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Editorial Article

Disaster and Rehabilitation in Civil Engineering

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Summary

We are excited to announce the launch of the 2024 edition of the Disasters in Civil Engineering and Architecture journal. In this first volume, the issue focuses on the impact of natural and man-made disasters on civil infrastructure and the methods employed to rehabilitate and restore damaged systems. Civil engineers play a critical role in disaster management, from risk assessment and mitigation strategies to post-disaster recovery.

Rehabilitation in civil engineering involves not just rebuilding but also improving infrastructure to be more resilient in future disasters. In relation to this, Azlan et al. [1] conducted a study on improving flood resilience in coastal areas through the use of digital twin technology. Their findings offer valuable insights for practitioners in identifying key components and countermeasures when applying digital twin technology. Future industry research can expand upon the solid groundwork established by this study, further enhancing the understanding of digital twin applications in flood management and risk mitigation.

The impact of flooding requires innovative solutions for enhancing flood preparedness and reducing societal and economic losses. In line with these considerations, Saad et al. [2] explored the causes and impacts of flash flood vulnerability in various regions, with a particular focus on Malaysia. Their study offers a comprehensive understanding and practical insights for flood risk management. Their analysis reveals that flash floods disrupt daily life and economic activities, particularly in sectors like construction, causing project delays and increased costs. The research makes a significant contribution to flood risk management by emphasizing the need for resilient design techniques, improved coordination among local authorities, stricter regulations, and the promotion of sustainable development practices. It lays a strong foundation for future research and policymaking aimed at reducing flash flood vulnerability.

They also suggest that the future of flood management depends on breaking down barriers between engineering, planning, and environmental management, ensuring guidelines work together toward the shared goal of flood resilience.

In other words, utilizing waste materials in civil engineering provides a sustainable solution to the challenges of disaster management and mitigation. Incorporating various types of waste materials into disaster-resilient infrastructure has great potential. By using these materials, civil engineers can minimize environmental impact while improving the structural integrity and adaptability of buildings and infrastructure in disaster-prone regions. In addressing these challenges, Mior Sani et al. [3] investigate the feasibility of using wood ash as a filler in pavement engineering. Their study reveals that incorporating wood ash as a filler can enhance specific performance characteristics in road construction. The findings highlight wood ash as a sustainable alternative to traditional fillers in pavement production, contributing to environmental conservation and effective waste management.

The integration of waste materials into civil engineering practices promotes a circular economy, minimizing waste generation and supporting sustainable development goals. In a separate study, Mior Sani et al. [4] evaluated the use of grated coconut waste as a bitumen modifier and found that it positively impacted both the physical and mechanical properties of the bitumen mixture. In conclusion, the findings indicate that with adequate research, material processing, and regulatory support, waste materials can significantly contribute to disaster-resistant construction and rehabilitation. This approach not only strengthens infrastructure resilience but also aligns with global initiatives to reduce environmental impact and foster sustainability within the construction industry.

The primary goal of the comprehensive research presented in this inaugural issue is to enhance the knowledge and involvement of researchers and practitioners focused on the latest advancements and innovations in disaster-related civil engineering and architecture.

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Conflicts of Interest

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Author Contributions

Reza Pahlevi Munirwan: writing, reviewing and editing. **Ramadhansyah Putra Jaya:** writing, reviewing and editing. **Aizat Mohd Taib:** writing, reviewing and editing.

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