



CHARCOAL FARMING

A Nascent 4.0+ Enterprise for Uganda's New Economy

NORTHERN UGANDA

A climate-smart innovation is quietly transforming landscapes and household incomes in northern Uganda: innovative agroforestry. For decades, the word "charcoal" has been synonymous with environmental destruction. Across the region, the insatiable demand for this 'black gold' has driven severe forest degradation. Natural forests and woodlands now stand the chance of being saved with the issuance of Executive Order No. 3 of 2023, which banned the cutting of trees for commercial charcoal production.

Fortitiously, Kijani forestry Limited, a fast-growing social enterprise based in Gulu had, since 2019, stepped in to turn this crisis into a pioneering 4th Industrial Revolution (4.0+) enterprise. Their solution? Sustainable Charcoal Farming.



Well dried, debarked and evenly sized logs are stacked ahead of carbonisation using the improved Casamance Kilns at Kijani's Research and Development (R&D) Farm in Paicho, Gulu District/Courtesy

By integrating fast-growing, indigenous trees suitable for woodfuel directly into traditional cropping patterns, Kijani isn't just protecting Uganda's remaining natural forests and woodlands—it is helping smallholder farmers take up sustainable woodfuel farming as an enterprise. Kijani in effect has added a third philosophy - "Making the Available Sustainable" - to the National Integrated Clean Cooking Strategy (NICCS)'s dual philosophies of "Making the Available Clean" and 'Making the Clean Available'. And this aligns seamlessly with the Government's 10-Fold Growth Strategy that leverages Science, Technology, and Innovation (STI) to build a resilient New Economy from the ground up.

Navigating the Ban on Commercial Charcoal

Michael Tebere, Kijani Forestry's Director for Government & Partner Relations says: "Sustainably farming woodfuel for charcoal the Kijani way reinforces Executive Order No. 3 by not

Sustainable Energy for All

Kijani Forestry directly advances Sustainable Development Goal 7 (SDG 7) by formalizing and modernizing Uganda's critical biomass value chain, which serves households where 94% rely on woodfuel.

- **Renewable Supply (Target 7.2):** Kijani replaces unsustainable exploitation of natural forests and woodlands with dedicated, fast-growing perennial woodlots, creating a fully renewable fuel lifecycle.
 - **Energy Efficiency (Target 7.3):** By introducing high-efficiency high efficiency kilns and retorts, Kijani significantly increases charcoal use per tree, cut's processing wastes and reduces GHG emissions.
- This model transforms smallholders into sustainable-energy entrepreneurs, linking renewable woodfuel value chains, on-field biochar soil upgrades, and global carbon markets to power sustainable rural prosperity.

only protecting existing forests and woodlands from further degradation but also providing landowners with an alternative that increases tree cover four-fold before allowing for harvest at the beginning of year five. So, in addition to providing sustainable charcoal, we are increasing Uganda's tree cover and providing ecosystem services for planet earth!"

Today, this nascent sector has scaled to over 89,000

smallholder farmers across 30 districts, proving that environmental conservation and economic prosperity can go hand in hand.

The Power of Backward Linkages

To transform a destructive, cartel-driven trade into a transparent, state-regulated industry, Kijani has proposed a robust ecosystem of three "backward linkages" that ensures sustainable woodfuel supply before a single tree is

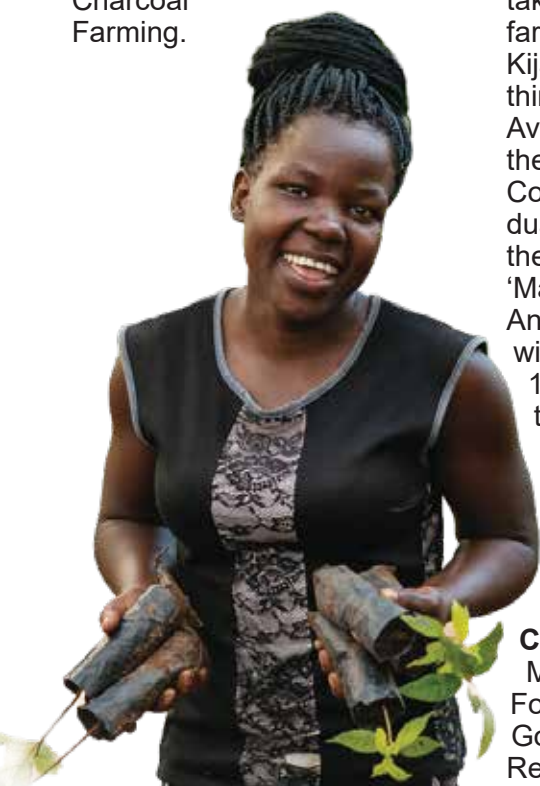
even harvested.

Forest Restoration via University Partnerships

Scaling up native tree planting requires a reliable supply of high-quality seeds. Kijani has proposed a unique Public-Private Partnership (PPP) model for this. The Ministry of Water & Environment leases selected conservation forests to Sub-Regional National Universities (including Muni, Gulu, Lira, and Soroti). Kijani restores the forests, creating Natural Seed Orchards. The Universities in turn, establish and manage decentralized National Tree Seed Banks. The Universities can then replicate what Kijani has done on its 400-acre R&D farm in Paibona, Gulu District: training cohorts of locally recruited youth for deployment in communities as local Farmer Coordinators.

Such collaboration serves as a powerful engine for community transformation. As of April 2026, Kijani's own army of Farmer Coordinators is over 700 strong.

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The journey towards Green Charcoal starts with a seedling in the hands of a small holder farmer /Courtesy



Can 'Green' Charcoal become Uganda's Next Export Product?

KAMPALA

For decades, Uganda's charcoal narrative has focused on environmental devastation. Academic and journalistic exposés detail how the charcoal industry degrades indigenous forests and woodlands to satisfy growing urban cooking demands. Yet, a critical macroeconomic truth remains ignored: sustainable charcoal is a billion-dollar global commodity Uganda can export.

By transitioning from primitive, extractive practices toward modern, sustainable charcoal farming, Uganda can turn a domestic ecological crisis into a structured green enterprise that builds rural wealth and improves its balance of payments.

The Macroeconomic Asset

Globally, wood charcoal exports surpass \$1.5 billion (Shs5.6 Trillion) annually. Top exporters from Africa like Ghana, Namibia, and Nigeria secure hundreds of millions of dollars in hard foreign currency by treating charcoal as a managed industrial product rather than a black-market byproduct of deforestation.

For Uganda, which faces consistent pressure on its international balance of payments, expanding its formal export portfolio is a matter of national economic security. Uganda's

agricultural export ledger depends heavily on traditional crops like coffee and tea. Introducing a sustainably produced charcoal can generate steady inflows of US dollars, while regularising and documenting otherwise

unsustainable and smuggled charcoal.

The problem has never been charcoal itself, but rather its uncontrolled and unsustainable sourcing.

Shifting to 'Charcoal Farming'

The current charcoal industry fells old-growth, indigenous trees from the national forest estate and burns it into charcoal using inefficient earth-mound kilns. This destroys biodiversity and yields low tax revenue. Kijani Forestry advocates for a complete paradigm shift: Sustainable Charcoal

Farming.

By establishing short-rotation plantations with fast-growing, high-calorific tree species, farmers grow and harvest woodfuel specifically for charcoal production. This approach protects natural

forests while establishing a sustainable, high-volume woodfuel supply chain optimized for premium international markets.

Boosting Revenue and Policy Alignment

A formalized export strategy could transform green charcoal from sustainably farmed woodfuel into a trade product providing farmers with reliable income. Shifting this trade out of the shadows allows the Uganda Revenue Authority (URA) and Local Governments to formalize revenue collection mechanisms, issue export permits, and generate substantial domestic tax revenues.

To position Uganda among the world's leading international charcoal exporters, the government must build an enabling policy framework. This will require financing woodfuel plantations, standardizing high-efficiency kiln technologies, and streamlining export certification for sustainably farmed charcoal.

By aligning environmental conservation with macroeconomic trade targets, Uganda can pioneer a green export sector that strengthens the shilling globally.



Kijani Staff together with FAO Experts weigh Charcoal produced from Farmed Trees during a project implemented together/Courtesy

How Kijani reinforces Executive Order No.3

LIMURU/KENYA

A communiqué from a high-level workshop convened by the International Renewable Energy Agency, Nuvoni Centre for Innovation Research, and University College London, with support from the Climate Compatible Growth Program and the British Academy held in February 2026 has urged African nations to pragmatically integrate charcoal into their long-term national energy planning rather than enforcing outright bans.

Today, over 195 million people across Africa rely on charcoal as their primary fuel, a figure projected to double before 2050 due to rapid urbanization and income volatility.

In Uganda, Executive Order No.3 of 2023 puts a ban on the cutting of trees for commercial charcoal production and trade. Without viable alternatives, the ban risks pushing the sector into extreme informality and destroying local livelihoods.

Kijani Forestry is uniquely positioned to reinforce implementation of Executive Order No.3. By spearheading a "sustainably farmed charcoal" agenda, Kijani is successfully linking a sustainable woodfuel supply chain to a new green charcoal value chain. The new enterprise will be regulated by a certified traceability, transparency and accountability system, and high-efficiency carbonization technologies.

Instead of relying on devastating extractive logging on communal land, Kijani's model enables sustainable woodfuel production. This directly aligns with the state's conservation enforcement goals, protecting Uganda's natural forest estate while introducing a new sustainable enterprise for the economic resilience for rural communities.

Charcoal Farming as an Enterprise

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And by utilizing restored forests as living laboratories, the universities could position themselves as regional centers of excellence in biodiversity research and teaching while unlocking new institutional revenues through carbon credits.

Decentralized Tree Seed Collection & Banking

According to Terraformation’s Global Seed Bank Index (2022), more than half of the world’s countries lack seed banks for native trees. In Africa, only Kenya has a sizeable Seedbank. With high deforestation rates threatening Uganda’s natural tree cover, building a decentralized tree seed collection and banking system is critical.

In their 2015 Survey Report on Status of Seed and Seedling Supply System in Uganda, published by the National Forestry Resources Research Institute and the World Agroforestry Centre, Odoi J. Boaz, Buyinza Joel and Okia Clement (pictured above) highlighted the stark consequences of this centralized bottleneck, explicitly recommending the "...decentralization of seed supply through establishment of more seed centers closer to the communities and supporting local communities to establish genetically diverse seed sources."

The study warned that relying on a single, centrally located National Tree Seed Centre breeds logistical challenges, a risk Kijani seeks to actively mitigate by embedding robust seed-banking infrastructure right within regional universities.

Smart Nursery Hubs & Direct Farmer Incentives

Commercial forestry is still seen as a luxury reserved for the wealthy, due to the high cost of seedlings. Kijani is flipping this narrative by training farmer groups to establish and manage their own local nurseries. Today, Kijani supplies over 7,300 Farmer-Managed Tree Nursery Hubs with diverse seeds for woodfuel, timber, live fencing, and bee forage.

To address the primary challenge of charcoal farming—the five-year wait for trees to mature—Kijani introduced a game-changing financial mechanism: the Annual Tree Survival Incentive Payment (ATSIP). Farmers receive Shs 100 per surviving tree at the end of Year 1, and Shs 200 per tree annually through Years 2 to 5. By harvest time, an acre of woodfuel can generate an additional Shs 900,000 in direct incentives, besides up to 200 bags of charcoal! Combined with regular food crop yields (intercropped during the first two years of tree growth), leaf-fall compost, and natural nitrogen fixation, participating households are seeing average income increases of up to 600% by the fifth year.

Modernizing the Charcoal Market: High-Tech Forward Linkages

Growing the trees is only half the battle. To fully revolutionize the industry, Kijani has introduced three sophisticated forward linkages that bring transparency, efficiency, and premium branding to the final product.

The Green Charcoal Production Process

Differentiating Traditional and Modern Charcoal	
Feedstock Sourcing	
Trees from Natural Forests & Woodlands	Trees from Sustainably Farmed Woodlots and Plantations
Harvest Methods	
Clear Cut, Mixed Species, Wasted Leaf & Twig Residue	Selective Harvest, Single Species, Leaf & Twig Residue Recycled into Biochar
Production Methods	
Low Efficiency, High Emission Earth-Mound Kilns	High Efficiency, Low Emission Casamance Kilns and Retorts
Governance Methods	
Poorly Policed Individual Licensing System	Associations with Farm-to-Market Chain-of-Custody Traceability, Transparency &
Efficiency & Yields	
10-20% Yield (Requires 8-12 kgs of Wood to Make 1 kg of Traditional Charcoal)	30-40% Yield (Requires only 3-5 kgs of Wood to Make 1 kg of Modern Charcoal)
Product Quality	
Varied Sizes; Fast Burning; Variable Heat; Variable Quality	Even Sizes; Long Burning; Steady Heat; Consistent Quality
Marketing System	
Untraceable; Unbranded; Sold by Bulk	Traceable; Branded; Sold by Weight
Environmental Impact	
Degradation & Deforestation of Natural Forests & Woodlands; Loss of Biodiversity; High Pollution	Restoration & Reforestation of Natural Forests & Woodlands; Enhanced Biodiversity; Low Pollution
 KIJANI FORESTRY RESTORE UGANDA'S FORESTS. ELIMINATE FARMER POVERTY.	

Traditional earth-mound kilns are notoriously wasteful, burning away massive amounts of biomass and yielding a poor recovery rate of just 8-12%. Serving as an Implementing Partner with the UN Food and Agriculture Organization (FAO) under the Forest Management and Sustainable Charcoal Value Chain Project (2020-2025), Kijani helped pioneer Uganda’s Green Charcoal Production Process. By deploying the scientifically engineered Improved Casamance Kiln, Kijani dramatically increases carbonization efficiency to 28-35% recovery while slashing greenhouse gas (GHG) emissions.

Sub-County Warehouses, Packaging, and Branding

To replace the cartel-driven supply chains, Kijani plans to aggregate farmers into associations that enter into PPPs with Local Governments at Sub-County level to establish and manage Sustainable Charcoal Warehouses. Kijani will build the infrastructure, allowing farmers to bulk

the charcoal, and respective Local Governments to collect ensuing revenue seamlessly.

And here is where the sustainably produced charcoal is modernized into a premium trade product—standardized, packaged, and branded by weight, purpose, and wood species. Crucially, every bag is emblazoned with the "Sustainably Farmed Charcoal" label and features a unique QR Code. When scanned, the code will reveal the exact tree species, the GPS location of the woodlot it came from, the date of harvest and carbonization, and even recommended use of the charcoal!

Traceability, Transparency, and Accountability (TTA)

At the heart of this entire value chain is Kijani’s proprietary regulatory App. Every stage of the product’s journey—from seed bank to tree nursery hub to farmer woodlot to improved kiln to charcoal warehouse to retail outlet and to consumer—is

digitally traceable for transparency and accountability, to both government and environment. This advanced ICT framework provides both Kijani and Local Governments with real-time data. It creates a foolproof "chain of custody" that guarantees no unsustainably farmed or illegally logged wood can enter the modern charcoal market, offering authorities a powerful digital tool to enforce Executive Order No. 3 while securing predictable local tax revenues and vital data for environmental management.

The Bottom Line for Decision Makers

Powered by verified carbon credits approved under Uganda’s National Climate Change Regulations, Kijani’s sustainable charcoal farming model will successfully bridge the gap between rural development and global climate finance.

For policymakers, economic strategists, and local authorities, Kijani’s innovations are no longer just a conservation pilot, but a fully realized, scalable blueprint for Uganda’s New Green Economy. Sustainable charcoal farming proves that with the right blend of science, technology, and community-led incentives, Uganda can simultaneously drive aggressive rural wealth creation, protect its rich biodiversity, and lead in the continent’s green industrial innovation.



Prof Okia Clement, Muni University- Arua/Courtesy

Criteria for Selection of Woodfuel Species for Modern Charcoal		
	Criteria	Species
	1. Non-Endangered, Non-Vulnerable & Non-Threatened	<i>Acacia polyacantha</i> (known as White Thorn in English; Okuttu Ongono in Acholi).
		<i>Albizia lebbbeck</i> (known as East Indian Walnut in English; Owak in Acholi).
	2. Fast Growing for Short Rotation (3-4 Yrs)	<i>Gmelina arborea</i> (known as White Teak in English; Oywelo Gwok in Acholi).
		<i>Markhamia lutea</i> (known as the Nile Tulip Tree in English; Sambya in Acholi).
	3. Able to Coppice	
	4. Yielding High Calorific Value Charcoal	<i>Senna siamea</i> (known as Cassod Tree in English; Cassia in Acholi)
		<i>Terminalia glaucescens</i> (known as Velvet Leaf Tree in English; Opok in Acholi).
	5. Non-Toxic when Burning	
 KIJANI FORESTRY RESTORE UGANDA'S FORESTS. ELIMINATE FARMER POVERTY.		

Kijani's Foot Soldiers Securing our Future



Farmers work on one of the blocks at a site in Paicho /Courtesy

AGAGO/PAICHO

Step into any village in Agago or Gulu Districts during this planting season and you will find that the true measure of sustainable forestry is the shared smile of a Kijani Parish Coordinator.

Amidst a blistering dry spell that has farmers anxiously scanning the skies for rain, the true lifeblood of Kijani

Forestry's mission comes down to its 400+ Parish Coordinators (PCs) on the ground. They are the frontline mentors, structural logicians, and community caretakers who interact with local smallholders daily, ensuring that even when the ground is baked dry, the hope of a greener tomorrow stays alive from seed to tree.

These grassroots "foot soldiers" navigate scorching sun and unpredictable weather daily to shepherd millions of trees into a thriving reality. Amidst the dust and heat, outstanding PCs are proving that local leadership and deep empathy can weather any ecological storm.

The Heart of a Mentor

In Arum Sub-County, Agago District, Olwaa Geoffrey oversees the sprawling Agelec Nursery Site located in Alela Parish. Olwaa is a man of massive operational focus, managing 50 blocks of nursery beds, with each block holding 400 carefully tended seedlings. Right now, Olwaa's six organized farmer groups are in a holding pattern, anxiously waiting for the skies to open. Yet, for Olwaa, the scorching sun hasn't dimmed his passion.

"There is more to this job of mine than the nursery," Olwaa reflects warmly. "The beaming smile on the faces of the farmers makes me go to bed with a smile myself. I even split my own allowance and give 2,000 Shillings to farmers just so they can buy soap. Your sacrifice makes people sacrifice for you, just as it has happened in the past."

Olwaa's deep relational bond with his community helps him navigate the friction of the current season. Because the delayed rains have compressed the agricultural calendar, he faces a tough structural challenge: it is planting season for everyone, and anxious farmers frequently prioritize growing food crops. Through constant dialogue, Olwaa is working to balance these vital food security needs with long-term forestry goals.



Parish Coordinator Concy Atim/Courtesy



Parish Coordinator Geoffrey Olwaa/Courtesy

The Master Mobilizer

Further west in Gulu District, Atim Concy is executing a masterclass in large-scale rural logistics. Based in Paicho Sub-County, Concy's jurisdiction spans an expansive territory covering three entire parishes: Lamintoo, Kalalidi, and Kalumu. Managing such a vast footprint requires immense organizational tact. To keep her operations sustainable, Concy has decentralized management directly to the grassroots.

"I use the local leaders to mobilize, especially the LC1s," Concy explains. "Then, I train the farmer groups themselves to directly manage the nursery beds."

This collaborative structure has proved vital. Due to the intense dry spell, her inventory has faced aggressive biological pressures; while her nursery sites originally held a much higher volume, she has 47 robust blocks remaining. The primary culprit? Ravenous termites, thriving in the dry soil, have been chewing through the nursery pots, destroying the protective casing and leaving the delicate seedling roots bare.

By leveraging her trained farmer groups and local LC1 leaders, Concy is actively deploying local mitigation strategies to protect the remaining blocks until the rains finally stabilize.

The Canopy Ahead

The daily triumphs and trials of coordinators like Olwaa and Concy highlight the true essence of Kijani Forestry's mission. Tree planting is fundamentally a human enterprise. Even when confronted with unpredictable sunshine, stubborn pests, and competing agricultural timelines, it is the sacrifice, structural ingenuity, and shared smiles of these green foot soldiers that ensure Uganda's sustainable forestry movement continues to thrive, woodlot by woodlot.



A section of Kijani Staff pose for a group photo on May 8. /Courtesy

Kijani Staff Celebrate Labor Day

GULU

On May 8th, Kijani Forestry staff marked International Labor Day with creativity and pride, dressing up in diverse professional attire to symbolize the many roles that build society. From doctors and nurses to priests, engineers, and plumbers, the day was a colorful reminder that every profession contributes to the greater good.

The Human Resources team took the occasion to recognize Kijani's longest-serving staff members, celebrating their dedication and growth within the company. Among those honored was Kevin Akello, 27, who began her journey in Kijani as a casual laborer in 2019 and has since risen to become a Procurement Officer. Speaking with passion, Akello shared her story and affirmed: "Kijani is one place I will continue working in."

Another staff member recognized was Samuel

Obur, whose career started at the Kijani R&D Farm in Paicho. Today, he serves as a Manager Plantation and Development, reflecting on the company's remarkable growth: "We started when we were about 100, but today Kijani has close to 900 staff members."

HR representative Rose Muwereza thanked all staff for their commitment and endurance, emphasizing that Kijani values every staff member. She announced that the company will sponsor a special coffee moment with the CEO for the recognized staff members as a gesture of appreciation for their contribution.

The celebration not only honored individual journeys but also highlighted Kijani's collective spirit—where resilience, growth, and teamwork continue to drive the mission of planting and growing trees, restoring forests and empowering communities.



Kijani's longest serving staff: Kevin Akello (Left) and Samuel Obur (Right)/Courtesy