

## **ABSTRACT**

Green bonds, financial instruments designed to fund environmentally sustainable projects, are pivotal in achieving global sustainability goals. However, their adoption faces significant challenges, including limited and inconsistent impact reporting, fragmented regulatory frameworks, and restricted market accessibility for smaller investors. Tokenization, the process of converting real-world assets into digital tokens, offers a transformative solution by leveraging blockchain to improve traceability, automate compliance, and democratize access. This paper proposes a blockchain-based tokenization framework leveraging Ethereum's robust, scalable, and widely adopted ecosystem, providing transparency and smart contract capabilities essential for green bond management. The framework integrates fractional ownership via ERC-20 tokens, directly addressing the issue of limited market accessibility by enabling broader participation from smaller investors. By resolving these operational bottlenecks, the proposed model enhances trust among stakeholders, fosters inclusivity in green finance, and supports global sustainability goals, particularly advancing SDG 13 (Climate Action) and SDG 9 (Industry, Innovation, and Infrastructure).

**Keywords:** Green Bonds, Blockchain Model, Tokenization, Smart Contracts, Sustainability Finance