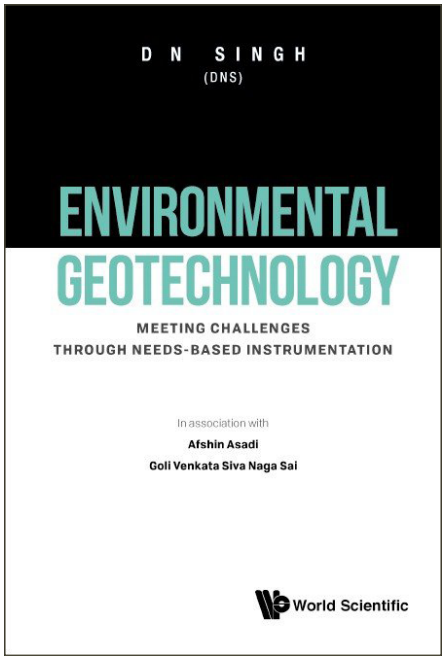
Environmental Geotechnology

Meeting Challenges Through Needs-Based Instrumentation



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ABOUT THE BOOK

The rise of rapid and uncontrolled industrialization, its alarming levels of hazardous waste produced, and their negative contribution to the international environmental epidemic of global warming — in addition to the decrease in room to dispose of these wastes safely — have put the pressure for many engineers, researchers, and key decision-makers to find the answers to the constant tussle between progress and sustainability — and quickly.

Environmental Geotechnology revisits existing concepts of geotechnical engineering critically, and brings them up to date with new knowledge and current affairs so as to better address and serve today's needs of the professionals. It points out the role and importance of the parameters and mechanisms that govern the interaction of contaminants with geomaterials (soil and rock mass), and also discusses their degradation in the long-run, and the consequences that follow.

The book starts from a engineering philosophy that incorporates the influence of environmental effects (both manmade and natural) on geotechnical engineering practices. Its contents are based on geotechnical and environmental engineering studies pertaining to waste management, such as: the safe handling, transportation and disposal of waste, the estimation of waste leakage into the subsurface, its consequences, methods of containment, and the development of schemes to remediate contaminated land. It also proposes innovative strategies for waste management through the utilization of wastes based on a comprehensive characterization.

Modelling techniques such as accelerated physical modelling using geotechnical centrifuge, finite-element or difference-based numerical modelling and physico-chemico-mineralogical modelling are discussed in this book to enable the study of the complex (and otherwise slow) process of contaminant-geomaterial interaction.

READERSHIP

Undergraduate and graduate students, research scholars, and professionals working in the field of Environmental Geotechnical Engineering.

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