DEVELOPMENT OF ROAD MAINTENANCE MANAGEMENT SYSTEM FOR UNPAVED ROADS IN KENYA

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ABSTRACT

Road maintenance management is a big challenge in most countries in the world today. Technology however has been effectively used to solve some of these problems in some countries.

The aim of this study was to identify problems and shortcomings of current road maintenance practise and develop a computerised road maintenance management system for unpaved roads in Kenya. A questionnaire was used to elicit data on the current unpaved road maintenance practices in the country. Stratified and proportionate sampling techniques were used to select the respondents who participated in the study. Data collected was analysed, summarised and described using qualitative statistical techniques.

The results showed that road maintenance works are not properly and efficiently planned, prioritised and tendered. The current methods of monitoring and reporting on time, physical and financial progress of road works are not standard and inefficient since they take more time and involve a lot of paperwork.

As a solution to the current practise shortcomings, a computer based road maintenance management system was developed which incorporates all the stages of a maintenance cycle i.e. road inventory survey, road condition survey, road prioritisation, road maintenance plan, tender evaluation, contracts time schedules and progress, measurement and certification, work and financial progress reporting.

Raw and collected data were used to validate the system and it showed that it is able to produce road inventory survey and road condition survey reports, prioritise roads

and evaluate tenders, monitor time, physical work and financial progress of contracts among others.

The developed system was found to be efficient, flexible for use since it can be used with any contract document specifications and can also be customised for use in any part of Kenya with different needs, requires less labour, reduces the amount of paperwork, is less prone to errors and requires less time to carry out various road maintenance management tasks. It can also minimise corruption and increase openness. It is hoped that adoption of the management system will lead to improvement in unpaved road

maintenance in the country.