

Investigation into Detrimental Variations in Public Building Projects in Tanzania

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ABSTRACT

Detrimental variations are variations which negatively impact the performance of construction project resulting into scenarios such as cost overruns, time overruns, project abandonment, rework, disruption and conflicts. These scenarios have led to non-fulfilment of project objectives. The main objective of this research was to investigate the causes of detrimental variations and their adverse effects in public building projects in Tanzania and to suggest ways of minimizing them. The research design used for this study was a survey which relied on a pragmatic approach of both quantitative and qualitative research methods. A questionnaire survey was used to rate variables related to causes of variations, effects of variations, mitigating factors, construction performance predictors and responses. Interviews and case studies were used to investigate the current practice of variations in building projects. The T-test analysis, Coefficient of Variation (COV) Analysis, Analysis of Variance (ANOVA), Cronbach's alpha reliability test and Principal Component Analysis (PCA) were used to analyse data. The analysis considered generated significant independent and dependent variables that formed the basis for the developed detrimental variation mitigation model. Focus group discussions and case studies were used to validate the developed model with regard to its usefulness, clarity and applicability. The research findings indicate that public building projects in Tanzania suffer detrimental variations and their adverse effects such as cost and time overruns. The developed model assumes that in order to reduce detrimental variations, there should be: thorough involvement of project stakeholders, adherence to contractual arrangement, adherence to ethical procedures, thorough and broad feasibility study, and precise contract management. The model when used will significantly contribute to reduction of detrimental variations in building projects. From the study, empirical findings have been generated and documented and when used by relevant stakeholders can improve performance of building projects in the construction industry.

Key words: building projects, causes of detrimental variations, mitigation model, Tanzania