



The Influence of Environmental Change on Village Safety in Mountain Area: A Case Study of Haucha Village in Taiwan

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Haucha Village is an indigenous tribe of Rukai people in Pingtung County, Taiwan. Due to the difficulty of providing transportation, education, medical services and jobs, residents were migrated from “Kochapongan” to Haucha village by local authorities in 1980. The site of the relocation is located three km away from Haucha. The new residents in Haucha village lived safely and peacefully before 1996. However, Typhoon Herb brought the first debris flow hazard in 1996, and it caused four deaths. Then, several typhoons caused some damage to the village. Recently, Haucha village was destroyed during typhoon Morakot in 2009 when 128 buildings were buried by sediments.

In this study, we used historical map, typhoon records, rainfall data, and the change of river bed elevation to determine the environmental change and the safety of Haucha village. Our results show that Haucha village was located on sand bar of Southern Ailiao stream before 1924, and formed a river terrace between 1925~1960 that was 30m higher than the river bed. Local authorities decided to move Rukai people from Kochapongan to Haucha in 1970. After 30 years, the elevation of Haucha village was equal to the river bed, in other words, the village formed a flood plain of Southern Ailiao stream after typhoon Morakot in 2009. The present landscape of Haucha village looks similar to the one 100 years ago. Morphological changes of mountain area is more rapid than plain changes, hence, we should considered larger temporal and spatial scales to evaluate the village’s safety in the mountain area.