



AGS SYDNEY CHAPTER SEMINAR 2019

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CURTAILING THE ADVERSE EFFECTS OF EXPANSIVE SOILS ON ROADS

Hadi Khabbaz, Deputy Head of School for Research and Associate Professor in the School of Civil and Environmental Engineering, University of Technology Sydney (UTS).

 14 AUG
 SYDNEY

 **When:**
Wednesday 14 August 2019
Time: 5:30pm - 7:00pm

 **Where:**
Engineers Australia Auditorium,
8 Thomas St, Chatswood NSW

 **Cost:**
FREE

 **RSVP:**
Please RSVP via <https://australiangeomechanics.org/meetings/curtailing-the-adverse-effects-of-expansive-soils-on-roads/>

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 **CPD:**
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Abstract

The seasonal moisture variations in expansive soil deposits lead to their subsequent movements resulting in structural damages. A large part of coastal regions in Australia are recognised as expansive soils and effective treatment of expansive soils is a national and worldwide challenge. The hazards, posed by expansive soils to civil infrastructure (e.g. roads, railways, pavements, buildings, pipelines and canals) are high and costly in coastal regions. Excessive swelling, settlement, low strength, insufficient shear strength, high compressibility and internal erosion are typical characteristics of reactive soils resulting in damage to many civil engineering structures due to volume change.

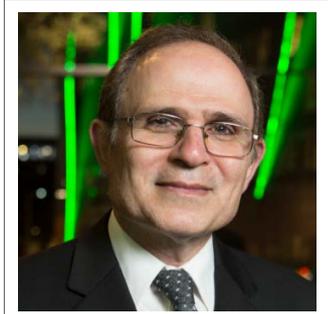
Advances in characterization and treatment of expansive soils using agricultural and industrial wastes are presented, in particular, the prospect of employing bottom and fly ashes and sugarcane bagasse fibre and ash to solve the reactive soil problems are discussed. Bagasse is a fibrous by-product of sugarcane refining industry (an agricultural waste). Bottom and fly ashes are produced as by-products of coal-fired electricity generation (industry wastes). Sugarcane ash is easily available at a lower cost in QLD, creating threat to the environment and needs attention on its safe disposal. Bottom and fly ashes are provided by Eraring Power Station in NSW. Large amount of bottom ash goes to a tailings dam at the station, reaching fast to its maximum capacity.

The experimental results of this investigation indicate that employing these by products can reduce the required amount of lime, cement or natural sand for improvement of expansive soil properties to support infrastructure foundations.

Speaker Biography

Hadi Khabbaz is the Deputy Head of School for Research and an Associate Professor in the School of Civil and Environmental Engineering, University of Technology Sydney (UTS). He received his PhD in Geotechnical Engineering from UNSW in 1997. He has been involved in design of civil infrastructure and soil behaviour modelling research for 25 years. His research has been focused on the theoretical and numerical analysis of soft soils, expansive soils, erodible soils, granular particles and unsaturated porous media with strong applications to real life engineering problems. His early work on the effective stress principle in unsaturated soils is increasingly cited in the literature and is considered as a significant contribution to the field.

His research output and publications on geotechnical aspects of rail track foundations overlying soft soil is also extensive. He supervised many research students; and he is currently the principal supervisor of 8 PhD students. He is also an active assessor of the ARC and the Office for Learning and Teaching (OLT) grants. Hadi is a technical reviewer of many international journals and several research organisations. Hadi was the Chair of Australian Geomechanics Society (AGS), Sydney Chapter in 2015-16. At present, he is the Deputy Chair of AGS (Sydney Chapter).



Speaker: Hadi Khabbaz