

8ICEG Invited Lecture



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Dr Eng

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Invited Lecture Title

Towards sustainable soil management - Reuse of excavated soils with natural contamination

[15:10 - 15:40, Monday 29th Oct. 2018]

Biography

Takeshi Katsumi is Professor at the Graduate School of Global Environmental Studies (GSGES), Kyoto University, Japan, and is currently Vice Dean of GSGES since April 2018. He graduated from the Department of Civil Engineering, Kyoto University, and obtained his doctoral degree from the same university in 1997. He has research interests in a variety of topics of environmental geotechnics, including waste landfills, remediation of contaminated sites, and reuse of by-products in geotechnical applications. He has received several awards including the “JSPS PRIZE” by the Japan Society for the Promotion of Science. He has been a member of ISSMGE Technical Committee No.215 on Environmental Geotechnics for more than 15 years, and acted as the International Secretary of the Japanese Geotechnical Society (JGS) from 2014 to 2018. He has been involved in several projects regarding the recovery works from the 2011 East Japan earthquake and tsunami.

Abstract

Status of regulations, practices, and challenges on the reuse of excavated soils with natural contaminations in Japan are introduced in this presentation. Geotechnical and geoenvironmental efforts have been conducted in recent years to contribute to the cost-effective measures to reuse such excavated soils under proper contaminant control. Evaluations of leaching behavior from the soils of concern as well as attenuation capacity of the surrounding ground are both essential to design the cost-effective measures. Since methods and/or protocols which consider the nature of natural contamination are required, several different leaching tests were performed on different types of soils and rocks with natural contaminations by the presenter and his colleagues. A series of these experimental works revealed that the testing conditions of column leaching tests, such as column length and flow rate, should carefully be decided to simulate the situations where the soils are reused in embankments or other geotechnical

applications. Either original grounds or soil layers installed beneath the naturally contaminated soils are expected to function as attenuation layer. Therefore, attenuation capacities of several different types of soils are discussed. Effects of mineral agents enhancing the sorption performance are introduced. Case histories of the utilization of the “recovered” soils obtained from disaster debris of 2011 East Japan earthquake are presented. Harmonization of technical implementations, regulations, and social acceptances are required for further and proper reuse of excavated and recovered soils.