

# **A Study on Engineering Behaviour of Fly Ash Stabilized Sub-Standard Road Materials in Botswana**

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## **ABSTRACT**

About 400 tons of fly ash is being produced daily in Botswana as waste product, which is about 250 kg per annum per sq km of country's area. Disposal of such enormous mass has alarming environmental impact on eco-sensitive Kalahari Desert, which is occupying about 80% of Botswana's area. Such disposal problem encouraged bulk utilization of fly ash. So far, only 50% is being used in the local cement industry. Botswana has also substantial amount of non-compliant marginal quality pedogenic materials viz., calcrete, ferricrete, and silcrete for construction of roads. Some of them are not suitable for the base/subbase layers without proper treatment. Accordingly, attempts have been made to improve the quality of such materials by blending with fly ash in different proportions. Extensive laboratory tests reveal encouraging outcomes with varied compaction efforts. Experimental investigations indicate fly ash as an economic and sustainable substitute over conventional additives. Relations are worked out for optimal level of fly ash corresponds to required California Bearing Ratio (CBR). Some atypical responses of CBR with varied ranges of fly ash and compaction efforts are also explored.

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