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

Anwar Khitab[1]

1 Mirpur University of Science and Technology

Potential competing interests: No potential competing interests to declare.

It would be better to divide the manuscript into Introduction, Materials and Methods, Results, and Discussion for the convenience of the readers. This is a user-friendly technique and is known to the readers. Of course, subheadings can be added. The composition of soil is nowhere mentioned throughout the manuscript. The manuscript has very limited data, i.e., only compressive strength. No data about the claimed physical parameters is presented.

Title: The title suggests that only sand is added for stabilization, which is not correct. Also, the manuscript deals with laboratory-prepared cylindrical specimens, while the title suggests that it deals with piles.

Abstract: Kindly write full names for ECO-CSB or ECO-CSSB where they appear for the first time.

There are no keywords!!!

Introduction:

No references are provided.

Write exponents in superscript format like 10^{7} cm/s.

There is no need to provide recommendations in the introduction part like 'The use of additives to enhance the physical, chemical, and mechanical properties of the soil-cement mixture, such as bonding agents or foaming agents, is recommended." What is the basis of such recommendations?

In the introduction section, there is a need to define a research gap based on the literature review and suggest a way forward to fill this gap. Recommendations and conclusions are not suitable to be included in the introduction.

Method of Soil Stabilization Using Inorganic Binders:

The first paragraph is related to the importance of machines for soil stabilization; this is a book chapter stuff. Anyway, it can be maintained as it is somewhat relevant to the discussion afterwards.

Table 1: It would be better if the full names are written in the treatment options column rather than explained at the end of the table. This will facilitate the readers.

Stabilizing Soil with Inorganic Binders: A Research Focus on ECO-CSSB

Till this point, ECO-CSSB has not been defined for the convenience of the readers. It would be better if the interaction of ECO-CSSB with NaCl is mentioned through chemical equations.

Soil Stabilization with Soil-Cement-Sand Mix:

What is CSSB? It is an eco-friendly supplementary material as defined in this section. But what C, S, S, and B stand for is still not clear.

Research on Weak Soil Improvement:

Explain the term “cement-soil-cat,” please. Kindly write in parentheses. Write “Particle Composition:” in the same manner as “natural moisture content, natural density, and natural specific gravity.”

Testing on Soil Samples:

200, 250, and 300kg/m3; m3 of what? Kindly mention that of the additive. Why were liters used for sand? Sand is not a liquid.

“Curing of the samples took place under natural environmental conditions.” Does it induce shrinkage? If yes, how can this shrinkage be mitigated?

“In conclusion, the experimental design, encompassing variations in cement content, sand ratios, and the inclusion of ECO CSSB, offers a robust platform for assessing the complex interactions within soil-cement-sand mixes.” This is too early to claim here. Physical and mechanical properties only do not present a full picture of underlying interactions.

Till this point, there is no evidence of how CSSB will ensure eco-friendliness.

Figure 1: A tube is generally defined as a hollow cylinder. It would be better if the word “tube” were replaced with cylindrical specimens.

The compressive strength was determined at the 18th and 28th days. While 28 days is understandable, what is the significance of the 18th day? Normally, cement gains 90% of its strength at the 14th day.

Table 2: Kindly remove “1” from Cement Quantity/1m3. Kindly make the captions of columns 2 and 3 clear. It is not clear at all. The captions of the last three columns are also not clear. A normal reader will be confused. Write “The table represents the compressive strength (qu) in kPa for different volumes of sand mixed with various amounts of cement (XM) per cubic meter.” in the paragraph just above the Table.

Table 3: The caption starts from “Presents.” Kindly write the caption in a standard way. Presenting data in 4 different tables does not offer a good way for comparison. A histogram is most suited, with an ID for each sample and a note in the bottom of the graph explaining each ID. Alternatively, the sample IDs with composition can be defined in a separate table.