Monika Maharjan, Ph. D., PE

Project Manager • Geotechnical and Civil Engineering

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Professional Profile

Dr. Maharjan is a geotechnical engineer with over 10 years of international experience across Japan, Europe, and the United States. Her expertise includes geotechnical design, forensic investigations, and consulting on critical infrastructure and development projects. She has investigated a wide range of failures, including foundation distress, retaining walls, dams, grading issues, slope instability, and ground movements, and has collaborated with multidisciplinary teams to deliver site-specific, practical solutions for challenging ground conditions.

Dr. Maharjan has evaluated construction defects, assessed structural distress, and determined the root causes of geotechnical failures. She has investigated grading deficiencies that resulted in drainage and settlement problems, retaining wall and slope failures, embankment instability, dam failures, high-rise building foundation failure, identifying issues related to inadequate fill preparation, liquefaction, and deviations from geotechnical recommendations. She has also conducted detailed evaluations of differential settlements in single-family residences, as well as foundation distress in multi-family and commercial buildings. She has investigated pipeline failures associated with ground movement and slope movements triggered by inadequate drainage, adverse geology, or seismic loading.

Dr. Maharjan has extensive experience in liquefaction assessment and its mitigation. She has performed extensive research on investigating and understanding liquefaction mechanisms in non-homogeneous soil deposits. Dr. Maharjan has extensive experience in evaluating and analyzing the deformation of embankments resting on liquefiable non-homogeneous foundation. Dr. Maharjan is experienced in analysis and design of geotechnical structures, seismic and static soil-structure interaction, settlement analysis, ground investigation, site response analysis, seismic hazard assessment, centrifuge modeling and laboratory testing of soils. Dr. Maharjan was involved in ground investigation and seismic data interpretation of Wylfa Newydd Nuclear Power Plant to be constructed in Wales. Dr. Maharjan has evaluated seismic risk and performed seismic soil structure interaction of Hinkley Point C Nuclear Power Plant, which is being constructed in Somerset, England.

In the public sector, Dr. Maharjan has extensive experience reviewing geotechnical designs, reports, plans and inspection reports to ensure compliance with building codes and standards. She has supported infrastructure, commercial development, and environmental remediation projects, bringing technical depth and practical insight into both design and review processes.

Academic Credentials & Professional Honors

Ph.D., Civil Engineering, Tokyo Institute of Technology, Japan, 2015

M.Eng., Civil Engineering, Tokyo Institute of Technology, Japan, 2012

B.Eng., Civil Engineering, Pulchowk Campus, Tribhuvan University, Nepal, 2010

Licenses and Certifications

Licensed Professional Civil Engineer, California, #92189

Licensed Professional Engineer, Washington, #21016991

Prior Experience

Senior Geotechnical Engineer, City of Seattle

Senior Engineer, Exponent, Inc., 2018-2021

Geotechnical Engineer, Atkins, 2015-2018

Civil Engineer, Hydro-Consult Engineering Limited, 2009-2010

Professional Affiliations

American Society of Civil Engineers (ASCE)

Geo-Institute (G-I) of the American Society of Civil Engineers

Publications

Maharjan M. Liquefaction in Kathmandu Valley during 2015 Nepal Earthquake. 16th World Conference on Earthquake Engineering, Chile, January 9-13, 2017.

Pant DR and Maharjan M. On selection and scaling of ground motions for analysis of seismically isolated structures. Earthquake Engineering and Engineering Vibration, 2016; 15 (4): 633-648.

Maharjan M and Takahashi A. Liquefaction-induced deformation of embankments on non-homogeneous foundation under sequential ground motions. Soil Dynamics and Earthquake Engineering, 2014; 66: 113-124.

Maharjan M and Takahashi A. Effects of Non-homogeneity on Liquefaction-induced Deformation of Embankments. 9th annual AOTULE – University of Melbourne, Australia, November 27-28, 2014.

Maharjan M and Takahashi A. Numerical analysis on effects of non-homogeneity in the liquefaction-induced deformation of embankments. International Symposium Geohazards: Science, Engineering and Management, Kathmandu, Nepal, November 20-21, 2014.

Maharjan M and Takahashi A. Effects of Non-homogeneity on Liquefaction-induced Deformation of Embankments. Sixth Multidisciplinary International Student Workshop (MISW2014), Tokyo, Japan, 2014.

Ziotopoulou K, Maharjan M, Boulanger RW, Beaty MH, Armstrong RJ, and Takahashi A. Constitutive modeling of liquefaction effects in sloping ground. Tenth U.S. National Conference on Earthquake Engineering, Anchorage, Alaska, July 21-25, 2014.

Maharjan M and Takahashi A. Numerical analysis of earthen embankments on liquefiable non-homogeneous soil deposits. 49th Geotechnical Engineering workshop, Kita-kyushu, Japan, July 15-17, 2014.

Maharjan M and Takahashi A. Numerical simulation of liquefaction-induced deformation of embankments on non-homogeneous foundation. 8th European Conference on Numerical Methods in Geotechnical Engineering, Delft, The Netherlands, June 18-20, 2014.
Maharjan, M. and Takahashi, A. (2013). "Performance of embankments on liquefiable foundation subject to sequential ground motions", International Journal of Landslide and Environment, Vol. 1, No.1, pp. 57-58.

Maharjan M and Takahashi A. Centrifuge model tests on liquefaction-induced settlement and pore water migration in non-homogeneous soil deposits. Soil Dynamics and Earthquake Engineering, 2013; 55: 161-169.

Maharjan M. and Takahashi A. Excess pore pressure dissipation in non-homogeneous soil deposits supporting earthen embankments. 15th JSCE International Summer Symposium, Chiba, Japan, September 4-6, 2013.

Maharjan M and Takahashi A. Liquefaction-induced Deformation of Embankments on Non-homogeneous Foundation Subject to Sequential Ground Motion. Fifth Multidisciplinary International Student Workshop (MISW2013), Tokyo, Japan. 2013.

Maharjan M and Takahashi A. Effects of non-homogeneity on liquefaction in stratified soil deposits. Tenth International Conference on Urban Earthquake Engineering (10CUEE), Tokyo, Japan, March 1-2, 2013, pp. 483-92.

Shakya K, Pant DR, Maharjan M, Wijeyewickrema AC, and Maskey PN. Seismic response of non-engineered buildings in Nepal during September 18,2011 Nepal-Sikkim Earthquake. Tenth International Conference on Urban Earthquake Engineering (10CUEE), Tokyo, Japan, March 1-2, 2013, 1985-90.

Maharjan M and Takahashi A. Liquefaction centrifuge modeling in non-homogeneous soil deposits. 15th World Conference on Earthquake Engineering, Lisbon, Portugal, September 24-28, 2012.

Maharjan M and Takahashi A. Seismic response of non-homogeneous soil deposits: centrifuge modeling. The Seventh Asian Young Geotechnical Engineers Conference (7AYGEC), September 12-14, 2012, Tokushima, Japan, 141-149.

Maharjan M and Takahashi A. Seismic response of non-homogeneous soil deposits in centrifuge test. Fourth Multidisciplinary International Student Workshop (MISW2012), Tokyo, Japan, 2012.

Shakya K, Pant DR, Maharjan M, Wijeyewickrema AC, and Maskey PN. Lessons learned from performance of buildings during the September 18, 2011 earthquake in Nepal. Asian Journal of Civil Engineering, 2012; 14 (5): 719-733.

Presentations

Maharjan M. Soil Liquefaction during April 25 M7.8 Gorkha Earthquake and Consequences. Invited talk, Guthi Seminar, London, UK, 2016.

Maharjan M and Takahashi A. Effects of Non-homogeneity on Liquefaction-induced Deformation of Embankments. Paper presentation, 9th annual AOTULE – University of Melbourne, Australia, November 27-28, 2014.

Maharjan M and Takahashi A. Numerical analysis on effects of non-homogeneity in the liquefaction-induced deformation of embankments. Paper presentation, International Symposium Geohazards: Science, Engineering and Management, Kathmandu, Nepal, November 20-21, 2014.

Maharjan M and Takahashi A. Numerical analysis of earthen embankments on liquefiable non-homogeneous soil deposits. Paper presentation, 49th Geotechnical Engineering workshop, Kita-Kyushu, Japan, July 15-17, 2014.

Maharjan M and Takahashi A. Numerical simulation of liquefaction-induced deformation of embankments on non-homogeneous foundation. Paper presentation, 8th European Conference on Numerical Methods in Geotechnical Engineering, Delft, The Netherlands, June 18-20, 2014.

Maharjan M. and Takahashi A. Excess pore pressure dissipation in non-homogeneous soil deposits supporting earthen embankments. Paper presentation, 15th JSCE International Summer Symposium, Chiba, Japan, September 4-6, 2013.

Maharjan M and Takahashi A. Effects of non-homogeneity on liquefaction in stratified soil deposits. Paper presentation, Tenth International Conference on Urban Earthquake Engineering (10CUEE), Tokyo, Japan, March 1-2, 2013.

Maharjan M and Takahashi A. Liquefaction centrifuge modeling in non-homogeneous soil deposits. Paper presentation, 15th World Conference on Earthquake Engineering, Lisbon, Portugal, September 24-28, 2012.

Maharjan M and Takahashi A. Seismic response of non-homogeneous soil deposits: centrifuge modeling. Paper presentation, The Seventh Asian Young Geotechnical Engineers Conference (7AYGEC), Tokushima, Japan, September 12-14, 2012.

Peer Reviews

ASCE Journal of Geotechnical and Geoenvironmental Engineering

Journal of Earthquake Engineering and Engineering Vibration

Journal of Soil Dynamics and Earthquake Engineering