

Risk Planning and Management for the Panama Canal Expansion Program

Alarcon, L. F., Ashley, D. B., de Hanily, A. S., Molenaar, K. R., & Ungo, R. (2011). Risk planning and management for the Panama Canal expansion program. *Journal of Construction Engineering and Management*, 137(10), 762-771. <10.1061/(ASCE)CO.1943-7862.0000317> Accessed 25 Apr 2024.

Abstract

In April 2006, the Panama Canal Authority formally proposed a major expansion of the canal to increase its capacity and make it more productive, safe, and efficient. This proposal included cost and schedule estimates for completing the expansion and was supported overwhelmingly by the citizens of Panama in an October 2006 public referendum. Given the conceptual level of design at the time of the proposal and the inherent uncertainty in a project of this magnitude at the early stages of engineering, a comprehensive risk analysis was performed to develop a contingency model for the total expansion program cost and schedule. This contingency model is based on a Monte Carlo simulation of the cost and schedule estimates, taking into account the most significant risks identified for the project. The resulting model provides contingency assessments for duration and total cost and sensitivity analysis of the risks; it also allows for multiple scenario planning and ultimately supports overall risk management. This paper presents a project case study that focuses on the contingency model development and the resulting risk management and contingency resolution processes.

Keywords

Construction costs, Cost estimates, Risk analysis, Uncertainty analysis, Risk management, Canals, Scheduling..