

Developing models for predicting time and cost overruns in road construction projects: a case study of the Tanzania National Road Agency (TANROADS)

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Many road construction projects in Tanzania suffer from time and cost overruns, and there are no models to forecast their magnitudes. This dissertation on Developing Models for Predicting Time and Cost Overruns in Road Construction Projects: A Case Study of the Tanzania National Roads Agency (TANROADS), identified, ranked and prioritized factors influencing them at construction phase and explored whether there is an association between them. Sixty six respondents, about 67% of the total questionnaires sent out, ranked pre-identified factors. Using data from 35 projects executed by TANROADS between 2002 and 2006, the forecasting models were developed. The study established that inadequate contractors capacity (icc); availability of road construction equipment (ae), funding delays (fd); inadequate funding (if); unrealistic client's time and cost budgets (ucb); fluctuations of materials, labour and plant costs (fc); and poor supervision (ps) respectively were the top ranked. Having rated the factors on a 5-point scale, the predicted project completion duration, D (in days) and predicted contract value, V (in shillings) are respectively given by $D = -74.5 + 1.3d + 19icc - 23.2ae + 27.7fd + 9.6f + 5.1ucb$ and $V = -934.9 + 1.7v + 640icc - 526.8ucb + 344.6ae - 73.8fd - 316.7fc + 121ps$. The adjusted coefficients of multiple determinations (R²) show that 96% and 93% of the variations in the time and cost overruns respectively could be explained by the top ranked factors. However, the findings were derived from projects carried out by TANROADS alone; they should not therefore be generalized to projects which fall in different environment. A research encompassing projects in other civil engineering and building categories, which were not included in this study, is recommended.