

Review of: "Future Trends in Ground Improvement: A Review"

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Potential competing interests: No potential competing interests to declare.

This paper presents a comprehensive and insightful review of the emerging trends in ground improvement within the construction industry. The author, Samaila Saleh, has successfully compiled and analyzed various aspects of ground improvement, such as sustainable techniques, advanced materials, geotechnical robotics, data analytics, and climate resilience. The paper's strengths lie in its thorough exploration of each topic, well-supported by recent studies and practical examples. However, there are areas where the paper could benefit from further refinement and depth, particularly in addressing the challenges and limitations of implementing these advanced techniques in diverse geographical and economic contexts.

Comments for Revision:

(1) **Introduction Clarity:** The introduction could be more concise and focused. It currently covers a wide range of topics but lacks a clear thesis statement that outlines the specific focus of the review.

(2) **Depth of Analysis:** While the paper provides a broad overview of various technologies and practices, deeper analysis into the practical challenges, cost implications, and scalability of these technologies would be beneficial.

(3) **Case Study Selection:** The paper extensively uses case studies to illustrate points. It would be beneficial to include case studies from a wider range of geographical locations, particularly from developing countries where ground improvement challenges might differ.

(4) **Technological Feasibility:** The feasibility of implementing advanced technologies like geotechnical robotics and IoT sensors in less developed regions needs more discussion.

(5) **Environmental Impact Assessment:** More emphasis on the environmental impact of new ground improvement techniques, including lifecycle analysis and carbon footprint, would strengthen the paper.

(6) **Regulatory and Policy Aspects:** The review could benefit from a section discussing the regulatory and policy implications of adopting these new technologies and practices.

(7) **Economic Analysis:** A more detailed economic analysis of the proposed technologies and methods would provide a clearer picture of their viability and potential return on investment.

(8) **Future Research Directions:** The conclusion could be expanded to suggest specific areas for future research,

particularly in addressing the gaps identified in the current study.

(9) Reference Update: Some references seem outdated. Updating these with more recent studies would strengthen the paper's relevance. Interdisciplinary Approach: While the paper touches on interdisciplinary education, more emphasis on how different disciplines can collaborate effectively in ground improvement would be beneficial.

(10) Overall, this paper is a valuable contribution to the field of ground improvement and offers a solid foundation for further research and discussion. The recommendations provided aim to enhance its depth, practical applicability, and relevance to a global audience.