Liquefaction of seabed no longer a mystery
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Mutlu Sumer and published by World Scientific, "Liquefaction Around Marine Structures", features physics of liquefaction induced by large waves, mathematical modelling, floatation and sinking of marine objects in liquefied sediments. Although the main focus is the wave-induced liquefaction, it also discusses the seabed liquefaction caused by earthquakes. The book also addresses the issue of design of structures (against liquefaction) wherever it deems necessary, and provides guidelines via illustrated examples. Counter measures against seabed liquefaction is also discussed.

Many incidents with catastrophic consequences have occurred in the past due to wave-induced liquefaction of the seabed. There are also failures for which information never entered the public domain. Cost of such incidents is enormous, up to tens or even hundreds of million dollars.

The main cause of such incidents has been the fact that the structures (be it, for example, marine pipelines, or breakwaters, or caisson structures, or sea mines) have not been properly designed against liquefaction, and that has been due to the lack of knowledge, and the non-existence of guidelines for the design.

The present book essentially bridges this gap, for the first time, by collecting the state-of-the-art knowledge and building content, essentially based on the recent research conducted in the past two decades including two European research programs Liquefaction Around Marine Structures (LIMAS) and Scour Around Coastal Structures (SCARCOST) where the author was the Program Leader. The present book and the existing body of literature on earthquake-induced liquefaction (with special reference to marine structures) form a complementary source of information on liquefaction around marine structures, and will be used by consulting firms in the design of structures to ensure that incidents that occurred in the past with catastrophic dimensions can be avoided.

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More information: Book:
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