FOREWORD

TC213 Special Issue on Scour and Erosion.

I am happy to write this foreword to the special issue on scour and erosion sponsored by the ISSMGE TC213. This committee started in 1997 when Kenji Ishihara was President, and has been striving and thriving ever since. While it is primarily a geotechnical committee, one of the reasons the committee has flourished is it has welcomed hydraulic engineers and, to some extent, structural engineers to participate. It is so important to handle scour and erosion from a multidisciplinary point of view, as the soil and the water are intimately involved. The water is the load, and the soil is the resistance; as is the case in all other fields of civil engineering, the engineer in charge of the resistance is the one overseeing the problem. Scour is an exception; the hydraulic engineer is typically in charge, but worldwide trends indicate that geotechnical engineering is taking a more prominent role in soil and rock erosion decisions. Nevertheless, we must not forget that in this case, as in many others, collaboration is key to success.

Scour and erosion is a major global concern, yet it is not one that we often see written in textbooks or taught in classes. The work of TC213 is slowly solving this. Soil and rock erosion impacts so many parts of our infrastructure, including levee overtopping, internal erosion of dams, meander migration, bridge scour, cliff erosion, and construction site erosion. These problems assign a huge cost to our infrastructure. These topics require the problem solver to think at the micro level as well as the macro level. At the micro level, the researcher needs to answer what makes a single particle or aggregate of particles or rock block move, while the engineer needs to worry about the impact at full scale. While the engineer's goal is to have zero failures, the probability of failure is never zero. The risk expressed as the probability of failure times the value of the consequence is one way to make erosion impact decisions both in terms of mitigating cost and eliminating fatalities.

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