

Implication of Inadequate Geotechnical Investigation on Cost of Construction Projects in Nigeria

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Abstract. Several factors, such as complicated contractual processes, change in scope and design, economic variables (such as inflation and exchange rate), corruption and fraud, as well as inadequate geotechnical investigation all contribute to project cost overrun. This study assesses the extent to which one factor - geotechnical investigation - is carried out in the Nigerian construction industry, with a further identification of factors that impede its adoption. It further establishes the relationship between geotechnical investigation and project cost overrun. The study uses a structured questionnaire administered to construction industry professionals. A total of 95 questionnaires were distributed electronically, out of which 72 respondents returned their responses (75.8% response rate). Both inferential statistics (Pearson correlation) and descriptive statistics (frequency analysis) were applied in the analysis of data. Although the outcome of the analysis showed a relatively high awareness about the need for geotechnical investigation among practitioners in the Nigerian construction industry, only about 50% of the respondents actually carry out the required geotechnical tests. The study shows a positive relationship between inadequate geotechnical investigation and project cost overrun. It equally revealed errors in laboratory analysis, inexperienced technicians, misclassified or mischaracterized soil property, erosion and sediment control as the foremost factors affecting the reliance of geotechnical investigations. It is recommended that only qualified and experienced personnel should be involved in all stages and processes of geotechnical investigation, as well as the provision of sufficient boring location to define true representation of the site.

Keywords: Construction, Cost Overrun, Geotechnical Investigation, Project, Project Management.