Editorial Message

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I take pleasure in bringing out the two special issues containing the keynote and theme lecture papers of the Indian Geotechnical Conference (IGC)—2020 organized during December 17–19, 2020, by IGS Visakhapatnam Chapter and Andhra University College of Engineering, Visakhapatnam. The keynote papers are contributed by highly reputed national and international experts from academia and field practice. I thank the authors for bringing in their rich experience and expertise in writing their papers, the ensemble of which is turned out to be a well-represented portrait of all important topics of the Geotechnical Engineering. I congratulate the contributing authors for their significant contributions on the basis of pioneering research and professional experience emphasizing the promising latest/emerging geotechnologies for sustainable tomorrow.

The present issue is a continuation to the February 2021 issue of Indian Geotechnical Journal. These two issues have technical papers covering the entire domain of geotechnical engineering, addressing the issues related to ground characterization, advances in foundation technologies, engineered landfill construction, modeling of subsoil conditions and foundation systems on stabilized/reinforced soil, Environmental, Water & Transportation Geotechnics, Soil Dynamics and Earthquake Geotechnical Engineering, landslides and slope stability in deep excavations, rock mechanics, ground improvement and reinforced soil

structures, unsaturated soils, latest trends in pile load testing and underground structures.

The first keynote issue had the 42nd IGS annual lecture paper and 14 keynote papers of IGC 2020. The exhaustive contributions of Prof. Sitharam and his group for 25 years to the field of Earthquake Geotechnical Engineering outlined in the 42nd IGS annual lecture appeared as the first paper of the first special issue of IGC 2020 keynotes issue. Prof. Han's paper on geosynthetic-reinforced fill walls explained the limit equilibrium-based design methods for tiered walls, back-to-back walls, limited space fill walls and fill walls with secondary reinforcement. Prof. Datta's paper highlighted important issues for the sustainable management of municipal solid waste fills, exploring the possibilities of reusing residues from old dumps and waste to energy plants. Prof. Puppala's paper demonstrated the use of unmanned aerial vehicle—close-range photogrammetry (UAV—CRP) technology for monitoring geotechnical infrastructure through two case studies in the USA. Prof. Vanapalli and his group contributed two papers, explaining simple approaches for designing shallow and deep foundations in unsaturated soils through experimental, numerical and analytical studies carried out in Canada. Prof. Samadhiya's paper on Sardar Sarovar underground powerhouse cavern presented finite element modeling aspects to accurately compute the stresses, wall support pressures and displacements in the shotcrete lining. Prof. Rajagopal's paper demonstrated the use of geosynthetic encased granular columns in controlling stresses and settlements of foundations in soft clays. Prof. Viswanadham's paper on centrifuge modeling showed how the versatile physical modeling technique can be applied for the performance monitoring of geotechnical structures like levees and reinforced retaining walls. Prof. Deepankar's paper

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compared different deep foundation techniques used to support bridges and tall structures under earthquake conditions, to propose effective solutions, considering soil–structure interaction. Prof. Sireesh's paper proposed a new model to compute base layer coefficients for geogrid-reinforced pavement bases, which can be adopted for the design of reinforced flexible pavements. Prof. Muthukumar's paper dealt with the practical aspects of using Ground Penetration Radar (GPR) to measure pavement stripping, through a case study in Cochin. Dr. Vaidya's paper discussed important considerations in the design of rock anchors for static pile load testing, giving the account of various case studies of rock anchors installed and tested by the authors in different parts of India. Prof. Neelima's paper presented a dynamic site characterization study of Vishakhapatnam city along with the dynamic analysis of a pile-supported wharf structure in the city, which is helpful for the seismic microzonation of the city. Prof. Thyagaraj's paper studied the microstructural changes and changes to the hydraulic behaviour of expansive soils due to their interactions with leachates and cyclic wet–dry processes.

This second keynote issue has 12 keynote and theme lecture papers of IGC 2020. Prof. Shin's paper investigates the suitability of a liner material developed from mixing recycled soil, bentonite and polymer powder to replace the conventional clay liners in municipal solid waste (MSW) landfills. On similar lines, Prof. Ng's paper describes an environmentally friendly 3-layer landfill cover system developed using plants and recycled concrete, completely eliminating the use of geomembrane, through a well-instrumented case study. A sustainable liquefaction mitigation technique of using rubble brick to create earthquake drains is proposed by Prof. Madabhushi, through a centrifuge model study supported by finite element analysis. Prof. Viladkar's paper studies the seismic soil–structure interaction aspects of lifeline structures, with a specific focus towards the metro rail tunnels of Delhi city, through 3D numerical analysis. Dr. Pitchumani's paper presented a case study of development of a container yard over soft marine clay in Navi Mumbai by marine reclamation and ground improvement through prefabricated vertical drains. Prof. Ramana's paper proposes a new practical and simple functional form for modeling the stress–strain response of geomaterials under blast loads and calibrates the form with several experiments. Prof. Ghosh's paper studies the

efficacy of ultrasonic cleansing technique to remove the fines clogging the geotextile pores in drainage applications. Prof. Prashant's paper investigates the inception of instabilities in sand across different “length-scales,” viz. continuum, discrete and laboratory element tests, through numerical modeling complemented by experiments and image analysis. Prof. Mukherjee's paper studies the CBR values of soil subgrades when they are stabilized using admixtures like lime and rice husk ash and overlain by compacted fly ash with geotextile interface, with an objective to reduce the pavement thickness. Prof. Murali's paper reviewed the performance of various shallow foundation beds reinforced by geosynthetics such as geogrids, geocells and combination of geocells and geogrids. Dr. Anil's paper presents a forensic case study of failure of a touch pile system during deep excavation for a commercial building in Kerala. Prof. Madhavi's paper illustrates the use of geocells for various transportation geotechnical applications, including road embankments and retaining walls.

I thank the Editor-in-Chief, Prof. G. Madhavi Latha, for initiating the very important aspect of publishing quality keynote lecture contributions of IGC 2020 as journal papers, for effective dissemination of the knowledge and outreach of the information among the geotechnical community world over. These two special issues could be brought out in short time due to her meticulous planning and coordination. I place on record the support given by the national executive committee of the term 2019–2020 in bringing out the special issues.

I sincerely thank all the reviewers for their time and help in providing timely reviews. I am hopeful that the two keynote issues will be useful to the geotechnical fraternity and provide important ideas and insights into some of the trending topics of geotechnical research and practice.

I sincerely thank the Editor-in-Chief and the editorial team of the Indian Geotechnical Journal for giving me this wonderful opportunity to serve as a guest editor for these keynote lecture issues. It was a pleasure working on these issues and seeing them getting published as per the planned schedule.

- C. N. V. Satyanarayana Reddy.

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