

定量流超載與減載輸砂試驗

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摘 要 台灣地質脆弱、地形陡峭，山坡地集水區上游常發生崩塌而造成大量土石崩落河道中，使得上游之供砂量大增，在供砂量大於水流挾砂能力之情況下，而形成超載之現象；相對的因防砂構造物的設置，可能攔阻上游砂石，造成上游之供砂量減少，而形成減載之現象。由之泥砂來源之多寡乃為影響河道床面變化之重要因子，因此，本研究於不同流量與不同坡度之定量流狀態下，於上游提供不等量之砂石，觀察上游來砂量對於河道床面變化之影響。

由試驗結果顯示，當上游來砂量充足，則河床床面穩定性高，河床沖淤變化幅度小；反之，在上游泥砂來源不足的情況下，則河床面之沖淤量變化較大，代表河床面的穩定性相對較低。此外泥砂遞移率初期隨著上游供砂量的不同而有差異，但隨時間之增長會趨近於定值，顯示河道具有自我調節的能力。

關鍵詞：超載、減載、泥砂遞移率。

Sediment Transportation Experiment with Overloading and Underloading in Steady Flow

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ABSTRACT Due to the geological structure and steep slope of mountainous areas in Taiwan, landslides frequently occur and sediment collected at the upstream will tend to overload on the creek. Sediments control works were established to block sediment and led to scouring of the channel bed. [Editor: I don't know if the previous sentence keeps your intended meaning.] Therefore the quantity of sediment delivery becomes an important factor influencing river bed changes. This paper intends to research the relationship between sediment delivery and river bed with different discharges and bed slopes.

According to the experimental result, it showed sediment supply was abundant, the river bed was stable and the bed change of scouring and deposition was small. Sediment supply was less, and the river bed was unstable. As to the sediment delivery ratio, there were different variations with different sediment supply in the initial stage and this gradually become constant. It showed river have a self-adjusting ability in the steady flows state.

Key Words: overloading, underloading, sediment delivery ratio.

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