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INSTANT WATER BARRIER FOR FLOOD CONTROL AND SOFT WATER DIVERSION

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ABSTRACT

This study explores the potential of instant water barriers as an innovative solution for flood control and soft water diversion in the Philippines. Traditional methods often involve lengthy construction processes and deployment, significant resource allocation, and limited adaptability to changing water dynamics.

High-density polyethylene (HDPE) is identified as a suitable material due to its desirable properties like high density, tensile strength, chemical resistance, and mechanical strength. The innovative design of the instant water barrier features an automatic extending barrier mechanism triggered by water pressure that elevates it, enabling rapid deployment and flood mitigation, especially in flood-prone areas. Simulations from SolidWorks indicate the barrier's ability to withstand significant water pressure and remain structurally stable, offering a promising alternative to traditional flood control measures. With a maximum displacement of 1.55mm resulting from the displacement analysis, it shows that there is little to no movement that may

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occur in the barrier, which implies that it can withstand high water pressure. However, continuous monitoring of the barrier's performance in real-world conditions is crucial.

Additionally, further analysis and potential reinforcement of areas experiencing high strain are necessary for optimal performance. Studying the long-term effects of environmental factors, such as climate change and sedimentation patterns, can further improve the resilience of these barriers in dynamic environments. Overall, this research suggests that instant water barriers hold significant promise as a flood control and soft water diversion solution, contributing to the development of resilient infrastructure in flood-prone regions.

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