

## **Sedimentation Problems at the Nakdong River Estuary Barrage and Retrofitting Design for the Gupo bridge piers on the Lower Nakdong River**

Un Ji<sup>1</sup> and Pierre Julien<sup>2</sup>

Civil Engineering Department, Colorado State University

**Abstract.** The Nakdong River is located in the southeastern region of South Korea and flows 510. A hydraulic structure, the Nakdong River Estuary Barrage (NREB), was built in 1983-87 at the river mouth to prevent salt water intrusion. The Gupo Bridge is located in 20 upstream of the NREB. The upstream channel of the NREB has experienced sedimentation problems requiring annual dredging operation after the construction. The main purpose of sediment dredging is in case of typhoons and large floods caused by late summer. A one-dimensional steady state model is developed to simulate the sediment deposition and to evaluate the feasibility of the sediment flushing without dredging at the NREB. The floodplain near the Gupo Bridge will partially excavate to ensure flood conveyance capability due to the highway construction along the bankline. Three alternative plans for retrofitting the Gupo Bridge piers are proposed.

---

<sup>1</sup> Ph.D. student, A331 Engineering Research Center, Civil Engineering Department, Colorado State University, 80523; Tel: (970)491-8999; e-mail: [jiun@engr.colostate.edu](mailto:jiun@engr.colostate.edu)

<sup>2</sup> Professor, B205 Engineering Research Center, Civil Engineering Department, Colorado State University, 80523; Tel: (970)491-8450; e-mail: [pierre@engr.colostate.edu](mailto:pierre@engr.colostate.edu)