Accuracy of road management data collection at various information quality levels

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Abstract
A complete pavement management system contains a number of different decision-support systems which operate together with an information system. Types of decision-support systems include planning, programming, preparation and operation. Planning systems are used for strategic planning to develop long term plans for the road network as a whole whilst programming systems are used to develop medium term plans. On the other hand, preparation and operation systems are employed for project preparation and management of maintenance operations, respectively. The most detailed data is required for the operation system whilst the planning system utilises the least detailed data. This paper presents the results of a research project which was carried out in Tanzania in order to establish the loss of data accuracy as the data collection moves from very detailed level (IQLI) to a higher Information Quality Level (IQLIV). In this study two types of defects, which have been found to be predominant in Tanzania, namely cracking and potholing, were investigated. The study found that there is a significant loss in data accuracy (for potholing and cracking assessment) as the level of data detail progresses from IQLI to higher level IQLs. However, the study demonstrated that, for the network level analysis, the impact of the loss in data accuracy on the resulting first year work programme and budget estimates is not as significant.

Keywords:
Information quality level,
Decision support system,
Data accuracy,
Life cycle cost analysis,
Multi-year forward programming