

Financing decarbonization of carbon-intensive sectors in Africa

Solomon N. Nakouwo | **Research Institute of Economics and Management, Southwestern University of Finance and Economics, Chengdu, China.**

Decarbonizing carbon-intensive sectors is vital for Africa’s sustainability and climate commitments. Although Africa contributes approximately 3-4% of global CO₂ emissions, certain countries and sectors exhibit disproportionately high emissions. The continent’s emissions profile indicates that the power industry (energy) and transport sectors significantly contribute to greenhouse gas emissions, underscoring the urgency of targeted financing for these sectors. This necessitates deploying financial strategies and substantial investments in renewable energy technologies and infrastructural developments (Goga & Bell, 2024; Momodu et al., 2022). We review financial strategies critical for decarbonizing Africa’s most carbon-intensive sectors, specifically the power industry and transport. Leveraging data analysis from 1999 to 2023 obtained from the World Bank’s World Development Indicators (WDI) and insights from recent literature, the review highlights sectoral emission trends, identifies financing challenges and opportunities, and offers policy recommendations to facilitate sustainable transitions.

The sector-level emissions trends analysis from 1999 to 2023 reveals significant insights into emission dynamics across different African sectors (see Figure 1). The ‘Power Industry’ and ‘Transport’ sectors consistently emerge as the top contributors to emissions, highlighting their critical roles in shaping decarbonization policies. The steady increase in emissions from these sectors is driven by fossil fuel dependency and increasing transportation demand due to urbanization and industrial growth (Momodu et al., 2022; Oladunni et al., 2022). The ‘Industrial Combustion’ and ‘Industrial Processes’ sectors also demonstrate substantial emission levels, highlighting the importance of targeted investments in clean technologies and energy efficiency (Nwokolo et al., 2023).

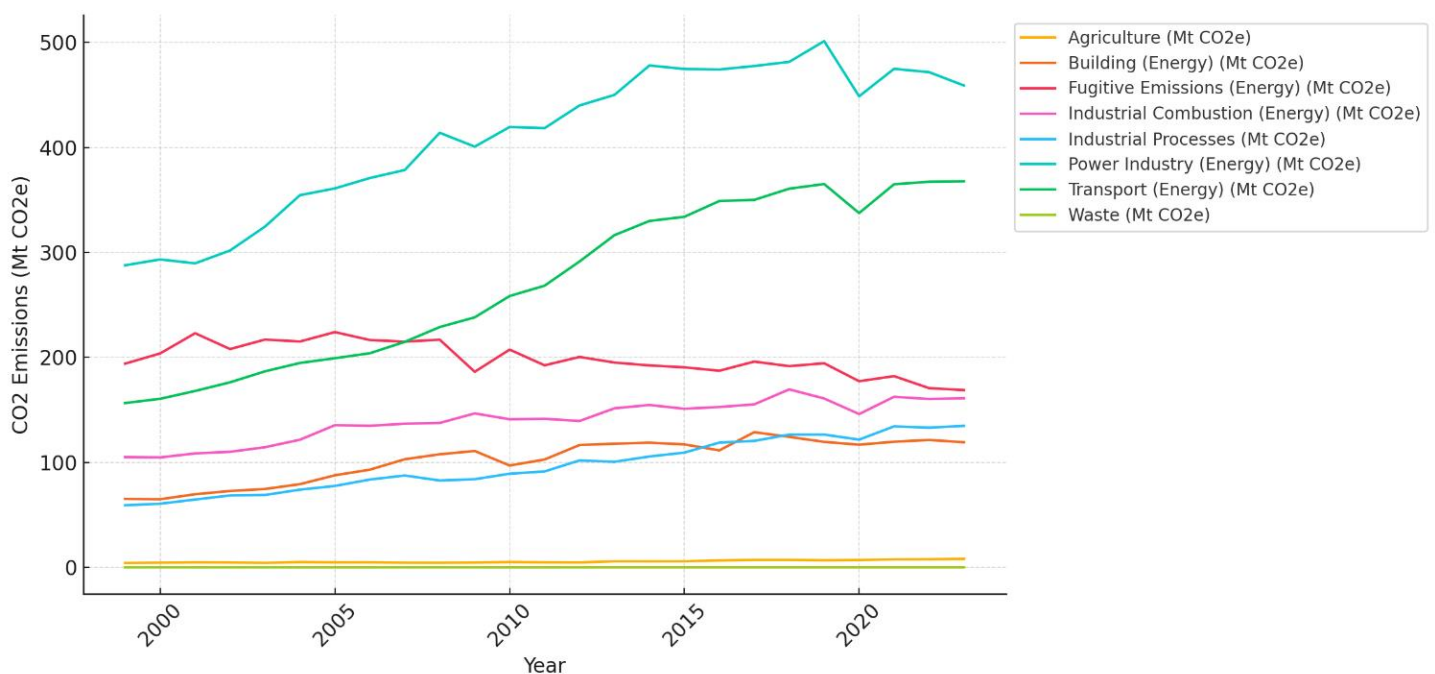


Figure 1: Sector-wise CO₂ Emissions Trends in Africa (1999-2023)

Country-level analysis of total CO₂ emissions from 1999 to 2023 identifies South Africa, Egypt, Algeria, and Nigeria as the continent's leading emitters, driven by their substantial industrial and energy sectors (see Figure 2). These countries dominate the emissions landscape due to industrial activities and fossil fuel dependency. For instance, South Africa remains the highest emitter, significantly influenced by its coal-dependent power generation and industrial activities. This underscores the necessity for targeted international and domestic financial support to facilitate these countries' transition to cleaner energy alternatives by directing investments towards renewable energy transitions and decarbonization (Walwyn, 2020).

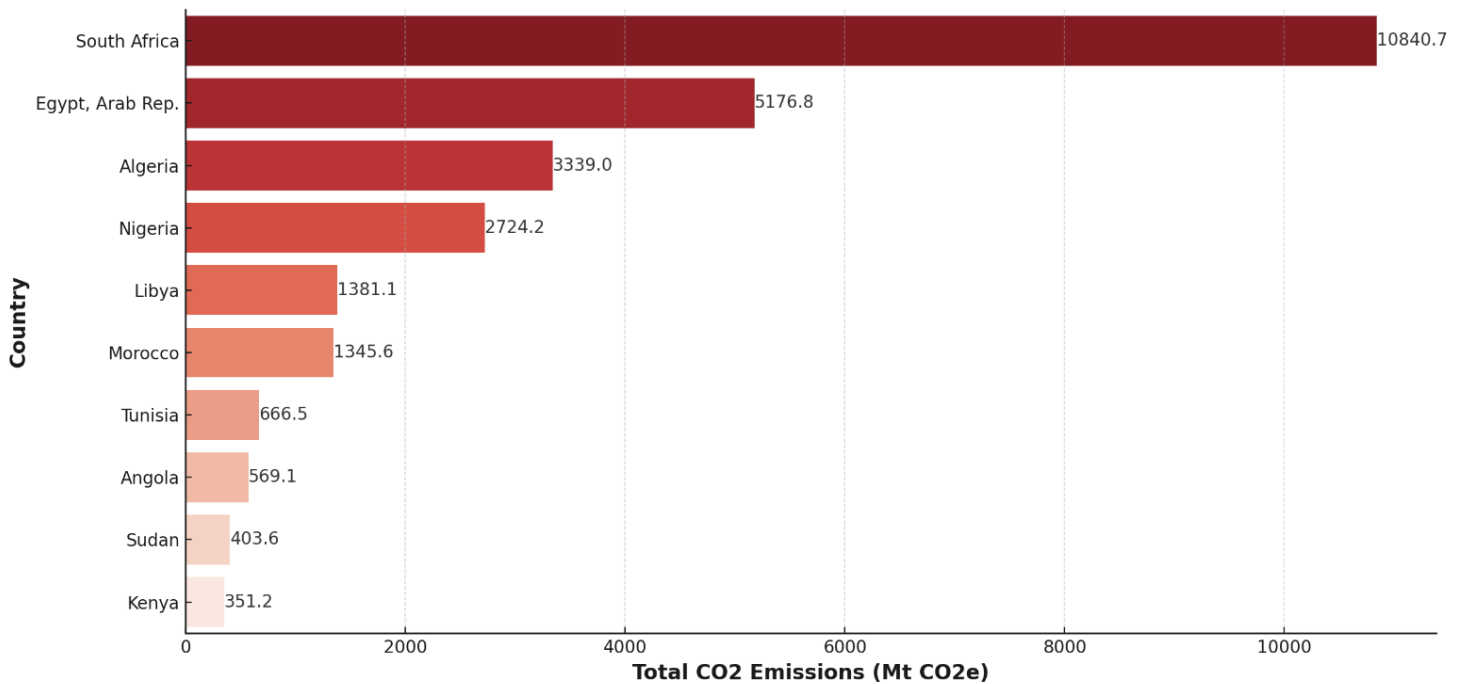


Figure 2: Top 10 African Countries by Total CO₂ Emissions (1999-2023)

Existing financing mechanisms, including climate investment funds, green bonds, and public-private partnerships, have had varied success due to inadequate frameworks and investment risks (Sweerts et al., 2019). Walwyn (2020) highlights the necessity for a substantial reallocation of public finance towards sustainable alternatives, suggesting strategic reallocation of resources and robust political support as critical. For instance, South Africa's green bond market has shown potential in financing sustainable development, but challenges remain in scaling these efforts across the continent. Significant barriers include high initial capital costs, regulatory uncertainties, limited access to affordable financing, and insufficient infrastructure. These challenges deter both domestic and foreign investments in sustainable projects. Sweerts et al. (2019) emphasize that financial risks significantly impact renewable energy adoption, requiring focused de-risking strategies. Additionally, revenue generation and funding for transition policies, competition for alternative fuels, and impacts on low-income consumers pose challenges (Emodi et al., 2022). Notably, Africa's current investment inflows in green energy are among the lowest globally, highlighting the need for enhanced financial mechanisms.

Emerging opportunities exist to scale up financial mobilization towards decarbonization in Africa. Financial de-risking and innovative financing instruments such as green bonds can dramatically enhance Africa's adoption of renewable energy and infrastructural upgrades (Sweerts et al., 2019). Initiatives such as South Africa's Just Energy Transition Investment Plan highlight the effectiveness of strategic financial interventions in achieving substantial emission reductions (Walwyn, 2020). Development finance institutions must adopt clear criteria for assessing the transformational impacts of climate funding (Goga & Bell, 2024). Policymakers are recommended to encourage cross-sector linkages and collaboration to tackle infrastructural and policy challenges collectively. Promote international climate finance and financial de-risking to mobilize necessary capital for renewable energy projects (Sweerts et al., 2019). Expand green bonds and blended finance schemes to attract private investments into low-carbon technologies.

Expanding green bond markets and blended finance to attract private capital are essential to mobilizing funds for the decarbonization agenda. Implementing sustainability-driven investment models in Africa can help redirect capital flows towards low-carbon projects. Clear regulatory guidelines should also be implemented to improve the investment environment on the continent. The development of green finance taxonomies, as seen in South Africa, can provide a structured approach to sustainable investments. Further, leveraging international climate finance to supplement domestic investments. Collaborative efforts, such as the Accelerated Partnership for Renewables in Africa (APRA), aim to increase Africa's renewable energy capacity by 2030 significantly.

In conclusion, successfully financing decarbonization in Africa's carbon-intensive sectors requires coordinated policy interventions, innovative financial strategies, and international collaboration. Addressing investment gaps through targeted measures can accelerate Africa's transition to a low-carbon future.

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