Disaster Prevention Research Center, National Cheng Kung University, Taiwan

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Outline: In summer of 1996, Typhoon HERB brought a tremendous rain and caused severe floods and sediment-related disasters especially debris flow disaster along the Chen-Yo-Lan river, the disaster prevention becomes a focal point as well as common needs of society. Hence, the Disaster Prevention Research Center of National Cheng Kung University was established in October 1996, and operated officially in February 1997.

The mission of DPRC is to reduce the disaster damage in Taiwan via knowledge of international scholars and experts, applications and research of updated technologies, as well as improving the skills of disaster prevention and rescue for the government. DPRC has five research divisions and one administrative division. The research topics of DPRC include Multi-Investigation, Evaluation and Prediction for Disasters, Database Development, Monitoring and Warning System for Disasters (Figure 1), Countermeasure Planning for Disasters (Figure 2), Numerical Simulation for Disasters, Consultant and Cooperation for Disaster Prevention, Remote Sensing and UAV Application (Photos 1 and 2), Cloud Computing (Figure 3), Application for Disaster Research, and Policy Research.

Photo 1 UAV

Photo 2 An aerial photo taken by the UAV

Figure 1 Landslide dam monitoring system

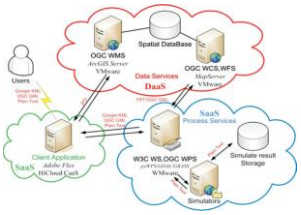

Figure 3 Hazard Mapping

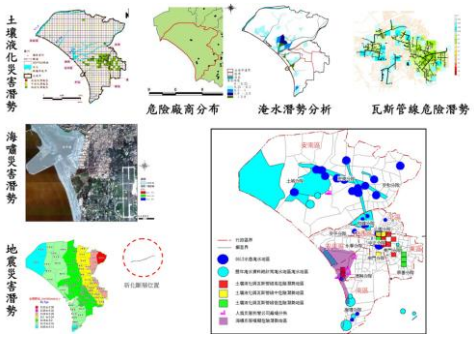

Figure 2 Hazard Mapping

Recent Research Achievements

The global warming and climate change is now an emerging problem worldwide, unfortunately it will keep aggravating, and unknown disasters lurk for fiercer attacks. As indicated by the National Science Council of Taiwan, the magnitude of extreme rainfall in Taiwan tends to increase substantially. Therefore the magnitude of disasters related to the rainfall may significantly increase as well. DPRC has proposed a tool to evaluate the risk of existing water resource facilities under climate change, and to assess the expected benefit of countermeasures. Decision makers can make a better decision for countermeasures based on the tool. In addition, DPRC developed a framework that takes into account the effect of climate change to identify the affected areas of potential deep-seated landslides. If the deep-seated landslide is located near a river, a landslide dam will form with a high probability. DPRC also proposed the method to evaluate the potential of the corresponding landslide dam formation and break, so that the government can take further action on the probably upcoming disasters.