APPLICATION OF OTTA SEALS ON LOW VOLUME ROADS IN TANZANIA:

ABSTRACT

An Otta Seal is a sprayed bituminous surfacing using graded aggregates ranging from natural gravel to graded crushed rock instead of single sized crushed chippings used in conventional surface dressings. Otta seals is among a family of thin bituminous surfacing including surface dressings, Otta seals, cape seals, Sand Seals; and slurry seals, and are used throughout the world for surfacing newly built roads with light to medium traffic.

Double Otta Seal pilot projects on selected regional roads in Tanzania were applied successfully on a total of about 70km in various regions in Tanzania Mainland. The MC 3000 cutback bitumen and screened natural gravel were used in the pilot projects throughout. MC 3000 was made by cutting back on site 150/200 pen grade bitumen by mixing with about 8% kerosene was used in Tanzania.

Otta sealed road sections were opened to traffic immediately after completion of the sealing operations but speed was restricted to a maximum of 40 km/hr during the first 2-3 weeks. After 3-6 weeks of trafficking, excess aggregates were broomed off the road surface and the speed limitation was lifted.

During Otta Seal operations in Tanzania, some challenges encountered included the Contractors waiting for 8-12weeks depending of traffic volume) before application of the second Seal, had contractual implications, On steep gradients application of Otta Seal was rather difficult due to tendency of run off of the low viscosity soft binder, appearance of Otta sealed roads at the beginning raised concern and criticism from the public due absence of familiar “black top” and presence of dust, which are unusual for conventional surface dressing and asphalt concrete.

Based on experience on Otta seal application in Tanzania, the following were learnt:

(i) Despite challenges encountered, Otta Seal is considered to be a cost-effective bituminous surfacing option in Tanzania especially in areas where there is abundant natural gravel and crushed aggregates are scarce.
(ii) Otta sealing is considered to be rather inappropriate on road sections with very low traffic volume as trafficking plays an important role in curing of the Otta Seal.
(iii) Otta Seal is difficult to apply on road sections with steep gradients and therefore conventional Surface Dressing is considered to be more appropriate in such sections.
(iv) Small Contractors implementing Otta Seal need a short hands-on training.
(v) A number of contractual issues such as the requirement for the first Otta Seal to be trafficked for a minimum of 8-12 weeks before the second Otta seal is applied have to be taken into consideration at tendering stage.

Specifications and design requirements for the Otta Seal were included in the Tanzania Pavement and Materials Design Manual 1999 and Standard Specifications for Road Works (SSRW 2000)