Real Time Disaster Information Transfer and Emergency Operation Systems Established for Remote Mountainous Communities in Southwestern Taiwan

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ABSTRACT

According to the report (1990) proposed by Intergovernmental Panel on Climate Change (IPCC) indicated that Extreme Climate Change has a detrimental effect on the environmental ecology, cultural system, human society and national economic development all over the world since 1950. Taiwan is located at Pacific-rim area and belongs to the sub-tropic to tropic weather
characteristics. Recently, extreme heavy rainfall resulted from climate change to induce serious sediment related disasters, such as large-scale landslide and debris flow, are critical in Taiwan. There are almost 24% of total remoted mountainous communities were located within Chiayi, Tainan, Kaohsiung and Pingtung counties/cities with the amount of 50 remote communities where is almost 24% of high potential risk area occupied by remote mountainous communities in Taiwan. Most of these communities were frequently attacked by typhoons likes Morakot (2009), which brought the accumulated rainfall more than 2450 mm within continuous 72 hours. This extreme rainfall has triggered off a crisis of compound disasters to destroy the environment systems, agricultural productions, human lifes, properties and public facilities. Within there mountainous communities more than 608 landslides with total area of 968.2ha were induced by these disasters which were based on the field investigations. In order to decrease the risk of sediment related disasters attack these remoted mountainous areas, the adaption strategy of environmental conservation, new technology of filed investigations, hazard mitigation system, environmental vulnerability analysis and disaster risk assessment should be executed as soon as possible. According to the historical record (2007-2018) from soil & water conservation Bureau indicated that most of the remote mountainous communities located at southwestern Taiwan attacked by these compound disasters are significant. Meanwhile, study on the mechanism and behavior of compounded disasters induced by extremely heavy rainfall become an important issue which was seriously concerned by Taiwan government. An establishment of real time disaster information transfer and emergency operation systems would be positively concerned and recognized as an important issue by this research. Hopefully, all results can be expected to promote and enhance the disaster prevention capability for the remoted mountainous communities in southern Taiwan.

Keywords: climate change, extreme rainfall, sediment related disasters, adaption strategy