

## **Seismic Performance of Steel Arch Bridge Located in Myanmar by Numerical Analysis**

Yuki OSHIRO, Kunitomo SUGIURA, Masahide MATSUMURA and Khin Maung ZAW

*Department of Civil and Earth Resources Engineering, Kyoto University*

*Department of Civil and Earth Resources Engineering, Kyoto University*

*Center for Water Cycle, Marine Environment and Disaster Management, Kumamoto University*

*Department of Civil Engineering, Yangon Technological University*

E-mail: ooshiro.yuuki.73e@st.kyoto-u.ac.jp

*Keywords: Myanmar, Numerical analysis, Arch bridge, Seismic design*

### **Abstract**

This study aims to evaluate the seismic performance of major infrastructure such as bridge in Myanmar where several large earthquakes struck in the past and the survey in past few years observed that most of the bridges have been suffered fatigue crack and delayed fracture in connection bolts. Therefore, seismic performance evaluation of current operating bridges in Myanmar is very important in the point of safety and economics. The target bridge for this study is Yadanabone Bridge, situated in middle part of the Myanmar and is a vital bridge for local transportation. Eigenvalue analysis by Finite Element Method was used for deriving natural frequencies of bridge. Moreover, Microtremor measurement was conducted in real bridge to get the mode shapes and natural frequencies identified by Frequency Domain Deposition Method. Push-over analysis was performed for the identification of stress level in each member during the earthquake after verifying the validity of analysis model by comparing natural frequencies results from analysis model and experimental measurement. The seismic performance evaluation of studied bridge was carried out by analysing the results comes out from push-over analysis in this study.