**META DATA ON RESEARCH ARTICLE “IMPACT OF PROCUREMENT METHODS AND PROCUREMENT REQUIREMENTS ON COST OVER-RUN OF PUBLIC BUILDING PROJECTS IN UGANDA”**

**1. Introduction**

This document provides summary information on the purpose, authors, when and where this research was undertaken including aspects of the methodology.

**2. Background and Purpose of Submission of Research Article in JAESER**

Several research have been done on cost over-run of construction projects. The majority of these studies focused on the causes of cost over-run. Little was done on prediction of cost over-run. A related study to this published in the International Journal of Construction Engineering and Management in December 2020 Volume 9 Issue 5 developed a prediction model for cost over-run of building projects. However, due to space limitation, variants of the prediction model for cost over-run for each public procurement method was not presented in the said IJCEM Volume 9 Issue 5. The five variants of the prediction model for cost over-run for open domestic bidding, restricted domestic bidding, open international bidding, restricted international bidding and request for quotation are presented for publication for the first time in Journal of Architectural Environment and Structural Engineering Research (JAESER).

**3. Authors**

The corresponding author (principal/main investigator) of this research is Julius Caesar Kwio Tamale. Julius is a civil engineer and physical planner with several years of experience in public service and consultancies in both Uganda and Namibia. The co-authors, Dr. Nathan Kibwami and Dr. Godfrey Mwesige are lecturers at Makerere University.

**4. Place and Period of Study**

The study was undertaken at the Department of Construction Economics and Management, School of the Built Environment in the College of Engineering, Design, Art and Technology of Makerere University, Kampala-Uganda from 2018-2019 as graduate research programme by the corresponding author and was co-supervised by the two co-authors mentioned above.

**5. Theoretical and Conceptual Frameworks for Research**

The study was guided by construction change management model (also known as the Change Process Model) (CPM) advanced by the Construction Industry Institute (1984) in Austin-Texas (USA). This theory was used to evaluate construction changes represented in this research by cost changes in form of cost over-run. as a component of project management. The work breakdown structure for project management of Project Management Institute (2013) was used to evaluate cost over-run as component of project management.

**6. Source of Research Data**

Data on cost over-run of public building projects were collected from all over Uganda. Building contractors, project engineers, quantity surveyors, district engineers and project consultants provided study data. The two major categories of past public building projects were (1) government-funded projects and (2) donor-funded projects.

**7. Methodology**

**7.1 Sample Size**

Two studies, (1) in Uganda in 2014 on causes of cost over-run and (2) in Egypt in 2015 on prediction of cost over-run, that were both published in international journals used sample sizes of 30. The standard deviation from the Ugandan study, 97% confidence interval as used in the Egyptian study together with restricted margin of error of 5% were used to determine minimum sample size of 35. The study used 37 sample datasets of past building projects with cost over-run.

**7.2 Procurement Requirements as Independent Variables for Cost Over-run**

The five statutory public procurement requirements set by the Public Procurement and Disposal Authority (PPDA) of Uganda that were used as independent variables were (1) bid time, (2) performance bond, (3) insurance, (4) workload and (5) post-incorporation experience of building contractors. Spearman’s bivariate correlation of these procurement requirements with cost over-run was determined at 5% level of significance and auto-correlation between them limited to variable inflationary factor (VIF) of less than 5 (in other wards tolerance of more than 0.2). Data was analyzed by IBM SPSS V25.

**7.3 Procurement Requirements Used as Contexts for Cost Over-run**

The five statutory public procurement requirements set by the Public Procurement and Disposal Authority (PPDA) of Uganda that were used to develop five variants of cost over-run of public building projects based on minimum bidding period of PPDA is summarized in Table 1 below.

 **Table 1: Public Procurement Methods and Minimum Bidding Periods Used for Works and Services in Uganda**

|  |  |  |
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| S. N | Procurement Method | Minimum Bid Time (Days) |
| 1 | Open International Bidding | 30 |
| 2 | Restricted International Bidding | 20 |
| 3 | Open Domestic Bidding | 21 |
| 4 | Restricted Domestic Bidding | 12 |
| 5 | Request for Quotations |  5 |

 Source: Public Procurement and Disposal Authority (PPDA) of Uganda (2014)