



## **Title: Watershed Environment Impact from Sediment Related Disasters Caused by Heavy Rainfall Under Climatic Change in Taiwan**

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Extreme rainfall intensity was brought by Morakot typhoon in August, 2009. The accumulated rainfall amount was more than 2,900mm within continuous 3 days in southern Taiwan. Seriously landslide, debris flow, flooding and sediment related disasters were induced by this heavy rainfall event. This research mainly focuses on applying field investigations integrated with GPS/GIS/RS techniques to analyze the characteristics and mechanism of disasters. According to the satellite image analysis conducted by Soil and Water Conservation Bureau after Morakot event, the result indicated more than 10,904 sites of landslide with total sliding area of 18,113ha were found by this project. Kao-ping watershed located at Kaohsiung and Pingtung counties were selected as study areas. Mechanism, characteristics, and scale of these disaster areas in the watershed are analyzed to rule out their interaction of the factors and the extent of the sediment related disasters.

Study on the mechanism and behaviors of disasters induced by heavy rainfall become an important issue which was seriously concerned by all people live in Taiwan. The mechanism of sediment related disasters under climate change during the past 10 years would be seriously concerned by this research. According to the simulation of both A2 & B2 models developed from IPCC(Intergovernmental Panel on Climate Change), the discharge and suspension load resulted from Kaoping river catchment have been increased more than 25-33% and 5~8% on both rainy and dried seasons respectively. All these results can give a general reference to prevent the sediment related disasters from Kaoping Watershed in the southern Taiwan.

### **Biography**

Tsai received the B.S. and M.S. degrees from National Chung Hsing University in 1974 and 1976 respectively. He completed his Ph.D degree on the subject of geotechnical engineering from Montana State University at Bozeman,USA in 1983. Dr. Tsai has been serviced as a

distinguish chair professor of land management and development department at Chung Jung Christian University since 2006. Professor Tsai was also a direct general of Agricultural Bureau in New Taipei city, Taiwan. He has done a lot of researches regarding to the large-scale landslide and debris flow disasters induced by heavy rainfall under extreme climate change since 1990.