Review of: "Enhancing Soil Stabilization in Soft Soils Through The Addition of Sand to Soil-Cement Piles: a Comprehensive Study"

Polina Lemenkova[1]

1 Universität Salzburg

Potential competing interests: No potential competing interests to declare.

Review of the manuscript No. U3CNVI '*Enhancing Soil Stabilization in Soft Soils Through The Addition of Sand to Soil-Cement Piles: a Comprehensive Study*' submitted to *Qeios*.

The paper is well-written and presents a case of soil stabilization. Figure 1 has too low a resolution. I would recommend replacing it with a figure of higher resolution showing samples and apparatus of UCS tests (now you have a bad quality picture).

Focus of the paper: The paper describes the case study of soil stabilization where the author applies a soil-cement mixture to treat soft soil as an effective solution to enhance soil properties. Being widely applied worldwide, the authors present a case in Vietnam, where this method has also been used in many projects. Soil stabilization in Vietnam is especially effective in areas with weak soil such as riverside and coastal areas.

Abstract is well-written and clearly describes the undertaken study.

Structure: The article is well organized with structured sections.

Introduction presents a background, defines research goals, and provides a clear statement of the research problem. It presents the purpose of the research investigation which is supported by the pertinent literature. The literature is well referenced and relevant.

Motivation is explained: This article focuses on researching the mixing of soil and cement materials to reinforce weak soil in Ben Tre province.

English language: acceptable. Clear, unambiguous, professional English language used throughout.

Data used in this study is described: The author used a soil-cement mixture made up of natural soil and cement.

Methods: Methods are described with sufficient information and a theoretical background: The author experimented with adding sand and ECO-CSB or ECO-CSSB additives to the soil-cement mixture. . Thus, the author explained the principle of soil stabilisation: when cement is mixed with soil, the cement particles react with water and minerals in the soil, forming

a hard bond. The polymerization of this material is equivalent to the curing time of cement. The workflow is structured.

Results are reported: Experimental results include 6 tables with reported data and show that when sand and additives are added, the hardness and load-bearing capacity of the soft ground increase significantly. This method is especially suitable for treating soft soil contaminated with salinity in Ben Tre province.

Discussion interpreted the major outcomes of this study. The advantages of the obtained results are described.

Conclusion The author concluded by providing differences in the types of soil and their different reactions. Thus, the author noted that when adding ECO-CSB additives for non-saline soils and ECO-CSSB for saline soils, the amount of cement needed is reduced by 30% while still ensuring uniaxial compressive strength compared to when using only cement.

Academic contribution: The paper increases the knowledge in case studies of soil stabilisation with an example of soft soils in Vietnam.

Figures Figure 1 has too low resolution. I would recommend replacing it with a figure of higher resolution showing samples and apparatus of UCS tests (now you have a bad quality picture).

With kind regards,

- Polina Lemenkova.

10.01.2024.