EGU2020-2851
https://doi.org/10.5194/egusphere-egu2020-2851
EGU General Assembly 2020

Planning method and application case of debris-flow check dams in water and soil conservation

Jiangang Chen, Huayong Chen, and Xiaoqing Chen
nstitute of Mountain Hazards and Environment, Chinese Academy of Sciences (CAS), Chengdu, 610041, China
(chenjg@imde.ac.cn)

Check dams are transverse structures build across gullies and they are very important engineering measure in soil restoration hazard mitigation. After three successive earthquakes in China, a considerable number of solid material was deposited in gullies. With the extreme rainfall, a numerous of flood and debris flow events were trigged, some of them caused serious secondary disasters. In the past 12 years after the Wenchuan earthquake, based on the debris-flow prevention method by controlling debris-flow magnitude and avoiding blocking river, a series of check dams were constructed to regulate the water and soil erosion. The operation status of check dams needs to be investigated and summarize the engineering practice experience. Based on the results of field investigation, the shape and size characteristics of the dam opening were analyzed, and then established a classification system of the opening clogging types. Moreover, in August 20, 2019, Flash floods and mudslides occurred in Wenchuan County, causing more than 30 people dead, buried the G213 highway, and damaged a bridge. These disasters bring new thinking for future hazard mitigation. Geotechnical measures can quickly reduce the disaster risk of flash flood and debris flow, and now it has formed a set of perfect design standards. However, the disaster mitigation effect of the vegetation measures are not fully studied. Thus, the integrated disaster mitigation effect of the above two methods will be investigated in the future work.