SEPTEMBER 2025 ISSUE 121

EcoFlames DIGEST

Global outlook Snapshot

Quick stats on clean cooking's impact

24 *Gas Myths*

How gas is replacing traditional fuels

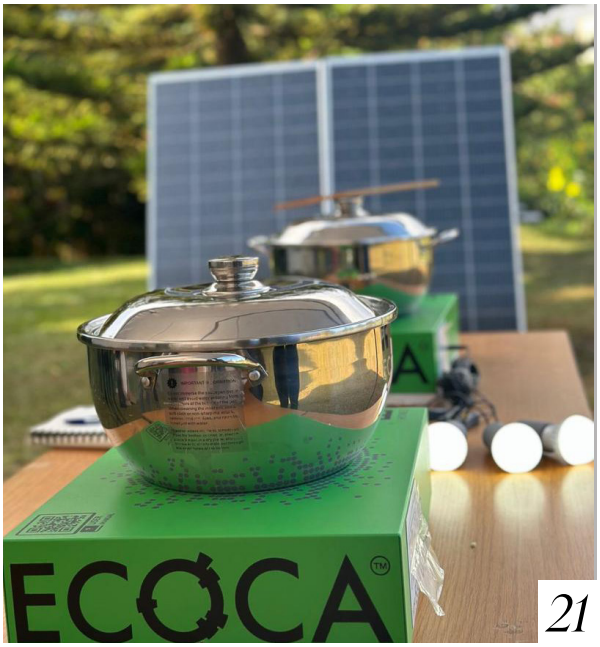
Choosing electric pressure cookers

An expert guide

Barrier-Breaking Journey

Table of Contents

33



21

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Providing Gender Responsive Solutions

The Government of Uganda's partnership with the UK Government to scale up clean cooking interventions represents a watershed moment in addressing one of our nation's most entrenched gender inequalities. While energy policies often appear neutral on the surface, the harsh reality reveals a profoundly gendered burden, women and girls shoulder 90 percent of the consequences from traditional cooking methods. As the personal accounts in this publication vividly illustrate, this burden manifests in stolen hours of productivity, preventable respiratory diseases, and generations of missed educational opportunities. Far more than an energy initiative, this collaboration anchored in MEMD must be recognized as a transformative women's empowerment program, one that finally aligns our energy transition with Uganda's commitments under both the National Gender Policy and the Sustainable Development Goals.

The Behavioral Change Communication for e-Cooking (BCCeC) Programme demonstrates exceptional promise when examined through an intentional gender lens. Its success, however, requires moving beyond theoretical frameworks to practical, woman-centered design. Behavioral change communication must be co-created with women users, respecting their expertise as household energy managers while strategically challenging the gendered norms that currently exclude them from energy decision-making spheres. Product standardization processes should incorporate women's safety feedback and ergonomic requirements from the design phase. Most crucially, supply chain interventions must deliberately elevate women-led clean energy enterprises through targeted financing and skills development - an approach proven to drive both sustainable adoption and women's economic empowerment.

As implementation progresses, we must transition from aspirational language to measurable commitments. This requires:

Instituting a 50 percent gender quota for leadership positions within the Clean Cooking Ecosystem.

Establishing a permanent Women's Energy Advisory Council to guide policy implementation

Developing tailored financial products like group microloans and lease-to-own schemes especially those in refugee settlements, host communities and low income earners.

Mandating comprehensive gender impact assessments for all clean cooking initiatives to appreciate the benefits of clean cooking including health, environmental and economic among others.

The Programme's Monitoring, Evaluation, Accountability and Learning (MEAL) Framework has evolved beyond technical metrics and captured transformative gender outcomes - tracking shifts in women's decision-making autonomy, time reallocation patterns, and economic participation rates alongside traditional energy indicators.

Uganda now faces a pivotal choice in its energy transition journey. Will we unconsciously reproduce existing gender inequalities through new technologies? Or will we seize this historic opportunity to fundamentally reimagine women's roles in our energy ecosystem? The BCCeC Programme represents far more than a shift in cooking technology; it offers a decisive chance to dismantle structural barriers that have constrained Ugandan women for generations. This is the transformative potential we must now realize.

Global outlook

A Turning Point for Clean Cooking

Clean cooking represents a transformative opportunity for Africa, where 600 million women and girls still endure health hazards and lost productivity from traditional stoves. Solutions like bioethanol cookstoves, already improving lives in Kenya, could prevent 3.2 million annual pollution deaths globally while cutting emissions equivalent to all planes and ships combined. Yet financing remains the critical barrier: achieving universal access requires $8 billion annually until 2030, with innovative models like school kitchen subsidies demonstrating triple wins for health, jobs, and forests. As Africa loses forests the size of Ireland yearly to fuelwood, the Global North's climate finance shortfall perpetuates gender and environmental inequities. Investing in clean cooking isn't just practical climate action. It is reparative, restoring dignity to women and correcting a system where the least responsible for emissions bear the heaviest burdens. (Source: Project Syndicate)

Global goal for clean cooking by 2030 out of Africa's reach, IEA says

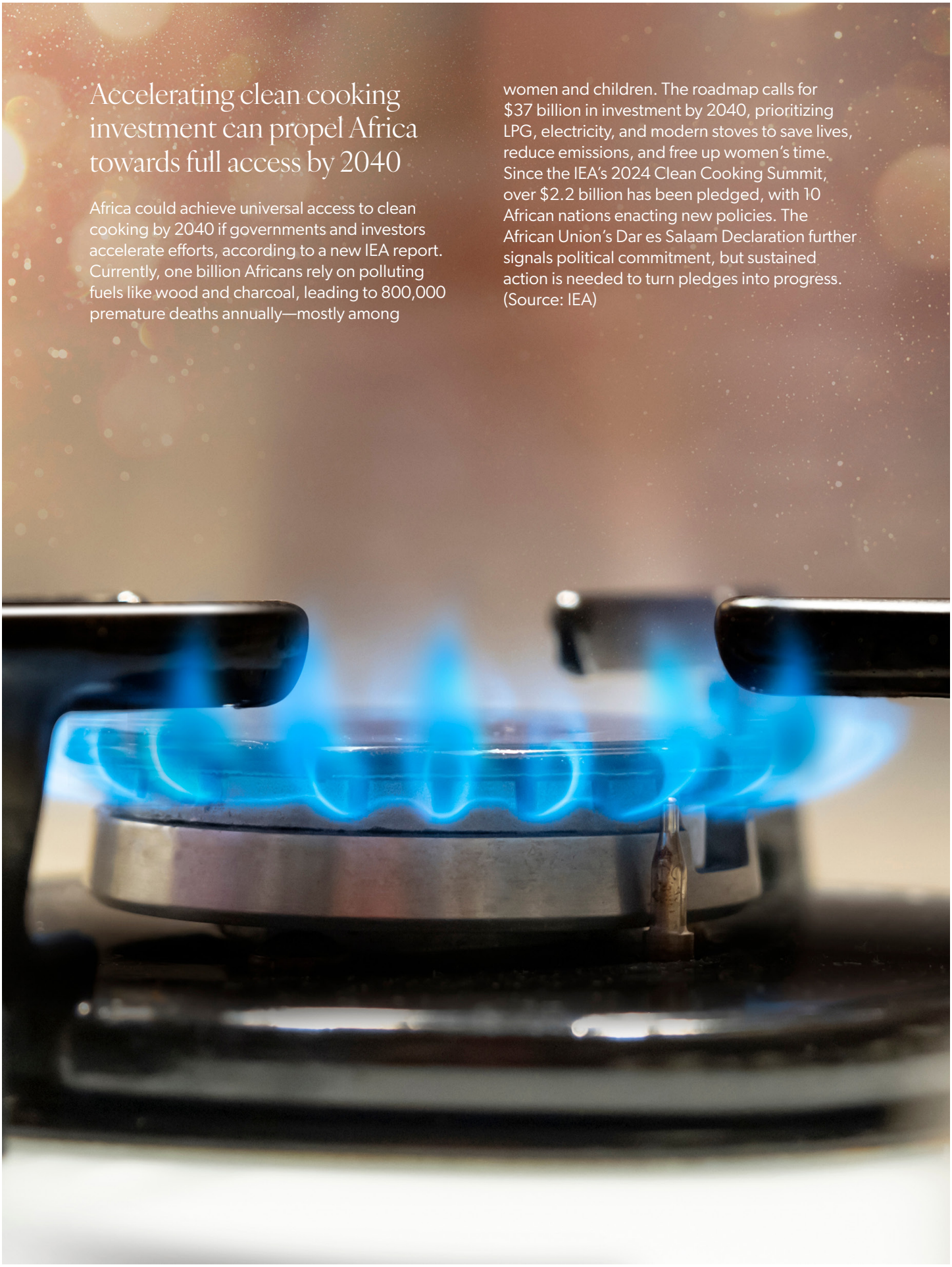
Sub-Saharan Africa will miss the UN's 2030 clean cooking target, with universal access now projected by 2040 due to funding shortfalls and infrastructure gaps, according to the IEA. Over 1 billion Africans still rely on polluting fuels like charcoal and firewood, causing 815,000 annual premature deaths—disproportionately affecting women and children. While $2.2 billion was pledged at the 2024 Clean Cooking Summit, only $470 million has been delivered, far below the $37 billion needed by 2040. The IEA proposes a revised pathway, citing successes in Asia, but warns current trends would leave 38% without access even by 2050.
LPG drives most progress, but critics warn against overreliance on fossil fuels and carbon credits, calling them "false solutions." The African Union stresses the need for diversified, locally tailored solutions and urgent climate finance to address this health and gender crisis. As advocates demand genuine investment over market-based schemes, the IEA emphasizes improved carbon credit integrity and faster action to prevent deepening inequality and climate setbacks. (Source: Climate Home News)

Billions Needed to Ensure Access to Clean Cooking Across Africa by 2040

Africa needs $37 billion in investment by 2040 to ensure universal access to clean cooking, according to a new IEA report. Currently, one billion people in sub-Saharan Africa rely on polluting fuels like wood and charcoal, leading to 815,000 premature deaths annually—mostly among women and children.
The roadmap calls for 80 million people annually to transition to cleaner solutions like LPG (60%), electricity, and advanced biomass stoves. Since the 2024 Clean Cooking Summit, $2.2 billion has been pledged, with $470 million already disbursed, and 10 African nations have strengthened policies. However, affordability remains a barrier, as two-thirds of households would need to spend over 10% of their income to adopt these solutions.
Switching to clean cooking could save women up to four hours daily, boost economic opportunities, and cut 540 million tonnes of annual emissions by 2040. While recent trials show mixed health benefits, the African Union's Dar es Salaam Declaration—endorsed by 30 leaders—signals strong political commitment. With targeted financing and regional cooperation, universal access is achievable, but accelerated action is needed to meet the 2040 goal. (Source: IEA, Health Policy Watch)

Accelerating clean cooking investment can propel Africa towards full access by 2040

Africa could achieve universal access to clean cooking by 2040 if governments and investors accelerate efforts, according to a new IEA report. Currently, one billion Africans rely on polluting fuels like wood and charcoal, leading to 800,000 premature deaths annually—mostly among women and children. The roadmap calls for $37 billion in investment by 2040, prioritizing LPG, electricity, and modern stoves to save lives, reduce emissions, and free up women's time. Since the IEA's 2024 Clean Cooking Summit, over $2.2 billion has been pledged, with 10 African nations enacting new policies. The African Union's Dar es Salaam Declaration further signals political commitment, but sustained action is needed to turn pledges into progress. (Source: IEA)



SECTION 1: THE HUMAN STORY

We have accepted an unconscionable truth that women must destroy their health just to put food on the table. Those blackened kitchen walls should fill us with shame, for they stand as visible proof of our collective failure to protect our mothers and grandmothers.

Ruth Komuntale's Barrier-Breaking Journey

Ruth Komuntale

The most transformative journeys often begin with sensory imprints that refuse to fade. For Ruth Komuntale, it was the acrid sting of Kampala's polluted air that first pierced her childhood consciousness; a major contrast to the clean mountain breezes of her native Fort Portal. That five-year-old's shock at the capital's stench and choking smog contained, in budding form, what would become her life's mission.

"What children notice instinctively, adults often learn to ignore," Komuntale reflects, recalling how her childhood awareness of environmental contrasts shaped her life's path. "As a Girl Guide, I was taught Baden-Powell's principle: leave the world better than you found it. Growing up in Fort Portal, nestled at the foot of the Rwenzori Mountains with its lush tea estates and fresh mountain air, I wanted every Ugandan to experience that same clean breath of life."

The legal profession gave her tools but couldn't quiet her restlessness. "I kept waiting for the moment when arguing cases would feel as urgent as planting those 200 trees at my old school," she confesses. The legal pads piled high on her desk, she realized, would never satisfy her deeper need to address systemic injustice where it lived; in Uganda's smoke-filled kitchens.

Her work with the Uganda Carbon Bureau became the crucible of transformation. While colleagues parsed climate accords, Komuntale immersed herself in rural homesteads, kneeling beside grandmothers whose wheezing breaths narrated a generational tragedy. "You haven't truly understood air pollution until you have watched a woman mingle posho while inhaling the equivalent of two packs of cigarettes daily," she states bluntly.

The statistic of 13,000 annual deaths remains an abstract number until you walk through refugee settlements where families have no choice but to cook over open fires. That is when the true cost becomes clear in in the rasping coughs of mothers, the soot-stained walls of makeshift kitchens, the children wheezing through another smoke-filled night.

To Komuntale, this injustice was even deeper because it disproportionately targeted women already burdened by poverty's compounding demands. "We have accepted an unconscionable truth that women must destroy their health just to put food on the table. Those blackened kitchen walls should fill us with shame, for they stand as visible proof of our collective failure to protect our mothers and grandmothers," she states.

Engineering Liberation

For Komuntale, ECOCA's technology represented more than just a solution, it embodied her philosophy of practical change. The cooker's development traces her own transformative journey; what began as rudimentary prototypes that couldn't even cook beans properly evolved, through years of relentless refinement, into sophisticated solar-powered systems that meet multiple daily needs simultaneously.

"You should not ask women to choose between clean air and cultural traditions," she explains, demonstrating how the current model perfectly simulates the slow-cooked flavors of our local cuisine while charging phones, a recognition that solutions must honor existing rhythms of life.

Her legal training surfaces in unexpected ways. When negotiating with skeptical policymakers, she constructs arguments as meticulously as courtroom briefs: "I show them the math, how medical costs from smoke-related illnesses drain national budgets more than clean stove subsidies ever could." For resistant families, she employs precedent: "Would you send your daughter to work in a place you had no doubt was unsafe? Then why do you let her continue to cook in a soot filled kitchen?"

Women's Power to Transform

Komuntale wants every woman across Africa and beyond, to know your dreams are not just valid, they are vital. The path ahead may be unclear, but the most revolutionary step is the first one. You will falter, but you must rise, each time stronger than before.

While society claims the world favors men, the truth is that in matters of family health, environmental justice, and community survival, women and children endure the gravest consequences. This imbalance is your power. When you create solutions as a woman, the world makes space for you, podiums await, partners stand ready, and change becomes possible.

You don't have to innovate alone. Collaborate with those who share your vision. Build teams to amplify your impact. Insist that your ideas are seen, heard, and acted upon, especially those that dismantle systemic barriers. And to the men who champion women's leadership: your support matters. Our strength is not defined by physical might, but by the power of our minds, the depth of our empathy, and our ability to unite people toward a common purpose. These are the tools that reshape the world.

When Innovation Meets Justice

Komuntale's work exposes a silent injustice: "In homes that acquire gas stoves, who is forced back to the toxic charcoal fire? Always the women and children, because men refuse to endure the smoke." Even in so-called progressive households, equality evaporates when dinner must be cooked. Her solution to bring men into the conversation is as bold as it is simple. Through workshops, she helps families understand how the wrong cooking method affects not just the individual but the whole.

The success of her clean stoves proves a powerful truth; when stakeholders unite, even deeply entrenched crises can be solved. Urban families embrace the technology as a mark of modernity, while rural women reclaim hours once lost to foraging for fuel, time they now invest in education, enterprise, and family.

"You don't need to be an environmentalist to understand what is at stake," Komuntale says. "This is about children breathing freely. It is about mothers gaining time to build better lives. These are victories no one can deny."

Horizons of Change

Today, Komuntale's vision extends beyond technology to systemic transformation. Her advocacy secured clean cooking provisions in Uganda's latest climate commitments, while her initiative trains women as community ambassadors. "Every converted kitchen becomes a classroom," she says.

The legal world she left behind now seeks her counsel; corporate firms want ESG partnerships, judges invite her to testify about environmental law. "Turns out, breaking barriers doesn't mean abandoning your training," she smiles. "It means applying it where it is needed most."

My vision is simple; no woman should have to choose between feeding her family and breathing clean air, no child should miss school to collect firewood, and no community should degrade its environment just to cook a meal. The solutions exist, we just need the will to implement them properly, with and for the people who need them most.

Irene Ayo's Past Was Stolen, Now She is Securing Our Future

Irene Ayo's Past Was Stolen, Now She is Securing Our Future

Growing up in a refugee camp demands resilience and pragmatism. I remember when my family had to relocate to Nyamutende Forest so as to be close to the source of firewood which was a raw material for charcoal. Many households, including mine, moved there to produce charcoal for income. Without any means of transport apart from walking, which was as dangerous as it was exhausting, I spent four years in that forest until my father insisted I return to the settlement for school in 2000.

Even after leaving the forest, we trekked 21 kilometers twice weekly on Wednesdays and Saturdays to collect firewood. As a child, I carried what I could alongside my stepmother, which was not much, for cooking dry beans, our staple food, required enormous amounts of fuel.

The forest, located near Lake Kyoga on government land, exposed us to danger. Cattle keepers and local men often preyed on women collecting wood. My neighbors and I endured traumatic experiences during those trips. These experiences now drive my work. Having lived through the energy poverty that forces women into vulnerable situations, I'm committed to ensuring no displaced woman must risk her safety just to cook a meal.

A Community in Crisis

Decades of deforestation for charcoal have left the land barren and is now fenced off by the government. In Kiryandongo, firewood and charcoal have grown scarce and expensive, forcing people to make long, costly journeys to Nwoya or Lira, even crossing Lake Kyoga by boat. Only the fortunate can afford it; a single basin of low-grade charcoal costs Shs15,000, barely enough to cook a day's meal.

The crisis hits hardest in the refugee camps, where 90 percent of residents are women and children. Most men remained in South Sudan, fighting, displaced, or lost to war. Some children arrived alone, orphaned and forgotten, with no aid organizations to support them. Desperation has bred danger; those without money resort to cooking with plastic bottles, unaware of the toxic risks. This is why, after every settlement party, violence erupts, over the discarded bottles that have become a lifeline.

Why I Do This Work

For me this is not just a job, it is my way of giving back and ensuring that no other little girls get to endure what I did in that forest. I know I was lucky to survive what many didn't. Now, at Last Mile Climate, I fight so no child breathes toxic plastic fumes to eat. Energy poverty isn't just about cooking, it's about safety, dignity and survival.

The reality in refugee settlements today is that even when cheaper alternative energy sources are introduced, affordability remains a major barrier for displaced families who lack stable incomes. Many rely on subsidized products but still require up to two years to complete payments. This ongoing struggle is what drives my work where we use public-private partnerships to scale clean cooking

solutions in settlements.
My own family was involved in charcoal production, an industry that contributed to the deforestation now causing droughts and environmental degradation in settlements. As their child, I feel a responsibility to help reverse this damage through reforestation efforts and by promoting renewable energy alternatives. This work isn't just a job, it is my way of making amends and creating meaningful change for current and future generations.

My Vision for Refugee Kitchens

In an ideal world, kitchens in refugee camps would resemble those in Kampala; clean, organized spaces where cooking does not mean enduring smoke or spending hours collecting fuel. I dream of kitchens where women can simply turn on a gas stove or electric cooker in the morning, prepare meals without stress, and clean up afterwards. No more all-day cooking over charcoal, no more kerosene stoves that fill the air with smoke.
The current reality is far from this vision. Eighty percent of settlement households still use charcoal or firewood, filling their homes with smoke that stains walls and irritates eyes. Women wake up to prepare porridge over smoky fires, cook lunch in the same conditions, and end the day boiling bathwater, all while inhaling harmful fumes. The toll is visible in their red eyes and smoke-scented clothes. Yet tragically, many men still prefer food cooked this way, calling the smoke flavor "aroma" while remaining oblivious to the health consequences and labor involved.
The path forward requires two key approaches. First, we must co-create solutions with refugees themselves. People with lived experience understand what works in their context, and involving them in design leads to better uptake and long-term adoption.
Second, we need policies that explicitly include refugees. The 2006 Refugee Act's Article 9, which gave refugees the right to work and own businesses, changed my life without it, I might still be trapped in the camp. We need more such policies, properly implemented, to create systemic change.

The Bigger Picture

Clean cooking isn't just about technology but about dignity, health, and reclaiming time. When a woman can cook without smoke, she protects her family's lungs and gains hours for other pursuits. When policies include refugees, they unlock potential. My vision is simple; no woman should have to choose between feeding her family and breathing clean air, no child should miss school to collect firewood, and no community should degrade its environment just to cook a meal. The solutions exist, we just need the will to implement them properly, with and for the people who need them most.
My name is Irene Helen Ayo, a South Sudanese woman born and raised in a refugee settlement in Uganda. In 2008, my family repatriated to South Sudan, but ongoing conflict forced us to return. Today, I work with Last Mile Climate as a Partnerships Officer, supporting displaced communities in accessing renewable cooking energy solutions.

Insist on durable construction with heavy-gauge stainless steel inner pots that distribute heat evenly and withstand daily use.

An expert guide to choosing electric pressure cookers

Over the past few years, the conversation about clean cooking has gone national, sparking off a remarkable transformation in many homes. What began as an initiative to promote clean cooking technologies has evolved into a movement that is fundamentally changing lives, one kitchen at a time. The electric pressure cooker, often overlooked as a simple appliance, has become an unexpected catalyst for social change, economic empowerment, and improved public health.

When we first introduced the ElectroMaster and DigiWave pressure cookers, we encountered deep-rooted skepticism in many communities.

> *“The electric pressure cooker, often overlooked as a simple appliance, has become an unexpected catalyst for social change, economic empowerment, and improved public health.”*

Generations of Ugandan women had grown up hearing horror stories about pressure cookers exploding, and this cultural memory created significant resistance.

I remember our early demonstration sessions, where mothers would instinctively step back when we turned on the appliances, their protective instincts kicking in as they shielded their children. The questions they asked revealed their genuine fears: "Are you sure it won't explode like my neighbor's did?" "What if it malfunctions while I am away from the kitchen?" All these are valid questions that have been satisfied by our three-year safety record.
Among the thousands of units we have distributed, there has not been a single explosion or serious safety incident. The moment when a woman realizes she can indeed cook without constant vigilance is profoundly moving, you can see the relief wash over her face as years of kitchen anxiety begin to lift.
Benefits

The economic benefits of these cookers often surprise families the most. While the upfront cost gives many pause, the long-term savings become undeniable when examined closely. A typical Ugandan household spending Shs3,000 daily on charcoal will expend approximately Shs90,000 monthly. Compare this to cooking the same meals with our electric pressure cookers, where preparing dry beans costs just Shs480 worth of electricity.

But the economic advantages extend beyond direct fuel savings. The time reclaimed from cooking; typically four to five hours daily, creates new opportunities for income generation, education, and family care. When you quantify these hidden costs, the true value of electric pressure cookers becomes undeniable.

The health implications of our work are perhaps the most sobering yet motivating aspect. The World Health Organization's statistics about 3.2 million annual deaths linked to household air pollution take on heartbreaking reality when you meet families that have lost loved ones to preventable respiratory diseases.

The health benefits our users report extend beyond respiratory improvements, reduced eye irritation from smoke, fewer burns from open flames, lower stress levels from simplified cooking processes, and even improved nutrition as cooking times decrease while food retains more vitamins.

Perhaps the most unexpected outcomes have been the social transformations. The pressure cooker becomes not just a kitchen tool, but a catalyst for broader social change. In my research for my master's degree in Monitoring and Evaluation, I have come to view electric pressure cookers through a new lens. They are not merely kitchen appliances, but powerful tools for gender equality by reducing women's unpaid labor, for public health by preventing respiratory diseases, for environmental conservation by reducing deforestation, and for economic empowerment by freeing time for income generation. The hum of an electric pressure cooker in a Ugandan kitchen represents time being given back, of health being protected, of opportunities being created. This is the change we are proud to be part of, one household at a time.

Choosing a pressure cooker

Our experience in the field has taught us hard lessons about the importance of quality in clean cooking technologies. Early in our project, a well-meaning friend purchased a cheap Shs150,000 pressure cooker from an unauthorized dealer. The unit failed within a week, and our attempts to repair it revealed disturbing truths - substandard materials, fake safety certifications, and no available spare parts. This incident shaped our rigorous selection criteria. We now insist on durable construction with heavy-gauge stainless steel inner pots that distribute heat evenly and withstand daily use.

Multiple safety features including automatic pressure release, thermal fuses, and redundant overheat protection are non-negotiable. Our 1,200-watt models provide optimal performance without straining household electricity, and we offer a comprehensive one-year warranty with accessible repair services. We have learnt that in clean cooking technologies, cutting corners on quality does not save money, it ultimately costs more in repairs, replacements, and lost trust.

Faith Eunice Orone is a Marketing Officer at Biogas Solutions Uganda and a postgraduate researcher specializing in clean cooking adoption. With backgrounds in Business Computing and Monitoring & Evaluation, she brings both technical expertise and on-the-ground experience to Uganda's energy transition efforts.

SECTION 2: INNOVATION & IMPACT


CO_2

UgaStove's story is closely linked with Uganda's ongoing energy transition in meaningful ways. We have progressed from producing basic, inefficient metallic stoves to developing insulated, energy-saving designs that significantly reduce fuel consumption. What began as a small community enterprise has grown into an internationally recognized clean cooking solution, demonstrating how local innovations can gain global relevance.

UgaStove:

The Untold Story of an Eco-Creative Pioneer

More than 40 years ago, Musa Mugwanya had an idea ahead of its time. While selling the popular metallic charcoal stoves and clay pots of his day, he asked himself a radical question: Could a stove be made from clay? His breakthrough design succeeded beyond expectations, becoming indispensable to low-income households across Uganda. The stoves' initial success was quickly undermined by their tendency to crack under daily use. Yet rather than abandon his vision, Mugwanya persevered - this time ingeniously reinforcing the clay with metal to create a durable hybrid. Though he couldn't have known it at the time, this critical innovation would ultimately plant the seeds for Uganda's clean cooking evolution.

> *"The stoves' initial success was quickly undermined by their tendency to crack under daily use."*

Developing effecient stove designs is not a simple process, perfecting clay mixtures and combustion chambers requires years of patient experimentation and refinement.

Then everything changed. I was only four years old when my father passed away. It was a huge loss that could have ended everything he had started. Just when it seemed his work might disappear, my brother Muhammad Kawere stepped up at exactly the right time. This was the same period when Uganda's government finally started noticing how much damage traditional cooking methods were doing to the environment. Kawere got involved with training programs through GIZ and the Global Energy Efficiency Partnership (GEEP). What he learned did not just keep our family business going, it turned us into leaders in developing better, cleaner ways to cook.
From Community Initiative to Carbon Pioneer

The business initially operated under the name UCODEA (Urban Community Development Association), combining garbage collection with stove sales in Makindye communities. This innovative model engaged local youth in door-to-door sales while addressing urban waste challenges. The real breakthrough came in 2006 when we transitioned to UgaStove and became Africa's first cook stove company to participate in carbon financing through a partnership with Impact Carbon. This innovative financial model, which rewarded emissions reductions, propelled our business to new heights.

Continuing a Legacy

From childhood, the rhythm of the workshop was my normal. Our home buzzed with the sounds and smells of stove-making, and I grew up immersed in every part of the business. Even as I pursued my education at Makerere University Business School, I never left the work behind as weekends found me at markets and trade shows, selling stoves and learning the craft firsthand. While others saw stove-making as "dirty work" beneath an educated woman, I saw it as a technology that could change how Africa cooks.

Then in 2011, everything shattered. My brother Kawere who had been the heart and soul of UgaStove, died suddenly. Though I had been building my own life and had stepped back from daily operations, his passing forced a reckoning. In our family, only Kawere and I had truly believed in this work when others dismissed it. My younger brother handled production; I managed marketing and administration. But Kawere? He was the visionary who saw stoves as tools for transformation. As I grieved I also had a difficult decision to make. Either to walk away or stay and continue to build my family's legacy. Walking away would have been easier. But honoring Kawere meant keeping his mission alive, and that is exactly what I chose to do.

Navigating Challenges and Competition

Taking the helm of UgaStove meant confronting harsh new realities. Our very success in training youth through carbon financing projects had created an unexpected challenge, many of the artisans we had empowered had gone on to start competing businesses. While part of me felt proud of this legacy (after all, Uganda's clean cooking needs far exceed what any single company can provide), the sudden competition destabilized our operations. The same people we had trained in stove production, the very sales teams we had developed, were now using that knowledge to compete against us. It was a bittersweet testament to Kawere's impact, but one that tested our resilience.

Through these challenges, we have maintained our market position by refusing to compromise on what makes UgaStove unique. Our commitment begins with materials science; not just any clay can make a durable, efficient stove liner. We partner with the Uganda Industrial Research Institute (UIRI) to test and source specific clay compositions for each stove model. While some competitors cut costs using scrap materials, we invest in premium inputs and maintain strict quality control.

This dedication extends to our manufacturing process. Using industrial extruders, we mix materials to create proprietary ceramic liners that achieve 30-35 percent thermal efficiency, a standard verified by independent laboratories. For households, this translates to real savings; where a family might spend Shs20,000 weekly on charcoal with traditional stoves, a properly used UgaStove can halve that expense to just Shs10,000.

Innovating Our Business Model

Recognizing that distribution presents its own challenges, we have shifted from direct sales to a partnership model. Rather than maintaining our own delivery networks to distant regions like Kiryandongo, we now identify and train local distributors rooted in their communities. These partners understand regional needs and payment customs (including installment plans many customers require), while we provide ongoing support and quality assurance.

Our staffing approach has similarly evolved. We have learnt that stove manufacturing demands both specialized expertise and financial flexibility. For research and technical roles, we engage consultants for specific projects. Administrative needs are met with part-time staff, allowing us to focus resources where they matter most, in consistent, quality production.

Lessons from Social Enterprise

Building a successful clean cooking business requires far more than good intentions; it demands a combination of specialized skills, strategic thinking, and personal resilience. First and foremost, technical perseverance is essential. Developing efficient stove designs isn't a simple process; perfecting clay mixtures and combustion chambers requires years of patient experimentation and refinement. Each new prototype represents countless hours of testing and adjustment to achieve optimal thermal efficiency and durability.

Equally critical is genuine business acumen. Too often, stove manufacturing is viewed as simple craftsmanship rather than serious industrial production. At UgaStove, we have learned to approach every aspect of operations with professional rigor, from supply chain management to quality control systems. This means investing in proper equipment, implementing standardized processes, and maintaining meticulous records, just as any other manufacturing enterprise would do.

Perhaps the most personal challenge has been developing emotional resilience. In a sector where knowledge is both valuable and easily replicated, we have had to accept that skilled employees we have trained may eventually leave to start competing ventures. While this initially felt like a setback, I have come to see it as part of our broader impact, each new enterprise expands access to clean cooking solutions. The key is maintaining confidence in our own ability to keep innovating and improving, ensuring UgaStove remains at the forefront of the industry.

These lessons have not come easily, but they have shaped both our business strategy and my personal approach to leadership. What began as a family workshop has grown into a professional operation because we refused to settle for "good enough," continually pushing ourselves to meet higher standards in technology, business practices, and social impact. The clean cooking sector offers tremendous opportunities, but realizing them fully requires this combination of technical skill, business discipline, and personal adaptability.

Yet when I visit homes where a UgaStove has lasted five years, or hear how fuel savings have allowed parents to pay school fees, the challenges fade into perspective. Kawere saw this

potential when few others did, that humble stoves could lift households out of energy poverty while protecting Uganda's forests. Now, as we forge new partnerships and refine technologies, his vision continues to guide us. The work remains difficult, but the impact—measured in healthy families, conserved trees, and empowered communities—makes every obstacle worthwhile. UgaStove's story is still being written, one efficient stove at a time.

Why Our Story Matters

UgaStove's story is closely linked with Uganda's ongoing energy transition in meaningful ways. We have progressed from producing basic, inefficient metallic stoves to developing insulated, energy-saving designs that significantly reduce fuel consumption. What began as a small community enterprise has grown into an internationally recognized clean cooking solution, demonstrating how local innovations can gain global relevance. The business has also undergone an important gender transformation - transitioning from its origins as a male-dominated family operation to being led by women who are proving that female leadership can drive technological advancement in traditionally male sectors. Perhaps most significantly, we've moved beyond traditional sales models to embrace innovative financing mechanisms like carbon credits, showing how environmental impact can create economic value.

Today, our diverse product line meets various cooking needs while actively reducing environmental harm. We continue pushing innovation while remaining grounded in Uganda's energy reality - recognizing that despite emerging alternatives, charcoal and wood remain essential fuels for most households. This balance between innovation and pragmatism has been key to our sustained relevance.

Sustainable Entrepreneurship

Our journey offers several crucial insights for social entrepreneurs. First, being responsive to policy changes creates opportunities - our early engagement with Ministry of Energy programs provided critical support for growth. Second, innovative financing models like carbon credits can be game-changers, offering the resources needed to scale impact. Third, there's irreplaceable value in hands-on experience - our direct market engagement provided authentic insights that shaped product development in ways no theoretical research could.

Perhaps most importantly, we have learned that challenging stereotypes creates competitive advantage. Female leadership has driven innovation in our company, proving that women can excel in technical manufacturing sectors traditionally dominated by men. These lessons collectively demonstrate that sustainable entrepreneurship requires both business acumen and social awareness - the ability to create economic value while remaining responsive to community needs and environmental realities. Our experience shows that with the right approach, enterprises can be both financially viable and socially transformative.
As Uganda confronts deforestation and indoor air pollution challenges, UgaStove stands as testament to how homegrown solutions can achieve both environmental impact and business success. What began as a small family operation has grown into a pioneering enterprise, proving that even "dirty jobs" can create cleaner futures for communities across Africa.

Pricing and Market Presence

Our product line offers affordable solutions for households across Uganda, with prices ranging from 20,000 to 80,000 Ugandan shillings for both charcoal and wood-burning models. For institutional clients, we've established a strong presence throughout Kampala and beyond. Approximately 70% of KCCA schools now use our stoves through our distribution partner. Beyond educational institutions, we serve notable commercial kitchens including Nalongo Restaurant in Katwe (located near the mosque) and Baguma Restaurant in Kisenyi; a loyal client for over two decades. While we previously supplied major bakeries like Samona, we've since transitioned these accounts to capable trainees from our programs, demonstrating our commitment to fostering independent enterprises within the sector.

Production and Capacity Building

Maintaining our quality standards requires continuous investment in both human capital and production processes. We employ a specialized training program for certified bricklayers and metal fabricators who construct our institutional stoves. Every two years, we implement a youth training initiative to cultivate the next generation of stove artisans. Currently operating at less than 50 percent automation, we preserve the essential craftsmanship that defines our products while gradually incorporating more efficient production methods. This balanced approach allows us to maintain quality while expanding our capacity to meet growing demand.

Women's Leadership in Clean Energy

The stove business presents particular advantages for women entrepreneurs. After experiencing health challenges from managing daily factory operations, I transitioned to a more flexible work model that demonstrates how women can successfully balance business leadership with family responsibilities. The key lies in developing robust systems and maintaining professional standards, we approach stove manufacturing with the same rigor as luxury automotive production. Comprehensive product knowledge and active participation in energy sector networks have been crucial to managing operations effectively from any location.

Environmental and Social Impact

Over twenty-five years of operation, UgaStove has made measurable contributions to Uganda's sustainable development:

Our behavior change initiatives have trained numerous youth in stove production and sales techniques, inspiring new entrants to the clean cooking sector while demonstrating women's capacity for leadership in energy technology. Environmentally, the thousands of efficient stoves we've distributed have significantly reduced charcoal consumption and helped slow deforestation rates.

Economically, we have created both direct employment and indirect opportunities through our distribution partnerships, with particular focus on empowering women and youth. Our discounted programs for vulnerable groups have made clean cooking solutions accessible to those who need them most.

From a public health perspective, our stoves have improved indoor air quality for countless families while making kitchens safer spaces, especially for children. The UgaStove model continues to prove that environmental solutions can achieve both meaningful impact and commercial viability when they authentically address local needs and contexts. As we look to the future, we remain committed to innovating while staying true to our core mission of making clean cooking universally accessible.

Rehema Nakyazze, is Chief Executive Director of Uganda Stove Manufacturers Ltd. (UgaStove), representing the second generation of a remarkable family enterprise that has shaped Uganda's clean cooking landscape.

With a bold vision to revolutionize home cooking, ECOCA is driving a nationwide shift, making e-cookers affordable, accessible, and standard across all districts.

ECOCA's Solutions for Regional Energy Transformation

For six transformative years, ECOCA East Africa has been delivering life-changing solar energy solutions to Uganda's most vulnerable populations in Bidibidi, Kyangwali, and Kiryandongo refugee settlements. Their work in these challenging environments has only been possible through strategic partnerships with organizations equally committed to eradicating energy poverty. The ECOCA system represents a technological breakthrough, a completely solar-powered home solution that simultaneously addresses cooking, lighting, and power needs for off-grid families.

The energy disparity between urban and refugee communities paints a stark picture. While Kampala residents have relatively reliable electricity access, albeit with cost barriers for cooking, refugee settlements exist in near-total energy deprivation. Nowhere is this more evident than in Bidibidi, where electricity infrastructure barely extends beyond Yumbe Town, leaving entire zones in darkness. Traditional cooking methods compound this crisis, forcing women to spend up to eight hours daily on firewood collection and food preparation - time that could be spent on education or income generation.

At the heart of our solution is the revolutionary ECOCA cooker, designed with three intelligent cooking modes to accommodate diverse culinary needs. The warming function maintains meals at 70°C, the boiling mode reaches 100°C for thorough cooking, and the frying setting enables oil-based preparation. This precision

> *"Their work in these challenging environments has only been possible through strategic partnerships with organizations equally committed to eradicating energy poverty."*

Entire communities benefit from reduce deforestation pressures and improve air community.

technology liberates women from constant kitchen supervision, allowing them to pursue economic activities while meals cook automatically. The system's thermal retention keeps food hot for hours, essentially functioning as a large food flask.

The socioeconomic ripple effects of ECOCA adoption are profound. Families transform from energy paupers to micro-entrepreneurs, offering phone charging services and powering small businesses like barber shops through the system's USB ports. Neighborhood children gather under ECOCA-powered lights to study after dark, creating safe learning environments. Since its 2019 launch, the company has evolved from donor-dependent pilots to a sustainable commercial model, proving that energy access solutions can achieve both social impact and financial viability.

What began as a cooking alternative has become an engine of empowerment - replacing smoke with clean air, replacing lost hours with economic opportunity, and replacing energy poverty with self-sufficiency.

ECOCA's Institutional Solar Kitchen Revolution

ECOCA's clean energy solutions have expanded dramatically from household applications to large-scale institutional implementations across East Africa. The first breakthrough came with the solar-powered school kitchen at Kinawataka Primary School in Kyangwali Refugee Settlement, serving 250-300 students daily through a partnership with Danida and CARE organizations. This pioneering project demonstrated solar cooking's viability for mass feeding programs.

The success of this model has led to installations in 21 institutions to date, including the transformative case of Sanyu Babies' Home. This Kampala orphanage has completely eliminated firewood use, with all operations, from cooking and laundry to baby incubators and security systems, now running on solar power. The financial savings have been substantial, removing the burden of recurring fuel costs while providing reliable, clean energy.

Technical Superiority

Its institutional systems employ an innovative hot water delivery method that revolutionizes cooking efficiency. By pre-heating water to 85°C before it enters the cooking vessels, it has achieved remarkable 70% reductions in cooking time compared to traditional methods. Beans that previously required four hours of cooking now get ready in just one to two hours, even when preparing massive batches in our custom 100 to 1,000 liter capacity saucepans.

Operational Realities

The ECOCA has been specifically engineered solutions for institutional needs such as:
Battery storage ensures pre-dawn cooking capability for schools requiring early morning porridge. Advanced insulation maintains temperatures for evening meal preparation

Grid-tied options provide alternatives for facilities with unreliable solar access

Regional Expansion and Adaptation

The model has shown particular success in Kenya and Tanzania, where institutions have adopted the technology faster than in Uganda. Urban implementations like Budo Parents Academy demonstrate the flexibility of our systems to serve diverse environments. For grid-connected facilities concerned about electricity costs, we've developed ultra-efficient cooking solutions that minimize power consumption.

Addressing the Unique Challenges of Refugee Settlements

Refugee communities face distinct challenges that require specialized solutions, particularly when it comes to energy access. Their primary concerns revolve around safety, accessibility, and affordability, issues that differ significantly from those in more stable environments. While the ECOCA technology represents Tier One electric cooking with exceptional 93-97% efficiency, introducing this advanced solution to populations accustomed to free firewood collection presents significant behavioral and economic hurdles.

Breaking Down Financial Barriers

The transition from cost-free firewood to solar-powered cooking requires careful financial planning and education. Many refugee families initially struggle with the concept of paying for cooking technology when they have traditionally collected fuel at no monetary cost. Our approach addresses this through comprehensive demonstrations of the true costs of traditional methods, particularly the eight hours per day typically lost to fuel collection. When families realize they are already spending Shs80,000-100,000 monthly on charcoal or firewood, the economic benefits become clear. Their innovative pay-as-you-go model allows households to convert their existing fuel budgets into installment payments, with full ownership achievable within just eleven months. This system not only makes the technology accessible but also helps families build assets rather than continually spending on consumable fuels.

Engineering for Durability and Reliability

Concerns about the longevity of solar cooking systems are addressed through robust engineering and support infrastructure. The photovoltaic panels boast an industrial lifespan of 20-25 years, while the high-performance lithium iron phosphate batteries typically last six to eight years even under heavy cooking loads. Remote monitoring capabilities allows technicians to proactively identify and address maintenance needs, while the token-based usage tracking system eliminates the need for aggressive payment collection. This comprehensive support structure ensures families can rely on their ECOCA systems for years to come.

Transformative Impacts Beyond Cooking

The benefits of clean cooking extend far beyond the kitchen. Children growing up with ECOCA systems may never know the smoke and danger of traditional fires. Women gain freedom from the threat of gender-based violence during fuelwood collection. Entire communities benefit from reduced deforestation pressures and improved indoor air quality. Perhaps most significantly, families escape the endless cycle of spending limited resources on temporary fuel solutions, instead investing in lasting technology that improves their quality of life.

Expanding Reach and Capabilities

From its initial focus on refugee settlements, ECOCA solutions now serve communities across every Ugandan district through an extensive network of distributors and technicians. It has expanded its institutional offerings to include comprehensive solar solutions for schools, complete with water purification and laboratory power capabilities. This growth reflects both the versatility of its technology and the pressing need for clean energy solutions across multiple sectors.

The Human Dimension of Technological Innovation

The true measure of its impact lies not in technical specifications or financial metrics, but in the lives transformed. Each ECOCA unit represents safety for women no longer risking assault during fuel collection, opportunity for children studying under clean electric light, and dignity for families breaking free from energy poverty.

Partnership Driving Affordability

Through collaboration with Uganda's Energy Credit Capitalization Company (ECCC), consumers enjoy a transformative Shs600,000 subsidy per ECOCA system, dramatically improving accessibility nationwide. This strategic partnership enables the company to offer regionally-optimized solutions; single panel systems for sun-rich northern areas, dual-panel configurations for cloudier central/western regions, and flexible battery combinations to meet varying household sizes. The engineering brilliance shines in the company's energy efficiency, while conventional irons require 2000 watts simply to press clothes, our 645-watt ECOCA systems accomplish cooking, lighting and device charging simultaneously.

Local Manufacturing Creating Economic Opportunities

The Lokopiyo production facility in Yumbe District exemplifies sustainable job creation, currently employing 50 local workers (with perfect gender parity) in daily assembly operations. The ecosystem extends to over 150 trained retailers across Uganda, totaling 300 jobs created so far, a figure projected to reach 500 by year's end. Notably, the workforce composition reflects Uganda's youthful demographic, with equal male-female representation driving innovation in renewable energy solutions.

Continuous Technological Advancement

ECOCA's evolution mirrors Uganda's clean energy journey; from basic cooking functionality to comprehensive energy systems incorporating lighting, charging and water purification. The institutional-scale solutions now deployed in schools and hospitals demonstrate scaling capacity, while thermal efficiency breakthroughs deliver 70% faster cooking times. This progress stems from addressing real community challenges through practical engineering solutions.

Policy Recognition and National Impact

Government support acknowledges ECOCA's role in achieving multiple Sustainable Development Goals, particularly in combating deforestation through alternative energy adoption. This partnership moves beyond traditional electrification approaches to solve the often-overlooked cooking energy crisis, a critical component of household energy needs that consumes significant portions of family budgets and time.

The true cost-benefit analysis reveals why transition matters; chronic respiratory conditions from smoke inhalation, 30+ monthly hours lost to fuel collection, and constrained economic potential. ECOCA adoption is a health investment, the preventative alternative to future medical expenses from biomass exposure. The company's vision positions e-cookers as standard household appliances within five years, transforming energy access from privilege to norm across all districts.

Uganda's clean cooking campaign stands out as one of Africa's most comprehensive and well-structured initiatives, combining progressive policy frameworks, innovative financing mechanisms, and intensive grassroots engagement in an integrated implementation strategy.

Ministry of Energy commits to most aggressive clean cooking rollout in Africa

Uganda is making significant and comprehensive strides in addressing both climate change mitigation and public health improvement through its ambitious and multi-faceted clean cooking initiative. Spearheaded by the Ministry of Energy and Mineral Development (MEMD) with support from various government agencies and development partners, this transformative program represents a strategic shift in national energy policy aimed at transitioning millions of households from traditional, polluting biomass fuels, currently used by an estimated 88 percent of the population according to recent surveys to cleaner, more sustainable alternatives including LPG, biogas, ethanol, and modern electric cooking solutions by the target year of 2040.

"*Spearheaded by the Ministry of Energy and Mineral Development (MEMD) with support from various government agencies and development partners, this transformative program represents a strategic shift in national energy policy...*"

Uganda is pioneering the use of results-based climate finance instruments in the clean cooking sector.

This fundamental transition in domestic energy use constitutes a crucial component of Uganda's broader sustainable development strategy, promising substantial benefits in terms of reducing deforestation rates, improving indoor air quality for millions of families, decreasing the burden of respiratory diseases, and helping the nation meet its international climate commitments under various global agreements.

Policy framework

The legal and policy framework supporting this initiative is both robust and comprehensive. At the core of this ambitious undertaking lies Uganda's recently revised Energy Policy (2023), which establishes a clear, legally-binding target of achieving universal clean cooking access for all citizens by 2040.

Ms. Justine Akumu, the highly experienced senior energy officer within MEMD, emphasizes during recent policy briefings that this overarching goal is further reinforced and operationalized through its incorporation into Uganda's current National Development Plans (NDP III & IV), creating a binding commitment across successive government administrations.

The policy framework is further strengthened by recent legislative measures including the landmark Energy Efficiency and Conservation Bill (2024), which provides specific regulatory mechanisms and enforcement provisions to support the clean cooking transition. Recognising the ambitious nature of these targets, the government has established clear interim milestones, including the goal of increasing clean cooking adoption rates from the current estimated 15-20 percent penetration to 50 percent coverage by 2030, while simultaneously working to dramatically reduce national dependence on biomass fuels from the current alarming 88 percent usage rate to a more sustainable 50 percent level within the same timeframe.

Program success

Addressing the critical challenge of accessibility and affordability remains a primary focus of implementation efforts. Mr. Chrispus Tashobya, MEMD's principal expert on carbon financing and green energy investment, explains in detail that program success fundamentally depends on simultaneously addressing both supply-side and demand-side factors through carefully calibrated policy interventions. On the supply side, the government has implemented several innovative financial mechanisms including an unprecedented 80 percent direct subsidy on LPG gas cylinder purchases that effectively reduces consumer costs to just 20 percent of the normal market price, making this cleaner fuel option suddenly accessible to middle and even lower-income households.

Additional supply-side incentives include comprehensive tax waivers for manufacturers of approved clean cooking technologies, special depreciation allowances for production equipment, and strategic partnerships with major commercial banks to establish dedicated low-interest loan windows specifically for clean energy projects and purchases. These financial instruments are complemented by targeted technical assistance programs designed to build local manufacturing capacity and stimulate private sector innovation in clean cooking technology development.

Awareness campaign strategy

The National Renewable Energy Programme (NREP), as the primary implementation vehicle for these policies, plays a pivotal role in driving nationwide adoption through an extensive, multi-channel awareness campaign strategy. These carefully designed public education efforts, deployed across both urban and rural districts, aim to overcome deeply ingrained cooking habits and cultural preferences while effectively communicating the health, economic, and environmental benefits of transitioning to cleaner alternatives.

Program managers recognise that successful behavioral change requires more than just technological availability, it demands sustained community engagement, demonstration projects, and the cultivation of local champions who can model the benefits of adoption in relatable ways. Special emphasis is placed on women's groups and community organizations as key change agents, given women's traditional role as primary cooks and energy managers in Ugandan households.

Financing mechanisms

Financing mechanisms supporting this transition are both innovative and multi-layered. Uganda is pioneering the use of results-based climate finance instruments in the clean cooking sector, including sophisticated carbon financing arrangements that monetize emissions reductions and innovative Result-Based Financing (RBF) schemes where suppliers and distributors receive performance-based payments tied to verified adoption rates in their service areas. The success of companies like Bukona Agro-processing, which has leveraged these financial incentives to establish profitable production lines for biogas systems and improved cookstoves while benefiting from special tax incentives, demonstrates the growing viability of private sector participation in this emerging market. Looking to the future, Ugandan energy planners envision the country developing into a regional hub for clean cooking technology innovation and manufacturing, with the anticipated commencement of domestic oil

production in 2026 expected to provide additional fiscal space and investment capital to accelerate this sectoral transformation.

Challenges

However, despite these promising developments and early successes, the path to universal clean cooking adoption remains fraught with significant, structural challenges. Rural areas, where the majority of Uganda's population resides, continue to demonstrate markedly lower adoption rates due to persistent affordability constraints, underdeveloped distribution networks, and limited awareness of alternatives. Deeply rooted cultural preferences for traditional cooking methods, particularly for certain staple foods, create additional behavioral barriers that require sensitive, culturally-adapted solutions rather than simple technological substitution. Perhaps most critically, the lack of standardized, high-quality monitoring data across different regions and technologies complicates accurate progress tracking and evidence-based policy adjustments, prompting the CCU to initiate an ambitious program of comprehensive baseline studies and the development of a unified national monitoring framework to support more responsive, data-driven decision making.

Achieving the ambitious 2030 and 2040 targets will require sustained political commitment, continuous program adaptation, and substantial scaling of current efforts. Key priorities moving forward include strengthening last-mile distribution networks in remote rural areas, developing more sustainable financing models that reduce dependence on unpredictable donor support, and fostering continuous technological innovation to drive down costs and improve product suitability for diverse local cooking needs.

As Ms. Akumu notes, clean cooking has decisively transitioned from being considered a luxury for the affluent to being recognized as an essential component of Uganda's sustainable development journey and a fundamental determinant of public health outcomes. The nation's ability to maintain momentum, learn from implementation challenges, and creatively adapt its approaches will ultimately determine whether Uganda can achieve its vision of becoming a regional leader and model for successful clean energy transition in household cooking.

The coming decade will prove decisive in demonstrating whether this ambitious vision can be translated into tangible, large-scale improvements in the daily lives of millions of Ugandan families while simultaneously contributing to global climate change mitigation efforts.

SECTION 3: SOLUTIONS & SCALE

She began documenting her experience on Twitter threads and WhatsApp groups, breaking down the economics with the patience of someone explaining compound interest to a first-time saver. Think of it like planting a tree, she would say. The shade comes later, but it comes.

Natukunda's Journey to Clean Cooking

What Sharon Natukunda remembers of 2020 are those endless lockdown days when time had lost its shape and the four walls of her Kampala home became her entire world. The climate activist, mother, meticulous balancer of professional spreadsheets and household budgets, found herself falling into the glowing rectangle of her smartphone screen, falling into reports about solar farms in Morocco and wind turbines in Denmark. And then, almost incidentally, she stumbled upon an article about electric pressure cookers in Kenyan households. It caught her attention the way solutions often do when you have been circling

> "*The trees disappearing from the hillsides near her ancestral village were not an abstraction, they were the direct cost of meals cooked the way her grandmother had cooked them.*"

a problem for years without quite giving it a name. She had always known, in some unexamined corner of her mind, that the charcoal stove was costing her, not just in shillings spent on fuel, but in the slow hemorrhage of hours, in the way her youngest daughter sometimes paused to catch her breath after carrying firewood, in the permanent tickle at the back of her throat that no amount of tea could soothe. But knowing is different from seeing. The numbers laid it bare; the smoke from her kitchen was shaving years off her life expectancy. The trees disappearing from the hillsides near her ancestral village were not an abstraction, they were the direct cost of meals cooked the way her grandmother had cooked them. The afternoons lost to tending fires could be measured in school assignments her children hadn't had time to complete, in business ideas she'd never pursued.

The conversion

By early this year, she had become the kind of woman who could talk passionately about thermal retention rates and pressure release valves. At SWEDO Limited, where she managed projects with the same exacting attention she applied to her household, she became the office's unofficial EPC evangelist. She purchased hers in January, not the cheapest model, but not the most expensive either, and tested it with the systematic rigor of a research scientist. She timed cooking cycles. She compared electricity usage against charcoal expenditures. She noted how the flavours of her matooke seemed more vibrant, as if the steam had coaxed out some essential quality that open-fire cooking destroyed.

What emerged from her experiments was that beans that once demanded three hours of constant vigilance now cooked unattended in thirty-seven precise minutes. The kitchen walls, once permanently covered with soot, remained stubbornly white. Her electricity bill, contrary to neighborhood gossip, increased by less than she had been spending weekly on charcoal. The appliance wasn't some futuristic luxury but a simple recalibration, like replacing a kerosene lamp with a lightbulb and realizing how much of your life you had been squinting through the gloom.

Activism

Of course, reality intruded. The power still failed unpredictably, this remained Uganda, after all. Some of her aunties eyed the device with deep suspicion, as though it might spontaneously combust their posho. Her neighbor Margaret flatly refused to believe food could taste right without wood smoke. But Natukunda had the quiet fervor of the converted. She began documenting her experience on Twitter threads and WhatsApp groups, breaking down the economics with the patience of someone explaining compound interest to a first-time saver. Think of it like planting a tree, she would say. The shade comes later, but it comes.

When pressed by skeptical relatives and curious colleagues Natukunda is ready to recite the benefits with the conviction of someone delivering scripture. "Time," she begins, holding up one finger, "that most finite currency we women never have enough of, now compounds in my favor like interest in a savings account." A second finger: "My children's lungs grow without that constant assault of smoke." Third finger: "The biweekly charcoal budget now buys schoolbooks and gets deposited in the SACCO." Fourth: "My children have not missed an afternoon class to gather firewood since January." Then she pauses before concluding: "And the food; the matooke, the beans, they taste like they are supposed to taste, as if all these years we have been eating shadows of what our meals could be."

But the true revelation came one unremarkable Tuesday. As the EPC's digital timer counted down without requiring her intervention, as she sat drinking tea while supper cooked itself, she understood the deeper shift. This wasn't just a new appliance. It was a renegotiation of the immutable contract she had signed at birth; the one that said a Ugandan woman's days would be measured in smoke and fatigue and sacrifice.

Appeal

Natukunda shares her conviction with anyone who will listen. She urges the government to treat clean cooking technology with the same urgency as malaria nets or vaccination campaigns. To offer manufacturers tax incentives and women the financing options that reflect their cash flow realities. The myths, that electricity it too expensive, that food will not taste right, that technology will steal jobs from charcoal sellers, need to be confronted with data and demonstration.

Natukunda has made her choice. She keeps her old charcoal stove in the backyard, but only as backup for power outages. Some habits die hard. But the smoke? The smoke has gone for good.


DIACK

That which I feared would destroy my family actually brought us closer. Cooking together became possible when we were not choking on smoke. The children do homework at the kitchen table now.

How gas is replacing traditional fuels

Estella Masika still remembers the sinking feeling when her mother-in-law pushed away the cup of tea. "She watched the electric kettle for five minutes, then declared the water hadn't boiled properly," Estella recalls, shaking her head. "For her, real boiling only happens over charcoal flames and certainly takes longer than five minutes."

What followed was a week of backbreaking work; lighting the charcoal stove each morning, fanning the flames and enduring the smoke-filled kitchen. "I wanted so badly to please her," Estella confesses. "But part of me wondered, why must we cling to what is difficult when easier options exist?"

The Kalo crisis

Nina Mbabazi laughs as she recounts her father-in-law's demands. "The man insisted on his kalo being made on the traditional three-stone fire, in Kampala!" she exclaims. "I told him, 'Taata, even if I could find those stones here, the neighbors would report me for starting a bushfire in the middle of the city!'"

Their compromise of using firewood in a charcoal stove, left Mbabazi battling smoke stains and simmering frustration. "There I was, a supposedly modern woman, too intimidated to refuse this outdated demand," she reflects. "All while remembering my grandmother, who literally cooked herself to death through years of smoke inhalation. When did tradition become more valuable than our lungs, or our planet?"

Today, Mbabazi reports a revolution in her kitchen. "I have switched mostly to gas now," she says. "Though when preparing those slow-cooked traditional dishes, I opt for briquettes, a small compromise that keeps both culture and clean air alive."

A gas stove conversion

Moses Mukasa's large hands fidget with the edge of the table as he begins his story, his deep voice softening to a near whisper at the memory. "For years, I forbade gas cylinders under my roof

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> *"She watched the electric kettle for five minutes, then declared the water hadn't boiled properly," Estella recalls, shaking her head*
>
> "

because of the stories I heard as a boy in our village."

"There were stories of a family that perished in an instant to a cooking gas accident. I swore mine would never face that danger."

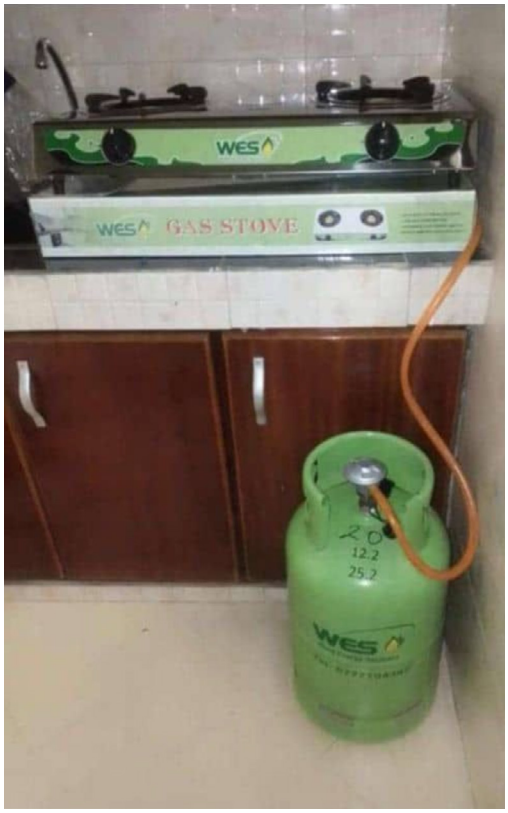
The tension in his shoulders eases as the story shifts to 2020. "Then COVID trapped us inside with nothing but empty charcoal sacks and patrols blocking every road." A self-deprecating chuckle escapes him. "For days, we survived on our neighbors' kindness, but I could see the shame wearing on my wife. She was tired of begging."

His voice lifts slightly as he recalls the turning point. "Then one morning, a knock at the gate and there was a boda guy, defying lockdown, delivering a brand-new gas cylinder and cooker."

Beside him, Sarah interjects with the practiced ease of someone who has recounted this tale many times. "That first week was like coaxing a frightened kitten near water," she says, her laughter lines deepening. "Every time I lit the burner, Moses would flinch. I must have demonstrated the safety latch twenty times, showed him how the flame sensor cuts the gas automatically."

From the kitchen, their sixteen-year-old son, Trevor, calls out as he prepares tea: "Dad used to stand guard like a fire marshal whenever Mom cooked!" With a mischievous grin, he deliberately twists the knob too fast, the flame snuffs out instantly. "See? Foolproof."

Moses shakes his head in surrender. "All those years of carrying charcoal dust through the house, the stained walls, the children coughing, and the answer was right here all along." He exhales, a quiet admission in his voice. "My wife didn't just change my mind about gas stoves, she showed me how fear can blind a man to progress."



The ripple effect

What began as pandemic necessity has become a neighborhood movement. The Mukasas' kitchen now serves as a demonstration center, where skeptical husbands peer cautiously at simmering saucepans while their wives exchange knowing smiles. Last Christmas, Moses helped three neighbors switch to gas.

"Funny thing," he muses, "That which I feared would destroy my family actually brought us closer. Cooking together became possible when we were not choking on smoke. The children do homework at the kitchen table now. "I have learned to trust my wife's judgment, about stoves and everything else."

The economist's calculator

Joan Namusisi presents her notebook like a lawyer unveiling critical evidence in court. She is determined to prove that modern cooking methods are far more affordable than skeptics claim. The pages are filled with meticulous calculations, each entry a testament to her scrutiny.

"See?" she says, tapping a decisive finger on the figures. "May 15th—Shs 7,000 for charcoal. June 2nd—Shs 900 for electricity to cook the same stew." She raises an eyebrow, her voice ringing with conviction. "Who can argue with math?"

The Market Vendors' Dilemma

In Mbale Central Market, Hajara Nalubega stands over a massive pot of beans simmering on a flickering charcoal fire. Sweat glistens on her forehead as she stirs, the flames casting restless shadows across her face.

"They tell me gas is better," she shouts over the fire's crackle. "But my customers swear charcoal cooked food tastes richer. If I switch, will they abandon my stall?"

Nearby, Patricia, a younger vendor who has embraced modern cooking, smiles with quiet confidence. "My clients haven't complained about taste, in fact, my meat is even tenderer now," she counters. "Perhaps the issue isn't the cooking method, but the cook."

The scientist's frustration

Mr. Crispus Tashobya, a principal researcher in Uganda's clean energy initiative, reviews the latest field data. "The evidence demonstrates clear benefits; reduced deforestation, improved respiratory health, and lower household expenditures," he states. "However, traditional cooking practices remain prevalent due to entrenched cultural norms."

His research indicates the transition to clean cooking involves multiple socioeconomic factors. "This issue extends beyond technology adoption. It requires addressing women's domestic labor patterns, household decision-making structures, and cultural associations with traditional cooking methods," he explains.

"Implementation must occur incrementally," Dr. Tashobya concludes. "Community-level adoption will determine the initiative's success."

This battle isn't merely about replacing stoves or swapping fuels, it is about reshaping and redefining family rhythms, and reimagining cultural identity. It's about whether Uganda will choke on the past or breathe easier in the future.

"Change will not happen in policy papers or conferences," he says. "It will happen one kitchen, one stubborn grandmother, one transformed meal at a time."

A new generation's kitchen

Back in Estella's home, a quiet revolution brews. Her daughter, 17-year-old Fiona, demonstrates her birthday present—a sleek electric pressure cooker. "See, Jajja?" she tells her skeptical grandmother. "Same tea, no smoke, and you don't wait all morning." The older woman sniffs the steam, then takes a tentative sip. Her grudging nod sends Fiona beaming.

When a family switches to an EPC, the benefits spread far beyond the kitchen. Girls no longer spend hours gathering firewood, instead, they get more time for school, and attendance rates climb. Women use their saved time to start small businesses, boosting the local economy.

What if a simple stove could save a life?

For generations, the act of cooking has been synonymous with hardship; bent backs carrying firewood, eyes watering from acrid smoke, and entire afternoons sacrificed to coax meals from stubborn, inefficient fires. But today, a growing number of Ugandan women are experiencing something radical; cooking without suffering.

At the heart of this transformation sits an unassuming appliance; the electric pressure cooker (EPC). What makes this innovation remarkable is not just its technology, but how it is rewriting the lived experience of domestic labor for Uganda's women. Take the story of Zubedda Naava Kisekka, a single mother of eight in Kampala, Luzige zone. Her journey to clean cooking began at a community workshop organized by Wana Solutions, one of several organizations pioneering Uganda's energy transition. Like 90 percent of Ugandan households, Zubedda's family had always cooked with charcoal and firewood, methods deeply embedded in tradition yet devastating in their human and environmental costs.

The true burden of these conventional methods becomes clear when measured across multiple dimensions. Health statistics paint a grim picture; the World Health Organization estimates that household air pollution from

> *"Uganda's deforestation rate, among the highest globally, sees nearly 100,000 hectares of forest disappear annually, with fuelwood demand being a primary driver."*

solid fuel use contributes to over 13,000 premature deaths annually in Uganda, with women and children disproportionately affected. The economic toll is equally severe. Urban families spend up to 30 percent of their income on charcoal, while rural women lose 15-20 hours weekly collecting firewood, time that could be spent on education, enterprise or simply rest.

Environmental costs compound these challenges. Uganda's deforestation rate, among the highest globally, sees nearly 100,000 hectares of forest disappear annually, with fuelwood demand being a primary driver. This creates a vicious cycle; as forests recede, women walk further for fuel, sacrificing more time and facing greater physical risks.

The EPC Difference

Zubedda's life has changed since getting an EPC. "Before, cooking beans took four hours, now it is just 40 minutes," she says. The extra time lets her focus on her small shop, save for her kids' school fees, and most importantly, her children no longer wake up coughing from smoke. She even convinced her neighbor, Naava, to try the EPC, and now Naava won't stop raving about it. She saves three to four hours every day, spends 60 percent less on fuel than she did with charcoal, and breathes cleaner air at home. Plus, the EPC's safety features mean no more burns or kitchen accidents. For both women, it is more than just a stove, it is freedom.

Beyond the EPC

While the EPC represents a breakthrough, Uganda's clean cooking transition embraces multiple technologies tailored to different contexts. Solar-powered stoves offer off-grid solutions for remote areas. Improved biomass stoves provide a transitional technology, reducing fuel use by 50 percent compared to traditional three-stone fires. Urban households increasingly adopt LPG (liquefied petroleum gas), with innovative pay-as-you-go models improving accessibility. Rural communities experiment with biogas systems that convert agricultural waste into cooking fuel.

Challenges

However, the path to universal clean cooking faces substantial barriers. Naava notes her EPC's performance fluctuates with Kampala's unreliable power supply – a nationwide issue in a country where only 42 percent of the population has grid access. Electricity costs (Shs750 per kWh) remain prohibitive for many, despite being cheaper than charcoal in the long term.

Cultural inertia presents another hurdle. Cooking methods are deeply entwined with tradition and identity. Some families resist abandoning practices passed down through generations, while others distrust new technologies. Manufacturers struggle with quality control, and distribution networks remain patchy outside urban centers.

Market Solutions

Recognizing these challenges, Uganda's government has implemented multi-pronged interventions. The Electricity Access Scale-up Project (EASP), supported by the World Bank, aims to expand grid coverage to underserved regions. The National Renewable Energy Program (NREP) coordinates awareness campaigns addressing misconceptions about clean cooking technologies.

Private sector innovations are equally crucial. Companies like Wana Solutions develop financing models to overcome upfront cost barriers. Some offer EPCs through installment plans as low as Shs10,000 daily. Others bundle appliances with solar home systems, creating integrated energy solutions.

The Ripple Effects of Clean Cooking

When a family switches to an EPC, the benefits spread far beyond the kitchen. Girls no longer spend hours gathering firewood, instead, they get more time for school, and attendance rates climb. Women use their saved time to start small businesses, boosting the local economy. Uganda's forests get a break as fewer trees are cut for fuel. And with less smoke in homes, families breathe easier, leading to fewer lung and heart problems. One simple change, a cleaner way to cook—can transform entire communities.

Naava reflects on the profound impact the EPC has brought to her household. "This stove gives us back our time, our health, and our dignity," she says. In Uganda, where women have traditionally borne the burden of time-consuming, smoke-filled cooking methods, the transition to clean cooking represents more than just convenience, it signifies meaningful progress.

While significant strides have been made, achieving universal access to clean cooking solutions remains an ongoing challenge. It will require continued investment, creative financing approaches, and shifts in cultural practices. Yet as more Ugandan women experience the benefits of smoke-free, efficient cooking without sacrificing their daily aspirations, the movement gains unstoppable momentum. The kitchen, long a traditional space in Ugandan homes, is now becoming a place of transformation, where modern technology meets age-old domestic practices to improve lives.

King Fire Energy Solutions exemplifies how entrepreneurial vision can create solutions that simultaneously address poverty, health, gender equality, and environmental sustainability.

Financing Scheme in Uganda Makes Clean Cooking Solutions More Affordable

For millions of Ugandan households, the simple act of cooking a meal comes with significant health, environmental, and financial costs. Traditional reliance on firewood and charcoal has led to alarming deforestation rates, with Uganda losing approximately two percent of its forest cover annually. The health impacts are equally concerning, as indoor air pollution from these cooking methods contributes to respiratory illnesses that disproportionately affect women and children. Recognizing these interconnected challenges, King Fire Energy Solutions Ltd has emerged as a transformative force in Uganda's clean cooking sector, combining innovative technologies with groundbreaking financing models to create sustainable solutions.

Portfolio

Founded by Catherine Nakitende, King Fire Energy Solutions began as a modest enterprise focused on providing improved cook stoves to local communities. Over the years, the company has evolved into a comprehensive clean energy provider, offering a diverse range of solutions tailored to Uganda's varied household needs and economic realities. What sets this company apart is its holistic approach that addresses not just the technological aspects of clean cooking, but also the critical financial and educational barriers that have historically limited adoption.

At the core of King Fire's offerings is a carefully curated portfolio of clean cooking technologies, each selected for its suitability to different Ugandan contexts. For urban households with reliable electricity access, the company provides efficient electric induction cookers from reputable brands like Tefal. In areas where liquefied petroleum gas (LPG) is more practical, King Fire offers complete systems from Wes Gas, available in both 6kg and 13kg configurations. Recognizing Uganda's abundant sunshine, solar thermal cooking solutions from Wow Solar provide an excellent option for sun-rich regions. For households with access to organic waste, biogas conversion systems offer a sustainable alternative. Importantly, understanding that transition takes time, King Fire also supplies improved charcoal stoves that significantly reduce fuel consumption compared to traditional methods.

Services

What truly distinguishes King Fire's approach is its rigorous commitment to quality and customer support. Every product in their lineup carries certification from the Uganda National Bureau of Standards (UNBS), ensuring safety and performance reliability. Beyond the sale, King Fire provides comprehensive after-sales services including professional installation, user training, and maintenance support. This end-to-end approach addresses one of the persistent challenges in clean cooking adoption, the gap between purchasing a technology and using it effectively over the long term. Field officers conduct regular follow-ups to ensure proper usage and troubleshoot any issues, building trust and satisfaction among customers. The company's most transformative innovation came in 2018 with the introduction of its Pay-As-You-Go (PAYGO) financing model—a system that has revolutionized access to clean cooking solutions in Uganda. Recognizing that even the most efficient stove remains out of reach if the upfront cost is prohibitive, King Fire adapted successful microfinancing approaches from the solar sector to the clean cooking market. Their PAYGO program allows customers to acquire stoves through small, manageable installments made via mobile money. Weekly payments can start as low as Shs15,000, making clean cooking technologies accessible even to low-income households.

The PAYGO system incorporates several smart features that ensure its sustainability. GSM-enabled remote monitoring allows King Fire to track usage patterns and provide proactive maintenance. The financing model is designed so that the savings users gain from reduced fuel costs typically exceed their installment payments, creating a virtuous cycle where the stove effectively pays for itself over time. Currently accounting for about 60 percent of King Fire's monthly sales, the PAYGO program has enabled the deployment of over 100 clean cooking systems each month, with particular success in urban informal settlements where financial flexibility is most needed.

King Fire's impact extends far beyond product sales and financing. The company has developed a robust ecosystem of complementary programs that amplify its reach and effectiveness. For institutional clients like schools and hospitals, they offer customized cooking solutions that can handle large-scale meal preparation. Through partnerships with carbon credit organizations, they're creating additional revenue streams that can help subsidize costs for end-users. Their women's empowerment initiatives train female clean cooking ambassadors who become advocates and educators in their communities. Demonstration kitchens across Uganda provide hands-on experience with different technologies, helping potential customers make informed choices.

Growth

Strategic partnerships have been crucial to King Fire's growth and impact. Collaborations with organizations like WANA Energy Solutions and the Uganda National Alliance on Clean Cooking (UNACC) have expanded their distribution networks and technical capabilities. These alliances also facilitate knowledge sharing and policy advocacy, helping to create an enabling environment for clean cooking adoption nationwide. By working with financial institutions, King Fire has developed credit products specifically tailored to energy access, further broadening the reach of their solutions.

Looking to the future, King Fire Energy Solutions stands as a compelling case study in how to drive sustainable energy transitions in developing markets. The company's success demonstrates that the clean cooking challenge is not just about technology availability, but about creating business models that align with how people actually live and manage their household budgets. As King Fire prepares to expand its PAYGO model across East Africa, it carries with it valuable lessons about the power of patient capital, the importance of user education, and the need for solutions that work within existing financial realities. As more Ugandan households experience the benefits of modern cooking technologies, from time savings to improved health to financial relief, the momentum for change continues to grow, one stove at a time.

Though she has adapted to her smoky, familiar kitchen, Oliver Namanda holds a burning dream for an easier, healthier lifestyle for her children

The Lasting Hearth: A Mother's Choice in a Changing Uganda

The world around Oliver Namanda has been utterly transformed. At 36, this long-time resident of Kirombe, Luzira, has watched her life and community evolve at a breathtaking pace. She has journeyed from a carefree youth into the heart of motherhood, now dedicating herself to raising five children of her own. Her neighbourhood tells a parallel story of change; what was once a quiet, close-knit village surrounded by greenery has been relentlessly reshaped into a bustling, modern suburb. Today, gleaming glass-fronted mansions and towering modern skyscrapers stand in stark contrast, dwarfing the few remaining traditional mud-and-wattle homes.

But to step into her kitchen is to step through a portal where time stands still. Amidst the relentless tide of progress swirling just outside her door, one core tradition remains unshaken and unbroken; her method of cooking. The air, thick with the familiar scent of woodsmoke and simmering food, speaks of a heritage that modern appliances cannot replicate. "I have cooked with charcoal and firewood for my entire life," Namanda explains. "It is more than just a method; it is the way we were raised by our parents and their parents before them. This fire is the steady flame over which I have prepared every single meal that has nourished my family."

Her connection to this tradition is rooted in her childhood. As a young girl, one of her first and most important daily chores was the journey to collect firewood from the nearby forests. In that era, before extensive urban development reshaped the landscape, the forest was a generous provider, its resources freely and abundantly available to those who knew how to gather them. Today, the forests have been steadily claimed by modern expansion, cleared for construction and infrastructure, leaving her with no choice but to join the countless others who must purchase their fuel. When her strained budget

> *"The health impacts are equally concerning, as indoor air pollution from these cooking methods contributes to respiratory illnesses that disproportionately affect women and children."*

allows, she opts for charcoal, a slightly more modern concession that offers relative ease and efficiency over the smokier firewood.

The economic reality of maintaining this tradition is a constant burden. "Nowadays, a single bag of charcoal costs between Shs70,000 and Shs90,000, and even a single bundle of firewood is around Shs10,000," Namanda explains. "This is a significant and recurring expense for someone like me to afford."
She elaborates that being a low-income earner means every shilling is already allocated to a critical need. She is solely responsible for covering school fees, clothing, medical care, and rent. The relentlessly rising cost of these traditional fuels doesn't just add to her bills; it places a heavy, constant strain on her entire budget, forcing difficult choices between warmth and wellness, between a hot meal and a child's schoolbook.

Many Ugandans operate under the misconception that traditional cooking is inherently cheaper. However, for low-income earners like Namanda, the barrier to clean energy is a complex web of challenges far beyond the simple sticker price. "I use firewood and charcoal primarily because they are easier to access and far more predictable," she says. "Our electricity is not only prohibitively expensive for daily cooking but also highly unreliable, making it completely impossible to depend on for preparing the family's meals."

Furthermore, the initial investment required for clean energy appliances presents an insurmountable hurdle. "The upfront cost of a simple electric cooker, a gas cylinder, or a solar stove is simply beyond my reach. It is a large, lump-sum payment that I could never save for, when every day requires spending on immediate survival."

Though she has adapted to her smoky, familiar kitchen, Namanda holds a burning dream for an easier, healthier lifestyle for her children. She has heard the many tales of the environmental damage caused by widespread deforestation and charcoal production; the soil erosion, the changing weather patterns, and she nurtures a firm belief that her children will be the generation to turn things around.

"This is why I have invested everything in their education," the cheerful mother says, her face lighting up with hope. "So they can have more options and better opportunities that will enable them to make healthier, more sustainable choices. I want them to be able to cook in those modern kitchens where one cannot see smoke and the air is clean and the environment is tidy. I think it is too late for me to achieve that dream for myself. For now, every single shilling I get must be spent on taking care of our most immediate needs; putting food on the table, clothes on our backs, and ensuring their education continues. This humble kitchen feeds them today, so that one day, they might not need it."