**Introduction**

This study used time-lapse photography to record the slit check dam in Huisun experimental forest, Nantou, Taiwan, and set series scale-model in lab. On July 13 2013, typhoon Soulik landed in North Taiwan and caused heavy rain totaling up to 550mm and caused debris flow to occur at Law-Dow River within the test site and the slit check dam got buried.

The study purposes are to research sediment trapping efficiency of slit check dam with different types of removing transverse beam and interaction with landslide induced by heavy rainfall.

**Experiment Installed**

Particle size distribution test of surface was executed at Lan-Dow river, and used the laws of geometric similitude to design model of dam and experimental rocks.

**Results and Discussion**

The result of experiment showed both of slit check dam and slit check dam with steel, the trapping efficiency declined with discharge increasing. Furthermore, we find similarity between laboratory experiment and field event by particle size analysis. In the field the sediment d95 is 0.7m in upstream of slit check dam and d95 is 0.6m in the slit check dam. By compression ratio(1:25), we find it closed to the laboratory experiment result that the sediment in upstream d95 is 2.939cm and in the slit check dam d95 is 2.7cm.

**Conclusion**

The result of experiment showed that slit check dam and slit check dam with steel could reduce rate of sediment discharge and total sediment discharge, and improve sediment trapping efficiency after installing transverse beams. By comparing history events, the slit check dam can reduce damage and impact caused by landslide.