Editorial: case histories

Twenty-two years ago a few road embankments in north-east Catalonia, Spain, 6 to 7 m high, made of compacted residual granitic soil, received a persistent and intense rainfall at the beginning of the autumn season. The embankments and the new road pavement built on top suffered substantial damage and settlements in excess of 30 cm were observed. It was a case of wetting-induced collapse of soils compacted to standard Proctor energy specifications. Unfortunately, water contents remained consistently on the dry side of optimum, probably because of the difficulty of coping with the strong evaporation during the hot summer prevailing at the time of embankment compaction. However, the most striking field observations were not the irregular and significant settlements but the notorious open gaps, often 30 cm wide, which developed between the concrete vertical walls of some bridge abutments and the embankments.

It became apparent that the embankments did not only settle. They also reduced in overall size in a phenomenon which is conceptually similar to the contraction of an elastic body subjected to a reduction in temperature. In other words, collapse is a volumetric deformation and it implies not only settlements but horizontal deformations and displacements as well. This observation may look to many as an obvious and elementary statement, but the fact is that despite many years of previous research on the nature of collapse, the digestion of dozens of experimental reports and papers and the development of constitutive models and computer programs, the observation of the large vertical gaps between the concrete walls and the soil was the most informative and unexpected piece of information. It contributed to improving the fundamental understanding of unsaturated soil behaviour. In the years to follow, this humble case history was a key piece of information for interpreting field observations in more complex situations and it even guided the planning of numerical modelling. Thinking in retrospect, one reason for the difficulty of interpreting the volumetric nature of collapse in real cases is perhaps the inaccurate message conveyed by the popular oedometer test, that collapse is essentially a settlement concept.

Case histories have always been a solid support of geotechnical knowledge. Their relevance is undisputable from

any possible corner of observation, be it theoretical, practical, computational or experimental. *Géotechnique* is proud of publishing high-quality case histories. While the rate of submission of case histories to the editor is moderate, they continue to arrive despite the dominance of theoretical, experimental and calculation developments in recent years.

It is not surprising that excellent case histories are a minor proportion of the overall output of the journal. Consider what is required for a good case history. First, the case should be accessible to experts in a particular geotechnical domain. This is not automatically achieved and a highly qualified researcher may find difficulties accessing a relevant practical case. Then, it is necessary to dedicate a substantial effort to field and laboratory characterisation of soils and rocks. Construction activities also require a reasonable monitoring set-up which may involve a number of additional years of observations for a meaningful interpretation of phenomena. In parallel, a proper understanding of the main aspects should be developed, most probably aided by numerical calculations. The final piece of work requires the integration of all the accumulated knowledge into a meaningful and consistent story which, ideally, should be able to teach something new and relevant.

What is the time scale of such a process? Several years, not one or two... Consider now the pressure to publish, which dominates academic and research careers. This pressure is universal and extends to any field of knowledge. Young and not-so-young faculty members in universities and research institutions around the world are expected to publish a few journal papers per year. How to reconcile the two widely different time scales necessary to prepare a good case history and to pursue a successful academic or research career?

There is no an easy answer but it is suspected that case histories are not in the critical publication path of many authors contributing to *Géotechnique*. Nevertheless, the journal wants to attract excellent case histories for the powerful teaching capabilities they have and for the benefit of geotechnical knowledge.

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