International Journal of Civil Engineering (IJCE)
ISSN(P): 2278-9987; ISSN(E): 2278-9995
Vol. 3, Issue 1, Jan 2014, 67-74

International Academy of Science, Engineering and Technology
Connecting Researchers; Nurturing Innovations

DYNAMIC ASSESSMENT OF CABLE-STAYED BRIDGES IN EGYPT

A. M. ABOU-RAYAN

Department of Civil Engineering Technology, Benha University, Al Qalyubiyah, Egypt

ABSTRACT

Bridges are indispensable components of the infrastructure of modern society, and their assessment via techniques of structural dynamics is assuming greater importance. Dynamic behaviors of Suez-Canal and Aswan cable-stayed bridges were investigated through three-dimensional finite-element models. Seismic response analyses have been conducted from the deformed equilibrium configurations due to bridges own-weight. TAFT earthquake record was used in the analysis. The earthquake record was input in the bridges longitudinal, lateral, and vertical directions simultaneously. Results show that the bridge statical system has dominant influence on the bridge vibrations and there is a strong coupling in the three orthogonal directions within most modes of vibrations. Results include dynamic characteristics, time-history and frequency –domain responses.

KEYWORDS: Cabel-Stayed Bridges, Seismic Response