

鋼製防砂壩之土石流攔阻效果的相關考察

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摘 要 2013 年 7 月 13 日蘇利颱風登陸北台灣，在惠蓀林場蘭島溪引發土石流，並挾帶大量土砂將本研究在蘭島溪中設置的鋼製防砂壩淹沒。為此，本研究透過現場監視相機影像與現地調查，分析土石流在遭遇鋼製防砂壩時的攔阻、堆積過程及其停淤的型態，進而驗證鋼製防砂壩對的土石流攔阻成效。依監視相機的現場影像可知，鋼製防砂壩的儲砂容量在攔阻土石流及其後續高含砂水流之土砂後到達飽和狀態，然而上游仍持續且長時間地流出大量土砂，因而導致後續出流的土砂越過壩體並在下游面淤積，繼而從下游面淹沒壩體。此外，現場調查結果顯示，鋼製防砂在攔阻土石流的同時，大小卵、塊石亦在防砂壩的結構間相互咬合，並致使鋼構間的開口部封閉，從而抑制了攔阻土砂的流出。

關鍵詞：鋼製防砂壩、土石流、土石流攔阻型態、土石流攔阻效果。

Consideration about Debris Flow Capture Effect of Open-type Steel Dam

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ABSTRACT Typhoon Soulik struck the northern part of Taiwan on July 13, 2013 and made debris flow occur at Law-Dow River in Huisun forest area. Open-type steel dam placed there got buried under the enormous amount of sediment and gravel flowing down with debris flow. This manuscript is about the consideration on debris flow capturing effect of open-type steel dam, by verifying the debris flow capturing and depositing process and capturing form by the open-type steel dam, based on the monitoring video data and field survey. The debris flow's flowing down condition and capturing condition was being clarified by the monitoring video data, and we found out that the reason why this dam got buried was because the sediment trap capacity got full due to the continuous and long lasting sediment and gravel flowing down even after the capturing of debris flow and subsequent flow, so subsequent sediment and gravel was deposited to the downstream side by flowing over the dam. In addition, it was also confirmed by the field survey that the open-type steel dam closed up its opening by the entanglement of boulders, and its vertical and horizontal members stabilized the entanglement, leading to the prevention of captured sediment and gravel from flowing down.

Key Words: Open-type steel dam, debris flow capture form, debris flow capture effect.

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