



# CARBON FINANCE IN THE COFFEE SECTOR

UNLOCKING CLIMATE AND ECONOMIC OPPORTUNITIES  
FOR KENYA

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# 1.Context



As the world intensifies efforts to combat climate change, carbon finance has emerged as a critical tool for supporting climate-resilient and low-carbon agricultural practices. In Kenya, where coffee is not only a key export but also a source of livelihood for over about 1.5 million[1] households. It ranks third[2] among Kenya's top exports, behind tea and cut flowers. The total land area under coffee stands at about 110,000 hectares with nearly 80% of the land being under smallholder operations (with typically less than 5 hectares holdings). Further, Kenya produces about 40,000 metric tons of coffee annually (this had reduced significantly from over 100,000 MT in the 90s), with commercial hard value of USD 1.61 billion[3]. But this value can be expanded when carbon trade is involved. For instance, estimates suggest that agroforestry on coffee farms could sequester 2-4 tons of CO<sub>2</sub> per hectare per year, depending on tree density and species mix.

A case in point, between 2020 and March 2025, according to Farm Africa[4], over 21,500 smallholder farmers in Embu and Tharaka Nithi achieved 24,945 tCO<sub>2</sub>e emitted reductions and the sale of an equivalent number of Carbon Removal Units (CRUs) under the VCM. My estimate of the revenue from this initiative would be US\$249,450 at ~US\$10/tCO<sub>2</sub>e. If this is the case, with concerted attention to this endeavour, more benefits could be simultaneously attained for humans and nature.

Carbon finance presents both an opportunity and a challenge. This article explores the benefits, opportunities and challenges in Kenya's coffee sector.

[1] <https://www.afa.go.ke/updates/charting-the-path-towards-a-sustainable-coffee-sub-sector-in-kenya/>

[2] <https://kippra.or.ke/revitalizing-kenyas-coffee-industry-by-addressing-production-gaps-for-sustainable-growth/5/>

[3] <https://www.investkenya.go.ke/coffee/>

[4] [https://www.farmafrica.org/agroforestry-and-carbon-markets-transform-farming-in-eastern-kenya/?utm\\_source=chatgpt.com](https://www.farmafrica.org/agroforestry-and-carbon-markets-transform-farming-in-eastern-kenya/?utm_source=chatgpt.com)

# What is Carbon Finance in Agriculture?

Carbon finance refers to financial mechanisms that reward activities reducing, avoiding, or sequestering greenhouse gas (GHG) emissions. In the coffee sector, this could include:



Agroforestry (e.g., planting shade trees)



Use of organic fertilizers and biochar



Improved soil management and conservation agriculture



Renewable energy use in coffee processing

Farmers or cooperatives can earn carbon credits through these practices, which are then sold on carbon markets (voluntary or compliance), generating additional income.



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## 2. Benefits of Carbon Finance for the Coffee Sector

01

Diversified Farmer Incomes: Smallholders can earn extra revenue by selling carbon credits, providing a buffer against coffee price volatility.

02

Improved Soil Health & Yields: Climate-smart practices like agroforestry and organic inputs enhance soil fertility, improve yields, and reduce input costs over time.

03

Climate Resilience: Practices incentivized by carbon finance help coffee farmers adapt to changing weather patterns, such as prolonged droughts and erratic rains.

04

Biodiversity Conservation: Shade tree planting and agroforestry systems promote biodiversity while contributing to carbon sequestration.

# 3. Opportunities in Kenya

## STRONG COOPERATIVE SYSTEMS:

Kenya's coffee sector is organized around cooperatives, making collective carbon projects feasible (e.g., bundling credits for economies of scale).

## GROWING VOLUNTARY CARBON MARKET:

Demand for high-quality, agriculture-based credits is rising globally, with buyers favoring projects that deliver community co-benefits — an area where Kenyan coffee can shine

## EXISTING CLIMATE POLICIES:

Kenya's National Climate Change Action Plan (NCCAP) and Nationally Determined Contributions (NDCs) encourage private sector engagement in climate mitigation, including carbon markets.

## PARTNERSHIP POTENTIAL:

NGOs, development agencies, and the private sector (e.g., Fairtrade, Rainforest Alliance) are already piloting carbon finance in coffee-growing regions like Embu, Kirinyaga, and Nyeri.



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# 4. Challenges

01

## **High Transaction Costs:**

Measuring, reporting, and verifying (MRV) emissions reductions at smallholder level can be expensive.

02

## **Market Volatility:**

Prices for carbon credits fluctuate, and smallholders may not always receive fair value.

03

## **Limited Awareness:**

Many farmers lack information on carbon markets and how to participate profitably.

04

## **Land Tenure Issues:**

In some cases, unclear land rights complicate the ability to register projects and claim carbon benefits.

05

## **Capacity Gaps:**

Technical expertise is needed to design and implement credible carbon projects.

# 5. The Way Forward

Leveraging on the strong cooperatives in the coffee sector to provide MRV services at low cost given the economies of scale advantages.

1

2

Strengthening partnerships with private sector, NGOs, and buyers to provide upfront financing and technical support.

Capacity building for farmers and cooperatives to design, monitor, and manage carbon projects effectively.

3

4

Support from government to create enabling policies and reduce MRV costs (e.g., through digital solutions).

Facilitating access to affordable MRV infrastructure for smallholder farmers through government incentives that encourage private sector participation and investment.

5



## 6. Conclusion

Carbon finance presents a promising pathway for Kenya's coffee sector to build resilience, enhance incomes, and contribute to global climate action. While challenges exist, targeted interventions can help farmers unlock these benefits and position Kenya as a leader in climate-smart coffee production.

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