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Editorial

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Welcome to the August 2012 issue of *Ground Improvement* which comprises five papers and one discussion. The first paper by Rai and Shrivastva (2012) presents the results of pull-out and direct shear tests on the roots of two types of grass, namely *Cynodon dactylon* and *Imperata cylindrica*, whose root system penetrated 200 mm and 750 mm below the ground surface, respectively. The increased shear strength due to *Cynodon dactylon* and *Imperata cylindrica* at 6 months growing period were 11 kPa and 36 kPa, respectively. An additional root cohesion term, c_r, is added to the Mohr–Coulomb, τ, strength envelope. The cohesions of the vegetated soil compared to unvegetated soil were less than two times and more than three times for *Cynodon dactylon* and *Imperata cylindrica*, respectively. Similar studies by Voottipruex *et al.* (2008) involving vetiver grass and *Acacia mangium wiild* root reinforcements recorded surprisingly similar results in terms of relative cohesions. At 16 months growing period, the cohesions of vegetated soil compared to unvegetated soil were 1·5 times and 3·0 times for vetiver grass and *Acacia mangium wiild*, respectively.

The fundamental mechanical properties of lean-mixed cement-treated granular soil (CTGS) are presented in the second paper (Dong *et al.*, 2012). CTGS can be produced from dredged marine clays by mixing with cement (5–15% by weight) and polymer (0·1–0·3%) with water contents ranging from 60–80%. As the liquid limit is close to 50% and the polymer absorbs free water in the clay, the mixing water contents could be close to its liquid limit which was found to be most efficient by Lorenzo *et al.* (2006). The test results demonstrated that CTGS has potential as a construction fill material for reclamation and embankments. However, CTGS particles exhibit significant crushing and deformation depending on the compaction energy as well as stress and strain levels.

The third paper in this issue by McCarthy *et al.* (2012) presents a study to investigate the influences of fly ash on sulfate-heave in lime-stabilised soils. Sulfates or sulfides are naturally occurring in certain clays. The reaction of lime and sulfate in the presence of moisture can result in the formation of expansive ettringite within the lime-stabilised soil. Quicklime was added at 3, 4·5 and 6% (by mass of dry soil) and two fly ashes with different characteristics were added at levels 6, 12, 18 and 24%. Consequently, the coarse fly ash tended to mostly increase the porosity of the mixture and, hence, provide void spaces to allow expansive products. On the other hand, the fine fly ash provided improved strength to withstand expansive forces associated with ettringite formation.

The next paper in this issue presents the result of field model tests on piled footings in expansive soils (Ramana Murty and Hari Krishna, 2012). Piled footings refer to model footings connected to short tension piles to reduce heave in expansive soil foundation. This technique successfully controlled the heave of expansive soils and is a better alternative to more expensive under-reamed pier foundation in expansive soil foundations. The issue concludes with a paper by Halabian *et al.* (2012) that presents a comparison of measured and numerical simulated values in order to investigate the behavior of rammed aggregate piers (RAPs), both isolated and in groups. The numerical simulations revealed that most of the applied vertical stress applied at the top of RAPs dissipated within the length of the piers where bulging deformation occurred. Moreover, the settlement reduction ratio of RAP-supported foundations decreased with increasing area ratios of RAPs. There is a critical length beyond which the additional length of the pier has no effects on the load-settlement behavior of RAPs. Furthermore, the critical length of an isolated pier is more than the corresponding value of a pier group. In addition, for pier groups the transfer of stress from the top to the tip elevation is larger than for isolated piers.

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