

## 淤積土砂現地拌合配比之研究-以知本溪為例

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**摘要** 近年來全球暖化的氣候變遷造成極端水文事件頻仍，每遇颱風重創臺灣地區，大量土砂下移、淤積就會致生災害，由於這些土砂量體頗大且品質較差，砂石業者興趣不高且無法於短時間清疏，不僅影響復建工程的進程，若就近堆置若處理不當更會成為下次災害的料源。本研究依日本現地處理工法(ISM)之概念，利用重量比法調配水泥與知本溪淤積土砂之拌合配比，探討砂石比例、含泥量及配比水泥用量等對拌合體強度之影響，得知就砂石比例而言，當砂含量在 40%~50%、礫石含量在 50%~60%時拌合體強度較高；當含泥量超過 10%時，拌合體強度分佈較散，且強度有明顯落差；就配比水泥用量而言，拌合體強度與配比水泥用量有高度的相關性；由砂石比例、含泥量及配比水泥用量比對歸納拌合體強度狀況則相關係數分別為 0.5427、0.8720 與 0.9979，這些因子應可作為知本溪現地拌合配比之調配基準。

**關鍵詞**：淤積土砂、知本溪、現地拌合、配比。

### The Study of Sediment Deposition in Situ Mixing Ratio - A Case Study of Chih-Pen Creek

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**ABSTRACT** In recent years, global warming caused climate change and frequent extreme hydrological events. Every time when typhoon hit Taiwan large volume of sediment from landslides or debris flows to block river and let it bed obstruct high. Due to the considerable volume of sediment quantity and poor quality, gravel industry no interest in this poor quality sediment for engineering in general, thus it can not be dredged in a short time after disaster happen. It not only affect the process of rehabilitation engineering, nearby stacked if not handled properly well become the source material in next disaster.

This research took the concept of in situ mixing(ISM) technology from Japan, used weight ratio method to design the mixing ratio of cement and aggregates, and analysis of the impact with the ratio of sand and gravel, the clay content, and the amount of cement. The result show the appropriate ratio of sand and gravel for mixing stuff strength was the sand content in 40%~50% and the gravel content in 50%~60%. In terms of clay content exceed 10%, the strength of mixing stuff was spread quite fragmented, it strength was non-uniformity and drop. Additionally the amount of cement, the strength of mixing stuff had highly correlation with the ratio of the amount of cement. The correlation coefficient of regression analysis by the impact with the ratio of sand and gravel, the clay content, and the amount of cement were 0.5427, 0.8720 and 0.9979, This should initially as to design the sediment deposition in situ mixing ratio reference.

**Key Words:** Sediment deposition, Chih-Pen creek, In situ mixing, Mixing ratio.

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