

# GROUND IMPROVEMENT TECHNIQUES

*A Workshop*

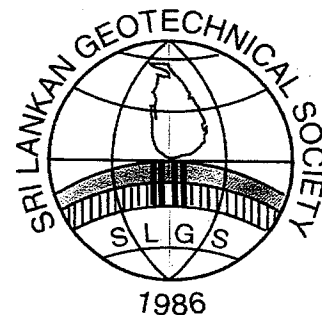
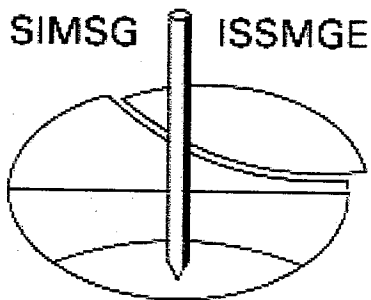
Jointly Organised by the

**International Society of Soil Mechanics and  
Geotechnical Engineering  
(ISSMGE)**

**&**

**Sri Lankan Geotechnical Society  
(SLGS)**

Under the ISSMGE Touring Lecture Programme



17<sup>th</sup> & 18<sup>th</sup> December 2007

At Hotel Galadari

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Athula  
Kulathilaka

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## Touring Lectures in Sri Lanka – Ground Improvement Techniques

**17 December 2007**

8.30	9.00	Registration	
9.00	9.30	Opening Ceremony	
9.30	10.15	Ground Improvement without Adding Elements	Prof. Pedro Sêco e Pinto (Portugal)
10.15	10.45	Tea Break	
10.45	11.30	Basics of Soft Clay Improvement Using Vertical Drains	Prof. Buddhima Indraratna (Australia)
11.15	12.15	Discussion	
12.15	13.00	Advanced Methods Using Prefabricated Vertical Drains with Vacuum Preloading	Prof. Buddhima Indraratna (Australia)
13.00	14.00	Lunch	
14.00	14.45	Basic of Filtration and Drainage with Soils and Geosynthetics for Geotechnical Constructions	Prof. Georg Heerten (Germany)
14.45	15.30	Engineering of Ground by Preloading & Vertical Drains	Prof. Madhira Madhav (India)
15.30	16.30	Discussion	
16.30	17.00	Tea Break	
17.00	17.30	Experiences in Ground Improvement at the Southern Transport Development Project	Dr. Kamal Dissanayake (Sri Lanka)
17.30	19.00	General Assemble (ISSMGE - Sri Lanka Geotechnical Society)	

**18 December 2007**

8.45	9.30	Ground Improvement with Adding Elements	Prof. Pedro Sêco e Pinto (Portugal)
9.30	10.15	Experiences in the Improvement of Soft Peaty Clays of Sri Lanka – Laboratory Studies	Prof. Athula Kulathilaka (Sri Lanka)
10.15	10.45	Tea Break	
10.45	11.45	Discussion	
11.45	12.30	Improving the Bearing Capacity of Soils with Geosynthetics	Prof. Georg Heerten (Germany)
12.30	13.00	Discussion	
13.00	14.00	Lunch	
14.00	14.45	Deep Mixing Technique for Improvement of Soft Clays	
14.45	15.30	Engineering of Ground by Stone Columns/Granular Piles	Prof. Madhira Madhav (India)
15.30	16.00	Coffee Break	
16.00	17.00	Discussion	
17.00	17.30	Evaluation and Closing	

## **Welcome Message from the President, Sri Lankan Geotechnical Society**

The Sri Lankan Geotechnical Society was inaugurated in 1986 with our mission of being the "forum for promoting cooperation among the engineers, geologists and other scientists in Sri Lanka for the advancement of knowledge in geotechnical engineering". We have very much progressed from our initial charge of disseminating geotechnical knowledge among the target groups through conducting a number of conferences, seminars, workshops, geotechnical forums and by publishing of journals and newsletters.

Now that we have accomplished the goal of becoming a Member Society of the prestigious International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE), we are also fortunate to count among the international community many of the premier geotechnical professionals who are extremely generous with their time and resources spent teaching others and promoting geotechnical knowledge.

The present workshop on Ground Improvement Techniques, although a brief two-day event, provides us with an excellent opportunity to reflect on the decades if not centuries of efforts the geotechnical engineers have spent inventing, developing, experimenting and promoting ground improvement techniques that help the engineers successfully confront the challenges posed by difficult ground conditions.

Here in Sri Lanka the engineer is often confronted with the difficult question of how to construct infrastructural facilities effectively and economically on ground underlain with extremely weak and compressible clays and peaty soils, heterogeneous and complex residual soils or expansive soils. To meet this challenge he should not only understand the behavior of such soils and be alert to the problems arising thereof, but must also acquire updated knowledge in the techniques of ground improvement to develop appropriate and innovative techniques for in situ improvement of the strength, stiffness and drainage properties of such soil deposits.

We are indeed indebted to Prof. Pedro Sêco e Pinto, the President, ISSMGE and Prof. Madhira Madhav, Vice President Asia, ISSMGE for extending timely assistance to organize this workshop in Colombo as a part of the Touring Lecture Series of the ISSMGE where internationally renowned experts in the field of ground improvement share their experiences, the state-of-the art and latest developments in this technology with the Sri Lankan engineers.

I hope that by engaging the practicing engineers, researchers, students, project owners, contractors and suppliers as the participants in this forum and with their active interaction with the resource personnel the workshop will be a success in leading us towards defining a comprehensive strategy for enhancing the geotechnical expertise and dedication required to meet the development needs of the country that could benefit from our services.

On behalf of the SLGS I extend my heartfelt and sincere welcome to the distinguished resource personnel Professors Pedro Sêco e Pinto, Prof. Madhira Madhav, Georg Heerten, Buddhima Indraratna, Eun Chui Shin, Athula Kulathilaka/ Kamal Dissanayake and all the Participants to the workshop.

Kirthi Sri Senanayake  
President  
Sri Lanka Geotechnical Society.

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