

Evaluation of anti-disaster ability of street network based on reliability analysis and ANR indicator

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Reliability analysis and a simulation approach are used to investigate the connection ability and the service level of the road networks in an emergency time after a large disaster. The objectives of this study are to examine the suitability of indicator of anti-disaster ability in a district level and to examine street networks with anti-disaster ability in case study areas.

Application of GIS-assisted Inundation Potentials Information for Chau-lin Landslide Lake Formed by Chi-Chi Earthquake in Taiwan

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Without any omen, massive landslides induced by the Chi-Chi earthquake blocked up gorges of Ching-Shui Creek, Chiu-Tsai-Hu Creek, and Se-Tzu-Keng Creek, and produced three new landslide lakes. Although emergency spillways have been constructed to prevent dam failures, overtopping and possible breaching may still occur due to excessive inflows in raining seasons. As a result, the downstream valleys will have serious inundation and the safety of people and properties will be in immediate danger. The purpose of this paper is to demonstrate the application of the GIS-assisted inundation potentials information for Chau-lin landslide lake with hydrologic/ hydraulic approach and GIS (Geographic Information System) technology. Hydrologic information is employed to describe regional rainfall-runoff characteristics and to design rainfall/runoff scenarios. One-dimensional dam break flood routing information is performed with different return periods of rainfall events and dam failure durations for downstream creeks. The depletion hydrographs of dam break routings are applied into two-dimensional overland flow simulations for downstream lowlands. Based on the technique of GIS analysis, the inundation potential information can be used to assist the planning of emergency response measures.

A Comparative study of Built-up Area Reconstruction Measure and Strategy among Earthquake Disasters of Hanshin Awaji (Japan), East Marmara (Turkey) and 921 Chi-chi (Taiwan)

Taro ICHIKO & Itsuki NAKABAYASHI

This article is a comparative study of post-earthquake responses, mainly recovery and reconstruction of houses. It compares the 1995 Hanshin-Awaji Earthquake (M7.2) with the 1999 East Marmara Earthquakes (M7.4 and M7.2) and the 1999 Taiwan 921 Chi-chi Earthquake (M7.7).

The authors compare public support for housing for displaced people. Housing recovery in each of these three earthquakes proceeded through several common processes: refuge, temporary housing, housing recovery schemes, and reconstruction projects. The authors comparatively analyze each stage in the process by gathering materials from each country. This paper suggests two conceptual perspectives for recovery/reconstruction planning.

The first is land-use planning and building control for disaster mitigation. The second is a relocation strategy (B whether to "rebuild in the affected area" or "settle anew in the suburbs").

Continuous Monitoring on Recovery Processes from Disaster Using CCD Camera System; 1995 Kobe earthquake, Japan and the Chi-Chi, Taiwan Earthquake of September 21, 1999

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The goal of this study is to establish a numerical recovery process simulation model, which makes it possible to estimate when the recovery from disaster will complete, what factor accelerates physical recovery. This paper discusses about the following topics, as the first step of this study; 1) the method to get the time series of physical recovery degree from a series of observed images, 2) the relationship between the physical recovery degrees and behavior of impacted people.