

Debris flow hazard mapping considering the effect of mitigation structure – a case study in Taiwan based on numerical simulation

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2 STUDY SITE

Nantou DF190 potential debris flow torrent with 3 main events :

- 1) Typhoon Herb(1996): 470,000 m³, 21 houses damaged, 2 death
- 2) Typhoon Toraji(2001): 92,750 m³, 0 houses damaged, 0 death
- 3) Rainfall event (2012): 80,000 m³, 0 houses damaged, 0 death

SWCB History Photo Platform



Typhoon Herb(1996)

Typhoon Toraji(2001) Mitigation structures were finished before disaster.





Rainfall event (2012)



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MITIGATION STRUCTURE

Mitigation structures of Nantou DF190 potential debris flow torrent :





HAZARD SIMULATION (General Assembly 2020)



Max.





80,000 m³(Without structure)



92,750 m³(Without structure)



470,000 m³(Without structure)



80,000 m³(With structure)



92,750 m³(With structure)



470,000 m³(With structure) Max. velocity



HAZARD SIMULATION (CONSULTANTS, INC. CONSULTANTS, INC. CONSULTANTS

Max. flow height RESULT







80,000 m³(Without structure)



92,750 m³(Without structure)



80,000 m³(With structure)



92,750 m³(With structure)



470,000 m³(Without structure) 470,000 m³(With structure) Max. flow height



HAZARD SIMULATION (General 2020) Inundation RESULT



area





80,000 m³(Without structure)



92,750 m³(Without structure)



470,000 m³(Without structure)



80,000 m³(With structure)



92,750 m³(With structure)



470,000 m³(With structure) Max. flow height





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Thanks for your attention

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