vulnerability toward floods, (2) the urban zones surrounded by two rivers, are in danger of a high level of the vulnerability, especially the first floors of the buildings, (3) it is

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