



Energy Solutions to Fight Climate Change: **Uganda's Leading Manufacturer of Eco-Friendly Briquettes**

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Briquettes laid out on solar dryers at GBE's briquettes facility in Mukono, Uganda
Photo Credit: Charles Sabourin

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CASE STUDY

Energy Solutions to Fight Climate Change:
Uganda's Leading Manufacturer of Eco-Friendly Briquettes

AT A GLANCE

Company	Green Bio Energy (GBE)
Social theme(s)	Energy/Climate Change/ Environment
Geography	Uganda, serving East Africa
Year founded	2011
Revenues	<€500K annually
Legal structure	For-profit organisation
Clients	GBE serves low-income households with cost-saving, safe, and eco-friendly energy solutions
Business model	Sales income (90%); Donations & grants (10%)
Product/services	Eco-friendly, carbonised briquettes made from recycled materials; Improved, clean cookstoves that minimize indoor air pollution; Consulting services to micro-entrepreneurs seeking to build the market for eco-friendly energy alternatives in other countries; GBE is currently expanding to provide a range of eco-friendly appliances
Impact reach	GBE currently serves over 1000 briquettes users with sales of briquettes that amount to 600 tons annually, offsetting 8760 tons of CO2 emissions and saving 15,000 tons of trees

Background

Many households in Africa use firewood and wood-charcoal in rudimentary, inefficient cookstoves for cooking and heating. These practices are expensive, as well as environmentally unsustainable, contributing to deforestation and increasing CO2 emissions. Deforestation has reached a crisis point in Uganda, a country which is currently losing nearly 3% of its forest cover every year.¹

Using wood for cooking fuel also contributes to indoor air pollution, which is especially harmful to women who perform the majority of household food preparation. A recent study has shown that transitioning to clean cooking alternatives could save as many as half a million lives per year in sub-Saharan Africa.² Clean cooking solutions range from more efficient biomass stoves to electric and gas-based options.

¹ <https://www.worldbank.org/en/news/feature/2019/05/31/ugandan-government-steps-up-efforts-to-mitigate-and-adapt-to-climate-change>

² <https://www.kth.se/en/om/nyheter/centrala-nyheter/replacing-wood-and-charcoal-stoves-in-africa-could-save-half-a-million-lives-every-year-11219145>

About the Company

Green Bio Energy (GBE) was founded in 2011 by **Alexandre Laure** and **Vincent Kienzler**. At the time, Laure was an MBA student and Kienzler was a Phd student in international development studies, both living in Kampala and exploring private-sector solutions for development. Together, they decided to found a company producing eco-friendly charcoal briquettes by recycling urban waste. Early on, they hired **Ziwa Hillington**, a project coordinator who had already been working in the clean energy space in Uganda. Hillington moved up in the organisation for over a decade, growing GBE into a company that successfully blends global technologies with local supply chain innovations, a form of innovation they call Pamoja—which means ‘together’ in Swahili.



Ziwa, the team lead, presents GBE's briquettes business during a visit from Yunus Social Business, a GBE investor
Photo credit: Green Bio Energy



Sources of Impact

Customers: Who is served?

GBE serves **low-income households** in urban areas, focusing on women who generally make decisions about energy and fuel procurement for their families

Workforce: Who is employed?

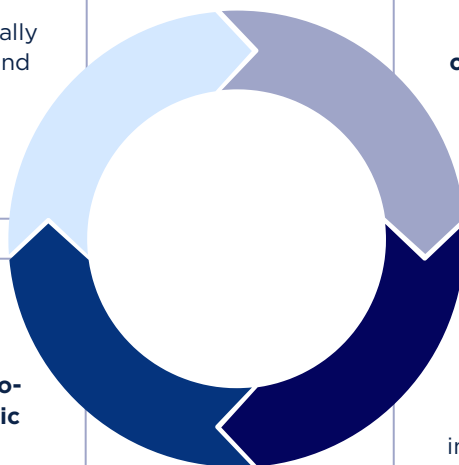
GBE employs **50 staff members** directly. GBE also indirectly employs an additional **50 community members** who collect organic waste and manufacture briquettes to contribute to GBE's supply chain

Product/Service: What is delivered?

GBE manufactures and sells **eco-friendly briquettes from organic urban waste**. GBE formerly manufactured improved **cookstoves**, but has now pivoted to distributing eco-friendly household appliances

Eco-System: What relationships are developed?

GBE has partnered with **impact investors** to finance its efforts, including **carbon credit providers** who purchased improved cookstoves for households



Innovation Activities

GBE engages in several activities that drive innovation, both in their network as well as the larger eco-system:

INNOVATION ACTIVITIES



Mobilising community members to join the supply chain: GBE provides training to local community members to become part of waste collection and manufacturing efforts that support briquette production as well as neighborhood cleanliness

Creating a consultancy model to scale to other geographies: GBE provides consulting services to independent entrepreneurs in other East African countries so that they can also set up briquette manufacturing businesses

Educating consumers to ensure market entry: GBE's products may initially seem more expensive to consumers since they have a higher price point than traditional products. GBE works to educate consumers about the cost-effectiveness and health benefits of their products in contrast to traditional alternatives

Key Innovation Challenges & Learnings

GBE is manufacturing and distributing products in a sector where informal traders predominate, while also working to scale the company to have greater impact. This has resulted in several challenges and learnings:

- **Meeting consumers where they are:** GBE manufactures and distributes several products that contribute to more sustainable energy solutions for households. Briquettes are the 'entry point' for households to move toward more eco-friendly decisions. MD Ziwa Hillington explains: *"Briquettes are the entry point, especially for communities in countries like Uganda. They are relatable to what people are already using. So before people transform completely to modern energy cooking services like electric pressure cookers, they need a transition phase and briquettes are an example of a way to create a starting point because they can help the customer save, they're environmentally friendly, they are locally made. They also have a high possibility to coexist with modern energy for the next decades in emerging markets."*
- **Overcoming the hurdles of formality and scale:** One of GBE's big barriers to scale has been the additional costs that formal companies bear versus the informal suppliers that dominate the market. Vincent Kienzler, Founder, describes this: *"I think we were quite successful at bringing the company to a viable state, but it has been difficult for us to scale. We quickly realised that the way to scale was to look at institutions and companies because they buy larger quantities and usually pay more on time than individuals. But to work with formal private sector companies and to get investment, you need to register for VAT, and once you do and start dealing with such large companies, you are struck with about 35% additional taxes on everything you sell, while your competitors, which are all in the informal sector, are not. So it's just this big, huge gap between informality and formality that in our case was a big hurdle. It's a Catch-22."*

Featured Product: Briketi Briquettes

SGBE markets its eco-friendly briquettes under the name Briketi. These briquettes are manufactured locally from 100% recycled organic materials, including banana and cassava peelings. They burn twice as long as traditional wood charcoal, resulting in cost savings of 40% compared to standard fuel sources.



Briketi Logo and Cookstoves
Photo credit: Green Bio Energy