

# **Land Suitability Analysis for Habitant Relocation in Debris Flow Prone Area**

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Taiwan has a high disaster risk in debris flows that there were 1,420 streams vulnerable to debris flow in 2003, 1,503 in 2009 and 1552 in 2010 according to the statistics of the Soil and Water Conservation Bureau. In recent years, debris flows have become one of the major disasters in Taiwan, causing even loss of whole villages. There were 11 villages relocated after Typhoon Morakot hit Taiwan in 2009. Relocation is then a challenge for post-disaster reconstruction.

The research aims at a framework of land assessment to locate proper sites for post-disaster relocation. We investigated some post-disaster relocation projects, both success and non-success cases, to conclude factors should be concerned in relocation projects. Six aspects of factors were concluded that a successful relocation project has to be legal in procedures, secure in location, feasible in finance, satisfied in social and cultural identity, and economic possible for individual and family development, finally, the willingness to cooperate relocation project. The first three are mainly government authority concerns and the others are related to the welfare of people to be relocated.

Based on the finding, a land suitability analysis procedure is developed to bind together both government and people concerns. The framework is composed of three main modules: (1) to exclude unsafe disaster prone area, disaster risk maps are made to identify high debris flow, landslides, flood risk villages by using the susceptible maps published by Water Resources Agency, Soil and Water Conservation Bureau and The Central Geological Survey to associate with the disaster precipitating factors and the vulnerability of population, industry and infrastructure, (2) to avoid area where may be environment sensitivity, illegal in laws or rigid in regulations, (3) accessibility assessment, including the accessibility of settlement residence, industrial development, transport convenience and public facilities support. Finally, the relocation of Siaolin Village, which was wiped off in Morakot, was tested and examined.

*Keyword: debris flow, relocation, land suitability analysis, disaster reduction*