

## **A SPT BASED COMPARATIVE ANALYSIS OF LIQUEFACTION POTENTIAL OF RAPTI MAIN CANAL IN DISTRICT BALRAMPUR**

**NEELESH KUMAR SINGH<sup>1</sup> & S. M. ALI JAWAID<sup>2</sup>**

<sup>1</sup>Research Scholar (Civil), Seismic Design and Earthquake Engineering), Department of Civil Engineering  
M. M. M. University of Technology, Gorakhpur, India

<sup>2</sup>Professor, Department, of Civil Engineering, M. M. M. University of Technology, Gorakhpur, India

### **ABSTRACT**

Rapti main canal is a sub-project undertaken by Uttar Pradesh irrigation engineering department under the main project namely Saryu Nahar Pariyojna. This main project will provide irrigation to 12.0 lacs h.a. area (C.C.A) of districts Baharaich, Shravasti, Gonda, Balrampur, Basti, Siddharthnagar, Sant Kabir Nagar & Gorakhpur through 8240 km long distribution system. Whereas Rapti Main Canal is 125 km long and a capacity about 95 cumecs.

Liquefaction potential at this site is evaluated and compared by calculating factor of safety against liquefaction (FS) along different depths of soil profile using SPT based different approaches as suggested by Seed & Idriss (1971), Idriss & Boulanger (2006), and Tokimatsu & Yoshimi (1983). Seeing the hazardous effects of recently occurred Nepal earthquake ( $M_w=7.9$ ), this study is taken out by considering a moment magnitude of  $M_w=8.0$ . Since the study area consists of inorganic silt, silty sand, poorly graded sand and comparatively high water table which is susceptible to liquefaction.

**KEYWORDS:** Comparative Analysis & Liquefaction Potential