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Land Use Adaptation Strategies Analysis in Landslide Risk Region

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In order to respond to the impact of climate and environmental change on Taiwanese mountain region, this study used GTZ (2004) Risk analysis guidelines to assess the landslide risk for 178 Taiwanese mountain towns. This study used 7 indicators to assess landslide risk, which are rainfall distribution, natural environment vulnerability (e.g., rainfall threshold criterion for debris flow, historical disaster frequency, landslide ratio, and road density), physicality vulnerability (e.g., population density) and socio-economic vulnerability (e.g., population with higher education, death rate and income). The landslide risk map can be obtained by multiplying 7 indicators together and ranking the product. The map had 5 risk ranges, and towns within the range of 4 to 5, which are high landslide risk regions, and have high priority in reducing risk.

This study collected the regions with high landslide risk regions and analyzed the difference after Typhoon Morakot (2009). The spatial distribution showed that after significant environmental damage high landslide risk regions moved from central to south Taiwan. The changeable pattern of risk regions pointed out the necessity of updating the risk map periodically.

Based on the landslide risk map and the land use investigation data which was provided by the National Land Surveying and Mapping Center in 2007, this study calculated the size of the land use area with landslide disaster risk. According to the above results and discussion, this study can be used to suggest appropriate land use adaptation strategies provided for reducing landslide risk under the impact of climate and environmental change.