Performance of Pavement Constructed with Fly Ash Stabilized Materials in Botswana

Moumy D Sarma[1]

[1]Materials and Research Division, Roads Department, Ministry of Works and Transport, P.O. Box 40893, Gaborone, Republic of Botswana

KEYWORDS: fly ash, stabilization, materials, product, disposal, environment, use,

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 them with fly ash in different proportions for construction of roads. Results of various laboratory investigations encouraged use of fly ash for field experiments. Trial sections of a paved road were constructed using fly ash as constituent ingredient in different pavement layers. The performances of the trial sections are being monitored since completion of construction substantiated with periodical assessment of strength and visual condition parameters. Outcomes of the performance study enable understanding behaviour of fly ash stabilized roads.

Submitted for consideration in the 2007 World of Coal Ash Conference, May 7-10, 2007.