Cite this article
Jorge C (2020)
Editorial.
Environmental Geotechnics **7(6)**: 380–381,
https://doi.org/10.1680/jenge.2020.7.6.380

Environmental Geotechnics

ice Publishing

Editorial

Celeste Jorge PhD
LNEC – Advisory Group of the Board of Directors, Lisbon, Portugal

The growing concern with the environment and the search for green and sustainable solutions has been an increasing determination in all areas of knowledge, with the aim of intervening and reversing climate change repercussions, as far as possible, essentially in geotechnics structures or solutions.

In the geotechnical subject, there is an increasing awareness of the importance of the environment in the problems of various orders or categories that are common. In this way, the specialty of environmental geotechnics has long been developed. With it, it was initially attempted, in a heuristic way, to use the knowledge of all engineering sciences, to respond to the many requests from civil society in order to reduce risk situations that expose the safety of people and assets, paying particular attention to the protection of local ecosystems and public health.

To the common knowledge of geotechnics, as an example, the seismic behavior of geotechnical works, in *Environmental Geotechnics* it is necessary to add all the supplementary questions, such as the behavior of contaminants, living organisms in macro or micro-scale, etc. and take into account the way in which natural materials (characteristics) behave and condition the component of the living fraction (biological) or the contaminating fraction (chemical-physical).

Professionals in environmental geotechnics often had to undertake courses or postgraduate specializations to enrich their scientific knowledge in the disciplines of physical-chemistry, physics (mechanical and electrical), biology, etc., which would allow them to look at issues and problems with the ability to perceive the inherent processes, to respond adequately to them. Thus, a specialist in this area of knowledge, especially at the beginning of his activity, was forced to acquire the necessary knowledge, which was not part of his basic training. The acquisition of knowledge on these themes is a constant, given the diversity of aspects that can be considered in environmental geotechnics.

This is the case of the professional journey of the author of this editorial, in one of the main pioneering entities, in Portugal, in the implementation of the activity in environmental geotechnics, the Laboratório Nacional de Engenharia Civil or National Laboratory of Civil Engineering (LNEC), a Public Institute of the Portuguese State, in the early 90s.

The researcher initiated her career, in 1987, working in hydrogeology, geochemistry and aquifer contamination. In 1990, LNEC decided to increase the knowledge of the researcher in geotechnical area. By this way, the researcher has done a master in engineering geology, to acquire more skills related with the Geotechnics Department. She worked during several years in seismic engineering (risk) and geotechnical stability problems; passing by the quality assurance control of tunnels. In 1994, she has embarked in soil contamination area, returning to the environmental theme, already in a perspective of environmental geotechnics. Since then, she has acquired competences in geoenvironmental engineering and environmental geotechnics related with sites for waste disposal, soil contamination research, environmental management, rehabilitation of degraded and contaminated sites, environmental management and rehabilitation of old mining sites, evaluation of Environmental Evaluation Impact (coordinating the subject of risks), and risk analysis (environment, slope stability and urbanism – soil occupation). In January 2016, the researcher got in the Hydraulics and Environment Department of LNEC, and in October 2016, the researcher went to the Advisory Group of the Board of Directors.

The present issue of *Environmental Geotechnics* is a good example of the above. The four papers presented are an example of this multi-disciplinary.

Siddique (2020) shows how engineered carbon-based nanoparticles were considered as a solution for diversified applications – when inserted into the environment, by final deposition landfills or simple release to the ground – can have a very harmful effect on ecosystems and public health, due to the risks that their presence entails, since they can cross the basal barriers of waste storage structures or have the ability to migrate easily in porous media with low permeability.

In turn the second paper (Rahardjo *et al*., 2020), in which green technology is applied, conclude as to the importance of certain shrub plants presence (roots) in the stability of slopes in mechanical behavior of soils in episodes of intense precipitation.

O'Kelly *et al*. (2020) present the result of a very detailed study, to verify the possibility of depositing bio-solids from wastewater treatment plants in final deposition structures, in order to guarantee its geotechnical stability. This study also considers the issues related to biogas and leachate extraction and surface water control systems.

While Hata *et al*. (2020) exhibit an article in which certain bacteria can be added to treatments and be able to condition the degradation of soils treated with cement to improve their mechanical behavior – essentially in port areas, in saline systems or for the containment of sites contaminated with metals.

Many of the situations presented in the articles, in this issue, call for future studies at real scales, whether in pilot tests or in existing

situations, which will prove the results performed on a laboratory scale and accompanied by numerical simulations.

REFERENCES

Hata T, Suetsugu D and Kasama K (2020) A biomediated deterioration mitigation method for cement-treated soil. *Environmental Geotechnics* **7(6)**: 435–444, https://doi.org/10.1680/jenge.18.00011.

O'Kelly BC, Oettle NK and Ramos JA (2020) Geotechnical properties of compacted biosolids for monofill design, As-Samra, Jordan. *Environmental Geotechnics* **7(6)**: 404–434, https://doi.org/10.1680/jenge.17.00107.

Rahardjo H, Satyanaga A, Wang CL, Wong JLH and Lim VH (2020) Effects of unsaturated properties on stability of slope covered with *Caesalpinia crista* in Singapore. *Environmental Geotechnics* **7(6)**: 393–403, https://doi.org/10.1680/jenge.17.00031.

Siddique SN (2020) A review on mobility of engineered carbon-based nanoparticles in porous media. *Environmental Geotechnics* **7(6)**: 382–392, https://doi.org/10.1680/jenge.17.00002.