

**FINANCIAL INCLUSION AND ENVIRONMENTAL SUSTAINABILITY NEXUS IN
ECOWAS: A NEW EMPIRICAL EVIDENCE**

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ABSTRACT

United Nations Environmental Program (UNEP) pointed out that although Africa makes a small contribution to climate change, it is yet the most vulnerable to its consequences. This vulnerability results from the region's lack of finance to protect itself from the impact of climate change. Hence, this study empirically revisits the debate on the impact of financial inclusion on environmental sustainability in West Africa with emphasis on the 16 ECOWAS member nations. The variables of interest are Total greenhouse gas emissions, commercial bank branches, Depositors with Commercial Banks, Non-renewable energy consumption, Renewable energy consumption, and population. The Westerlund (2007) co-integration test, Panel corrected standard errors (PCSE), and the Common Correlated Effects Mean Group (CCMG) were utilized to achieve the study's objective. The result reveals that commercial bank branches have a positive and insignificant impact on Total greenhouse gas emissions. In contrast, Depositors with Commercial Banks negatively and significantly impact Total greenhouse gas emissions. Accordingly, the study concludes that financial inclusion positively impacts environmental sustainability in West Africa. As a result, the study suggests that banks in the region switch to green energy across all of their branches. Additionally, initiatives should be made to promote saving and loaning savings to

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companies and investors dedicated to environmentally friendly investments and reducing greenhouse gas emissions in the region.

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1. Introduction

The beauty of West Africa lies in its wide range of landscapes, from its lush rainforests to expansive savannas, arid deserts, and pristine coastlines. However, the beautiful environment of West Africa has constantly been threatened by the activities of residents of the region, which results in greenhouse gas (GHG) emissions. GHGs, which include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), among others, can trap heat that keeps the earth warm, which is paramount to the earth's ecosystem (the greenhouse effect). However, excessive trapping of heat by the GHGs resulting from human activities (like fossil fuel consumption, oil and gas extraction, coal mining, waste landfills, and agricultural practices, among others) results in enhanced greenhouse effects, global warming, disruption of the ecosystem and biodiversity, and sea-level rise, among others. Among others, CO₂ emissions are the most commonly emitted GHG, and they stay in the atmosphere for about 1,000 years, followed by N₂O, which stays for about 120 years, and CH₄, which stays for a decade. The life span of CO₂ emissions in the atmosphere contributes to global warming as they absorb heat over a long period of time. However, GHG's life span does not determine its global warming potential (GWP). The GWP of a greenhouse gas is determined by its ability to absorb heat. Although methane and nitrous oxide have a shorter life span than carbon dioxide, their GWP is severe in the short run, making them the deadliest contributors to climate change (Musah et al., 2023).

Various international organizations, private sectors, countries, and Non-governmental organizations have constantly pledged their allegiance to the fight against GHG emissions, and notable among them is the United Nations Environmental Program (UNEP), which was established in 1972 to assist countries in transitioning to a low-carbon economy and safe guide the ozone layer. Another effort to address the GHG emissions was the 12 December 2015 conference in Paris, France. The Paris Conference saw the gathering of 196 nations of the globe to discuss and agree on the way forward in addressing climate and environmental issues ravaging the world. The conference resulted in the legally binding international treaty on climate change. In the treaty, the 196 nations agreed to jointly hold the average global temperature increase to 2°C and pursue efforts to reduce the temperature to 1.5°C. The Paris Agreement represents a significant milestone in the global response to climate change. It is the first time nations have a legally binding agreement on the fight against climate change. In the agreement, countries communicate their nationally determined contributions (NDCs), which is how they intend to adapt to and mitigate climate change (United Nations Climate Change, 2023).

Furthermore, to unravel the determinants of GHG emissions that result in climate and environmental issues, studies like Musah, Boateng, Kumah, and Adebayo (2022) argued that foreign direct investment (FDI) increases GHG emissions, which degrade the environment,