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Clean Technology Hub Business Case Study Series

Envirofit International



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Striving in the Clean Cooking Market: EnviroFit International

This caselet was written by Precious Esogbue, under the guidance of Ifeoma Malo and Abel Gaiya, Clean Technology Hub. It was compiled primarily using information from an interview with the company's Country Director for Nigerian and online sources, and is intended to be used as a basis for class discussion rather than to illustrate either effective or ineffective handling of a management situation.

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Company Background

Envirofit International, a U.S.-based clean cooking technology company was founded in 2003 by Tim Bauer and Nathan Lorenz. Envirofit tackles traditional cooking challenges by selling efficient, low-emission, affordable cookstoves, which positively impact health, environment and livelihoods. Today, Envirofit has grown from a business with one product to a global company serving over five million people, with over a dozen user-designed products and regional headquarters in East Africa, West Africa, Asia, and Latin America that offer the local production and distribution of clean cookstoves.

Worldwide, around 2.4 billion people (around a third of the global population) cook using open fires or inefficient stoves fuelled by kerosene, biomass (wood, animal dung and crop waste) and coal, which generates harmful household air pollution.¹ Most of these people are poor and live in low- and middle-income countries. Inhaling these toxic fumes causes pneumonia, lung cancer, bronchitis and even a mortality rate greater than that of malaria – and women are disproportionately affected.² Besides the impact on human health, it also affects the environment. Cooking with biomass contributes to global black carbon emissions, which is one of the largest contributors to climate change after carbon dioxide. In sub-Saharan Africa, more than 80% of the population has to rely on these fuels. This is why Envirofit's work is important.

It was therefore not difficult to see why Envirofit International would also choose, in 2012, to establish a subsidiary in Nigeria. Envirofit Nigeria, opened a production facility in Lagos, Nigeria's largest city, to produce high-quality cookstoves tailored to fit the Nigerian communities. In Nigeria, over 70 % of its population relies solely on wood and charcoal as fuel to meet their energy needs for cooking.³ Replacing traditional open fires with improved cookstoves (ICS) and other clean cooking technologies can address these cooking challenges. However, companies, NGOs and governments are springing up and working to address these challenges and increase access to clean cooking technologies. Envirofit Nigeria has become a major player in this sector.

The Envirofit Lagos facility produces a line of wood and charcoal stoves (SuperSaver wood and charcoal stoves) that reduces household's toxic emissions by up to 68% while still reducing fuel consumption by up to 66%. This clean cooking technology has improved the quality of life for over 250,000 people in Nigeria.

Mr. Biodun Olaore has been country director at Envirofit Nigeria for almost nine years. Having formerly worked in the solar household lighting sector before moving into cookstoves, Biodun has an excellent

¹ WHO. 2022.: The Energy Progress Report. Available at: <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health>

²Ibid

³Nkech Isaac (2021)"Over 60% Of Nigerians Will Rely On Traditional Biomass By 2030".<https://sciencenigeria.com/over-60-of-nigerians-will-rely-on-traditional-biomass-by-2030-if-ikeazor/>

understanding of Nigeria's household energy needs. With his team working alongside him, Biodun has taken to the challenge of meeting Nigeria's diverse energy needs. In a country twice the size of California, Nigeria is home to many different cooking traditions. In the North-west, Abuja, and the southwest people use mostly charcoal stoves. Contrastingly, southeast and southern Nigerians cook mainly on wood. Despite these differences, Biodun remains confident that Envirofit cookstoves are the right choice to improve the lives of all Nigerian households.



Figure 1. Envirofit SuperSaver Wood Stove



Figure 2. Envirofit SuperSaver Charcoal Stove



Business Model

Envirofit's original business model focused on commercializing an engine retrofit kit to drastically reduce the noxious emissions of a major cause of pollution in Asia—the ubiquitous motorized three-wheeler taxi.

In 2007, in keeping with its mission, Envirofit added a new business segment focused on reducing pollution inside the home. The company developed a clean cookstove and uses a market-based model to develop and commercialize these high performing biomass cookstove solutions that are efficient, durable, affordable, and appeal to consumers. In addition to the aesthetic qualities, Envirofit's stoves are designed to offer economic, health and environmental benefits, reducing smoke and toxic emissions by up to 80% and reducing fuel use, fuel cost, and cooking time by up to 60 percent. The stoves reduce emissions of carbon dioxide by up to 60% and black carbon by up to 40%.

In Nigeria, Envirofit has developed innovative distribution mechanisms and works with retailers, NGOs, governments, and microfinance institutions to reach the rural and peri urban communities. Envirofit does not get involved in direct sales, and instead mostly sells to retailers across states in Nigeria who then in turn resell the energy efficient cooking technology to their households, friends, relatives for profit. In addition, its governmental and community based partners serve as distributors and increase awareness in the various countries it operates in.

Envirofit employed the credit channel at the inception of its business in Nigeria as a way of making profit. In using this model they leveraged on those channels that offer credit to their members. For example, with cooperatives societies and associations. Collecting their money was easy using this model.

Envirofit also monetises carbon credits realized for cookstove programs. Envirofit has strategically embedded the carbon asset features into its operational approach, thereby developing the ability to finance a subsidy on a product and lower its cost to the retailers, distributors, and nongovernmental organizations, which enables it to sell the product at a subsidized price that is affordable for most end users. The advent of carbon credits has allowed Envirofit to target a broader range of markets that may not have been viable without carbon finance. The net result of this carbon credit approach is that end users can purchase an Envirofit stove for not much more than a traditional stove

Envirofit's Adaptive Capabilities

As a multinational company, the experience, networks, capital and capabilities it gained in previously operating in other developing countries in East Africa, Latin America and Asia have prepared it for surviving and thriving in the Nigerian market. This has therefore enabled it to escape the low survival

rates characterizing small local startups in the country. Its adaptability is observed in its capacity to refocus from the engine retrofit kit production to clean cookstove production. Another benefit of entering the national market as an experienced multinational corporation is that Envirofit has continuously made innovations in its business model to take into account local contexts and constraints in the developing world. The Business-to-Business business model, for instance, has enabled the company “to reach more consumers, and develop long-term regional commercial business units that have the capacity and commitment to address post-sales services”.⁴ The model also enables it to overcome “market barriers such as the lack of market infrastructure, limited rural distribution, and lack of consumer awareness and large-scale manufacturing.”

The company has also built strong research and development (R&D) capabilities which it continuously uses to “test different methods that could globally deliver low-cost, high-quality products to low-income consumers”.⁵ After years of research, the company has strived to design and manufacture the highest quality stoves at an affordable price to consumers therefore finding a balance between affordability, efficiency, utility, durability, aesthetics. As a result, envirofit has significantly diversified its product line. It now offers cookstoves suitable for different fuel types (charcoal, wood, liquefied petroleum gas) and pot sizes.

Challenges

These adaptive capabilities enable Envirofit Nigeria to thrive in the Nigerian market. A major challenge peculiar to Envirofit Nigeria is that, despite a growing range of manufacturers, importers and distributors with proven products and business models, the clean cookstove value chain has not scaled up compared to its counterparts in countries like Kenya and Ghana. In West Africa, the clean cooking idea was actually launched in Nigeria following its launch in Ghana. Yet because the Ghanaian government is more supportive of the clean cooking ecosystem, an adequate enabling environment for clean cooking exists in Ghana compared to Nigeria. In addressing this challenge, Envirofit has joined industry associations like the Nigeria Alliance for Clean Cookstove (NACC) to advocate for greater government commitment to the sector

Not only are there inadequate clean cooking policies in Nigeria, there is also a lack of implementation of existing policies. There are plans and strategies developed that support clean cooking businesses and support the development of the sector, but these are often not being effectively implemented by the same policy makers and implementing agencies involved in their creation.

⁴ Envirofit (2017). *Cooking in One Million Kitchens: Lessons Learned in Scaling a Social Enterprise*. Colorado: Envirofit International Inc, p. 3.

⁵ *Ibid.*, p. 4.



Another challenge is that there is inadequate financing for Improved Cookstove (ICS) firms in Nigeria. There is no national-level credit facility available for ICS firms, in contrast to the Liquefied Petroleum Gas (LPG) and off-grid solar sectors where various facilities have emerged in recent years. Finance from commercial or development banks like the Bank of Industry (BoI) is available for importers of machinery related to clean cooking (such as pellet/briquette machines) but not for importing stoves or stove components. . Since its cookstoves reduce carbon emissions, Envirofit's products generate Certified Emission Reduction units, which the company sells on the carbon credit market. Through cross-subsidization, these carbon credit revenues help Envirofit lower the product prices for end-users.

Reflection

1. What are the limitations of the Envirofit business models ?