



**"ECO-BRICK" DEVELOPMENT FROM RECYCLED PLASTIC WASTE,
AGRICULTURAL BYPRODUCTS AND NATURAL BINDERS**

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ABSTRACT

This study investigates the viability of producing eco-bricks as an alternative to traditional bricks using natural binders, agricultural waste, and recycled plastic waste. By assessing the mechanical and physical characteristics of eco-bricks made from plastic waste, sawdust, rice husks, fly ash, and tree resin, the study tackles environmental issues related to conventional brick production, such as resource depletion and plastic pollution.

A series of experiments were conducted to assess the performance of eco-bricks with varying material compositions. The mixtures were molded and subjected to tests evaluating weight, compressive strength, water absorption, and non-combustibility. The findings indicate that eco-bricks are significantly lighter than traditional concrete bricks, suggesting advantages in transport and handling. Compressive strength tests reveal that formulations with higher resin content exhibited superior load-bearing capacity. Water absorption tests show that increasing binder concentration enhances moisture resistance, making certain eco-bricks more suitable for humid environments. Furthermore, non-combustibility tests confirm that all eco-bricks demonstrated high fire resistance, with minimal structural degradation.

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