

Post-Disaster Engineering and the Role of Smart Technologies in the Caribbean Context

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Abstract

Natural disasters such as earthquakes and hurricanes frequently strike Haiti and other Caribbean nations, leaving communities with damaged infrastructure and slow recovery processes. This paper explores how the integration of smart technologies can improve post-disaster engineering efforts. From drone-based aerial assessments to AI-driven planning tools, these innovations offer promising ways to accelerate damage evaluation, optimize logistics, and support safer rebuilding. Drawing on experiences from recent disaster responses in Haiti, this work presents a grounded perspective on both the potential and the challenges of implementing such tools in areas with limited resources and fragile digital systems. The aim is to highlight practical, context-sensitive approaches that can make engineering more resilient and responsive in uncertain global conditions. This study aligns with the IEOM 2025 theme by demonstrating how engineering and technology can come together to support vulnerable regions in a rapidly changing world.

Keywords

Disaster Recovery, Smart Technologies, Engineering Resilience, Infrastructure, Post-Disaster Response

Biography

Samuel Olivier Augustin is a civil engineer with hands-on experience in post-disaster reconstruction and infrastructure development. Since 2022, he has worked as a resident engineer at SESCOIP, a firm based in Jeremie, Grand-Anse, Haiti. In this role, he oversees daily site operations, ensures that contractors follow technical instructions, and communicates progress clearly through detailed reporting to clients and design teams. Samuel's work is rooted in the reality of engineering in disaster-prone environments, where practical decision-making and adaptability are essential. He is committed to exploring how modern technologies can be applied in resource-limited settings to make engineering solutions more effective and resilient. His field perspective brings valuable insight to the conversation on how smart tools can truly serve communities in need.