Sector Brief: Charcoal

Transforming the charcoal sector in the Congo Basin

The Challenge: Charcoal energy demand driving forest loss

Charcoal is one of the most significant and yet least addressed drivers of deforestation in Sub-Saharan Africa. For hundreds of millions of households, charcoal is not simply a fuel. It is the backbone of daily life.

In the Democratic Republic of the Congo (DRC), over 90% of the population relies on charcoal or fuelwood as the principal source of cooking energy. The sector supports millions of livelihoods and businesses like bakeries, restaurants or brickmakers depend on it for their daily operations.

Africa produces roughly two-thirds of global charcoal, with demand rising as populations grow and cities expand.

Charcoal is produced by cutting and burning timber in traditional, low-efficiency kilns, where high heat turns logs into charcoal. The production is highly inefficient and largely informal, requiring up to 10 kg of wood to produce 1 kg of charcoal.

This drives extensive logging and forest degradation in the Congo Basin, while charcoal burning exposes households to severe health risks from air pollution. WHO estimates that household air pollution from polluting fuels and technologies was responsible for 2.9 million deaths per year in 2021. Women and children face particularly high exposure risks, as they are often responsible for cooking and fuelwood collection and spend more time near household smoke from polluting fuels.

Charcoal sector dynamics:

- Primary cooking and heating fuel
- Rapidly growing demand, with current supply insufficient to meet energy needs
- Informal and inefficient production systems
- Significant contribution to forest degradation

The DRC is home to 60% of the Congo Basin's forests, the world's second-largest tropical rainforest, but has lost 19 million hectares of forest since 2001, emitting 12.3 billion tons of CO_2. Charcoal production and fuelwood collection are major drivers of forest degradation in the DRC. With rapid population growth and limited access to alternative energy sources, pressure on forests continues to increase.

The Opportunity: Transforming the charcoal market

Given strong and persistent demand, the solution lies not in eliminating charcoal, but in transforming how it is produced and supplied. With an estimated market size of USD 8–25 billion annually, charcoal represents a critical but overlooked opportunity to align energy access, economic development, climate mitigation and forest conservation.

Energy efficient wood stoves to reduce deforestation — Photo: Alain Mukeba / USAID Africa Bureau via Wikimedia Commons.

A growing body of research points to clear pathways toward a more sustainable charcoal economy: improving production efficiency, shifting from natural forest wood to sustainably grown biomass (e.g., agroforestry and plantations), introducing alternative fuels such as agricultural residue briquettes, and strengthening and formalising value chains.

These interventions can significantly reduce pressure on forests. For example, agroforestry systems can provide a sustainable source of woodfuel while enhancing soil fertility and agricultural productivity, thereby linking energy access, livelihoods, and landscape restoration.

At the same time, improved production technologies can increase conversion efficiency and lower emissions, while more formalized value chains enable better traceability, governance, and investment.

Sustainable charcoal's untapped opportunity:

- Strong demand fundamentals driven by daily energy needs and population growth
- High climate impact potential, including avoided deforestation and emissions reductions
- Significant livelihoods impact, supporting millions of jobs across value chains
- Market creation opportunity in an undercapitalized sector

Key barriers to scale

Despite clear opportunities, investment in the sustainable charcoal sector remains limited due to structural and commercial barriers.

The sector's informality, combined with governance challenges, limited access to finance, and weak project bankability, has constrained the development of scalable business models.

Market prices for charcoal are often very low, meaning that enterprises need to move large volumes to generate meaningful profits.

This makes it difficult for SMEs and early-stage enterprises to absorb high upfront costs, invest in improved technologies, and reach the scale required to attract commercial capital.

Constraints to a sustainable charcoal market:

- Limited access to finance for SMEs and early-stage enterprises
- Weak bankability due to low market prices and high volume requirements
- High upfront costs for improved technologies
- Informality and weak governance structures
- Policy and regulatory gaps
- Limited technical and operational capacity
- Limited scale and maturity of projects

The role of blended finance and Canopy Trust

Addressing these constraints requires a blended approach that tackles both financial and structural barriers. By combining concessional capital with technical assistance and investment funding, early-stage risks can be reduced and investable pipelines developed.

Canopy Trust applies this model and is mobilising finance to curb deforestation and support inclusive growth in Central Africa. It supports proof-of-concept initiatives and builds a pipeline of scalable, investment-ready projects by bridging the gap between high-impact opportunities and market readiness through targeted technical assistance and catalytic capital.

This enables viable business models to emerge while strengthening the broader ecosystem needed for scale. This is particularly relevant in sectors like charcoal, where strong fundamentals are offset by early-stage risks and structural barriers.

Investment geographies

Canopy Trust uses blended finance to mobilise private investment to limit deforestation and support socio-economic development in Central Africa through:

Technical Assistance: to develop a robust pipeline of investable projects

Strategic Investments: Direct project-level investments and fund-level investments using junior capital

The facility is strategically designed to meet the commitments laid out in national investment frameworks and the REDD+ strategies of participating countries, ensuring alignment with national priorities.

By 2030, Canopy Trust intends to mobilise a minimum of USD 500 million in private sector investments, attracting additional funding and developing its portfolio as a proof of concept.

The charcoal sector offers multiple scalable entry points for investment:

- Sustainable charcoal from planted tree systems (e.g. agroforestry)
- Briquette production from agricultural and other residues
- Efficient kiln and processing technologies
- Clean cooking distribution and last-mile delivery models

Transforming the charcoal sector can deliver significant outcomes across climate, nature, and livelihoods:

- Avoided deforestation and improved forest management
- Climate mitigation, through reduced emissions and carbon sequestration
- Income generation and job creation
- Improved inclusion, particularly for informal workers and women
- Reduced household exposure to harmful cooking smoke
- Reduced fuelwood collection burden for women and children, who are often responsible for gathering household energy resources

Transforming the charcoal sector is one of the most immediate opportunities to align climate, nature, and development outcomes at scale, particularly as demand continues to rise, pressure on forests intensifies, and global attention to nature-based solutions and sustainable land use grows.

Canopy Trust is building a pipeline of high-impact investment opportunities in the charcoal sector across the Congo Basin to reduce deforestation.

Learn more about Canopy Trust: www.canopytrust.org

Example: Deforestation-free charcoal alternatives supported by Canopy Trust

Project	PKT & Partners
Location	Kinshasa & Kongo Central, DRC
Sector	Clean cooking energy
Overview	Scaling production of waste-based charcoal briquettes to replace wood-based charcoal, using urban and agricultural residues. The project expands existing facilities with industrial equipment to deliver affordable, deforestation-free cooking fuel at price parity.
Challenge	• 70–95% of households rely on charcoal/biomass • Rapid urbanization driving rising demand and deforestation • Significant health impacts from indoor air pollution • Limited access to scalable, affordable alternatives
Canopy Trust role	Technical Assistance to de-risk investment and enable industrial-scale deployment: • Financial & investment modelling for scale-up • Deforestation impact assessment (avoided forest loss) • Supply chain validation (waste biomass availability)
Expected Impact	• Forests (SDG 15): Reduced deforestation from charcoal substitution • Climate (SDG 13): Avoided emissions and cleaner production • Gender (SDG 5): Income opportunities + reduced health risks for women

Learn more about this project:
https://canopytrust.org/en/project/pkt-partners/