

KARIBU Solar Power

The Challenge

A recent study by the International Energy Agency found that over 1.5 billion people around the world live without access to electricity. According to a World Bank study, in East Africa between Egypt and South Africa access to the grid ranges from 32.7% in Somalia to only 5.1% in South Sudan. Villagers in unserved areas resort to kerosene to provide lighting, often buying it in tiny volumes several times per week. Unfortunately kerosene prompts a number of safety and health concerns, is relatively inefficient and expensive for individuals trying to get by on incomes of USD 600-700, the average annual wage in many sub-Saharan African countries. Delivering a cheap and environmentally friendly source of power for basic lighting and battery charging could lead to major quality-of-life improvement for millions.

Background

In 2012 two Canadian brothers, Adam and Brian Camenzuli together with Schulich friend Sameer Gulamani, developed what they hoped would be a solution. The first component was to create a sturdy modular combination lamp/battery charger. The result was the first version of their 'hockey puck' pictured below, designed by Brian Camenzuli, and later patented. Two 'hockey pucks', a small portable solar panel and peripherals could be packaged together and sold as a kit. The lamps would provide approximately five times the light of a standard kerosene light and would have none of the attendant safety or health concerns. Through a U.S.-based partner, most of the components could be sourced and assembled in China.



left to right Brian Camenzuli, Cecilia Assenga, Adam Camenzuli

The next step was to figure out how to get the product into the hands of those that could use it. Choosing a launch market for KARIBU was relatively easy. Sameer Gulamani had family ties to Tanzania and was familiar with the country and its business culture. With a population of over 45 million combined with nominal per capita income of about USD 700, KARIBU's founders felt it would make a good launch market. The company realized that selling direct to the end consumer would be difficult. Adam Camenzuli recalls demonstrating KARIBU's solar lantern to some street vendors in Tanzania. While they were intrigued, when he offered to sell it to them for \$20, then \$15, and finally \$10, he found no takers. "People just can't afford a \$20 solar lamp" he explains "There was no way they were going to spend the money for it".

In order to make the product affordable, the company decided to use a "franchised business model of rent-to-own solar solutions" according to Sameer Gulamani. A local entrepreneur would lease the 'hockey pucks' to consumers by charging them a fee for recharging the batteries with the solar panel. Every time a villager recharged a battery they would be making an installment towards the purchase of their own solar panel, ultimately achieving a degree of energy independence off-grid. The cost for charging would approximate what the household had been paying for supplies of kerosene while enjoying a superior product. According to Adam Camenzuli "Having a local shopkeeper keep the solar panel for the 20-30 recharges until the unit was paid for allowed us to make the product available to our target market without having to worry about credit or handling payments".

Results

KARIBU Solar Power was established as a social enterprise with a very small staff consisting of the three founders and two local employees in Tanzania. The 'rent to own' business model would keep costs low for consumers and provide business opportunities for small local shopkeepers. Any profits would be used to buy more inventory, pay staff and expand the product's distribution.

KARIBU's patented product and unique business model quickly attracted the attention of media and social enterprise activists around the world. The company won a SEED investment from the United Nations and placed in the top five finalists at the 2013 Harvard Social Enterprise Conference. Further recognition followed in the form of awards such as the Engen Business Excellence Award, the Africa Energy Award for small and medium energy company of the year and Corporate Knights 'Top 30 under 30', amongst others.

Adam Camenzuli moved to Tanzania in April 2013 to put KARIBU Solar Power's business plan into effect. Despite an award-winning product and a social enterprise business model that would bring great benefits to Tanzanian consumers and entrepreneurs, Camenzuli soon discovered how difficult it could be to successfully break into a frontier market like Tanzania. Problems included:

- Registrations and business approvals in Tanzania, which ranks 132 in the World Bank's latest 'Ease of Doing Business Index', were tortuous for a small company with no big local sponsors and who refused to pay facilitation fees or bribes;
- Coordinating production and logistics between China, U.S., Canada and Tanzania were exhausting for the company's small executive team;
- Small shopkeepers did not want to pay for a product that they could not immediately sell for a mark-up to recoup their working capital. KARIBU did not have the systems or staff to offer and monitor credit sales; and
- Distribution to remote rural areas was more expensive and complicated than expected. It might take a full day to go to one or two small villages to demonstrate the product then return with no guarantee of a sale.

By the time KARIBU Solar Power was in a position to get some market traction in 2016 the business opportunity had evolved. KARIBU's product was being squeezed at the lower end by very cheap Chinese solar lamps which, although they were not as durable or powerful, could be sold at a price well below KARIBU's break-even production costs and could be shipped together with other super-cheap consumer goods to reduce distribution and logistics costs. At the higher end, mobile telephone companies such as M-KOPA were using pay-as-you-go solar energy solutions to integrate their businesses in a way that made them formidable competitors. Consumers would pay for a phone, pay to charge it, use the telco's payment systems to make payments, add a messaging/data plan and so on. Because they could 'bundle' so many services the pay-as-you-go providers could afford to be loss leaders. Both forms of competition – Chinese corporates and mobile phone operators had much deeper pockets, personnel resources and connections than KARIBU Solar Power could reasonably expect to obtain.

In mid-2016, squeezed by competitors at both the high and low ends and seeing that solar power was making rapid progress in replacing kerosene in rural lighting applications, the company sold its inventory to a Dutch biogas company active in Tanzania and with the resources to support its successful distribution.

Outcomes

Despite an award-winning product and an innovative business model, KARIBU Solar Power's first foray into the Tanzanian market did not succeed as originally hoped. According to Adam Camenzuli "if we had to do it again, we would have done more to be actively 'in market' earlier and raised more capital to build our distribution faster". Despite not being able to maintain market leadership, the founders are pleased with the role they have played in the electrification of rural Tanzania.

The brothers Camenzuli and Sameer Gulamani, all still in their 20s, are now involved in other careers based in Canada.

Moving on from KARIBU Solar Adam Camenzuli recalls "The whole experience had a huge beta ranging from the frustration of dealing with the Tanzanian market and bureaucracy to the

adrenalin rush of recognition by the likes of H.R.H. the Prince of Monaco and Prime Minister Trudeau”. And having caught the entrepreneurial bug, Adam Camenzuli is already looking forward to his next project.