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A Study of Convergence to Control the Cost of Concrete Bridges in the Design Stages in Yemen

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Abstract

This research deals with the subject of concrete bridges projects cost control during the design phase. This research falls within the framework of the road bridges projects where cost control is used as a tool to help design and decision making.

The objective of this study is to develop a methodology to control the cost of bridge projects during the early design stages, by investing the database with any helpful software tool, the proposed cost control methodology is based on modeling the original elements and proposing a method of cost estimate based on the estimate of quantities from general parameters of origin and prices be updated periodically. The proposed methodology studies the various technical solutions chosen by the designer and evaluates them economically.

In this paper, a study was conducted on (12) bridges within the capital Sana'a bridges project and (7 bridges) those carried out in Sana'a-Aden road, by using the statistical program (SPSS) as a specialized program in this field, logical and theoretical issues have also been taken into account. Results that require us to study the design of the bridges based on a controlled database and applied to the case of cost and time, and on the impact of implementation risk on the cost of the project during the design phase, and the various models necessary to design a database structure that was enriched with information collected from different bridge projects were presented in the Republic of Yemen.

Keywords: Design Stages; Cost Control; Parameters Estimation; Concrete Bridges; SPSS.

1. Introduction

The bridges projects are one of the most critical projects that governments rely on in the development of infrastructure. These projects are part of the more massive project, the Roads Project. These projects are based on two types of data: original data derived from the environment in which they belong, and functional data drawing from the main project, which form part of it (longitudinal section, cross section etc.).

The road projects are often overlooked and other elements neglected, which explains some of the cost deviations that occur during the implementation of road projects, mainly if the road project includes numbers and essential types of bridges. During designing the road project with its complementary projects (bridges, tunnels), the cost control is not given the proper status within the design process, both regarding the period or the importance of the process. In fact, the cost control is often reduced to a rapid cost estimation process, which is guessed shortly before the tender is put forward, raising many questions about the validity of the decisions being made, especially regarding equal work such as bridges and tunnels.

This research attempts to give the bridges the position that deserves within the road project and proposes a cost

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