

Beyond the grid:

How Kicheko Ltd, the Ukengee Foundation, and Inveneo are bringing the Internet to the furthest reaches of Tanzania

By Laurel Kropuenske

WHO'S WHO SNAPSHOT

UKENGEER FOUNDATION: a Dutch non-profit group aiming to bring computer education to rural East African secondary schools. www.ukengee.org

INVENEO: a San Francisco-based nonprofit social enterprise that provides communication technology tools, training and ongoing support to in-country partners. www.inveneo.org

KICHEKO LTD: an Internet Service Provider and Inveneo Certified ICT Partner (ICIP) based in Moshi, Tanzania and directed by Eduard Kavishe. www.kicheko.com

Eduard Kavishe is the real deal: part blue-sky visionary thinker, part pragmatic tinkerer. He has that rare and uncanny ability to shift seamlessly in conversation between topics like Tanzanian women's rights and the voltage output requirements of a solar panel. And before he'll even think to talk about the work he and his company, Kicheko Ltd, are doing to help the Ukengee Foundation implement its ambitious vision of bringing computer education to the most rural parts of Tanzania, he'll take the time to paint a picture of possibility for his audience. He'll cite the shockingly high percentage of Tanzanians who still don't have reliable access to electricity—and how new solutions are possible. He'll emphasize the importance that educating girls has in sparking progress both socially and economically. He'll explain the subtle but systemic challenges in attracting high-quality teachers to rural parts of the country. Only when he's confident you grasp the sheer scale of possibility before you, will he move to the specifics of his own work. This is clearly a man who doesn't focus on what has already been done, but on the possibility that lies ahead—and his role in making it a reality.

The momentum surrounding Kavishe is almost palpable. Beginning in 2001, Kicheko began providing the Internet to the Moshi region. Kavishe and his team soon realized, however, that the real task at hand wasn't simply offering the service, it was educating people on the basics: what the Internet was, the benefit of email, how websites could promote business, etc. So they offered classes. Then they realized more people needed computers to access the web. So they built an Internet kiosk. Then people wanted to buy computers, so Kicheko began to sell them—and realized that his team would also need to offer repair and maintenance services. This evolution, being driven by demand but also guided by the Kicheko team's resourcefulness and knowledge, continued until the company was venturing all the way into power and power-backup systems. This newfound expertise



Kavishe and Kicheko team in Moshi

/Photo by Daniel Mushy/



Installation of solar panels at Kilwa Masoko /Photo by Kicheko/

and willingness to tinker would ultimately make Kicheko the perfect choice of partner for the Ukengee Foundation.

In 2008, Inveneo introduced Kavishe to Marijke and Ronald Blom, founders of Ukengee. The Bloms had been traveling throughout Tanzania for several weeks, laying the groundwork for a pilot project that aimed to introduce solar-powered computers and printers to a rural secondary school. After meeting with potential local partners and regional authorities, and scouting out possible sites for the pilot, they decided on a secondary school in Kilwa Masoko, a village in Southern Tanzania. They now needed an in-country partner to help design and install the equipment needed for the lab. This was no easy task. The school took almost two days to reach from the nearest major town, had an unreliable power source, and had the usual challenges of rural areas in developing countries—heat, sand, and wind all ready to destroy delicate equipment. The type of computers used in most developed countries wouldn't stand a chance. Further, the cost to secure

and maintain such equipment would be unthinkable for a local school like Kilwa Masoko. A better solution was needed.

Discussing these challenges and sharing their vision for the organization with Kavishe, the Bloms found a willing and able partner. "We explained our needs for a pilot in the rural area, which Mr. Kavishe fully understood. He was able to show us all the specifics and possibilities at his office. After that, we decided to work closely together to get the best installation we could for our pilot project," says Marijke. While this was relatively virgin territory for Kicheko—it would require designing new and custom configurations for power sources—it was a natural evolution for the company given its adventurous spirit. And for Kavishe, this was about much more than only gigabytes and signal strengths: "When Ukengee contacted us, they asked how we could break the barrier for education of rural girls."

To start with, the Kicheko team needed to solve for power, with the goal of having the 20-computer lab able to run completely off of solar energy. Here, Kicheko's partnership with Inveneo proved invaluable. Inveneo was able to provide Kicheko with Inveneo Certified equipment that offered some key advantages: low power consumption (10% of normal use), solid systems, minimal maintenance requirements, and at a price that worked for Kicheko and Ukengee. "I considered others, but Inveneo was much better in regard to both durability and budget," Kavishe reports.

However, it wasn't simply a matter of taking off-the-shelf equipment and installing it. The setup required generation of AC power for lighting the computer room, and powering the printer, the hub switch and the 20 computers. For



Kilwa Masoko students taking a spin on the new computer

/Photo by Ronald Blom/



Beginning a new chapter at Kilwa Masoko

/Photo by Ronald Blom/

the amount of power needed, an inverter of 5kVa/96V was required. The challenge was how to get a charge controller of 96V to charge 8 batteries using 8 solar panels. This was a technical challenge to which no one seemed to have a ready answer. Kavishe and his Kicheko team ultimately figured out how to re-engineer the current equipment, allowing for the energy output they were looking for. After that, setting up the server, laser printer, battery bank and 20 computers was a piece of cake.

On March 11, 2009, the installation was complete and the official ribbon cutting ceremony a big hit. Students streamed into the freshly painted computer lab, ready to begin a new chapter in their education on the 20 beautiful, highly functioning, highly durable computers. Today, the computer classes at this 850-student school each have roughly 45 students, meaning students double-up on computers, allowing a high degree individual control but also partnership. Chris Nyunza, the Ukengee local Tanzanian coordinator reports that, “It has dramatically changed Kilwa Masoko’s approach to teaching and learning. The students are now able to do research directly from the Internet, creating a high-level of student participation rather than the previous approach where the students were just spoon-fed information. They’re

able to get up-to-date biology and geography information and visuals. They are also very happy and anxious to get world news.”

The larger Kilwa Masoko community is benefiting as well. Local individuals and business owners can come to use the facilities for a small fee (which goes to the school), allowing them to access critical information such as market prices and weather information. Kavishe and Ukengee also hope that by introducing these sort of technology and educational tools into rural locations, more and better teachers will be attracted to the schools. “Having electricity, computers, and Internet access would encourage teachers to go to these areas,” they say.

The success of this pilot project is fueling its replication elsewhere. With plans to build similar labs in 15 or more schools across rural Tanzania (many targeting girls secondary schools), the Ukengee Foundation and Kicheko are just getting started. In July 2009,

Mpunyule Secondary School located in Mandawa became the second school to get its very first lab. This school of 300 students is even more remote than Kilwa Masoko. Students from six different villages walk an average of 12km every day to reach Mpunyule. The lack of electricity means the school doesn’t even have a typewriter, let alone a computer, requiring the headmaster to travel 95km just to type up letters and mail them regarding such things as examinations or school reports.

While the Kicheko team has enjoyed many great accomplishments over the last several years, it’s clear that these recent projects hold significant meaning for Kavishe. Reflecting back on the installation in Madawa in a recent note, Kavishe wrote, “You should have seen the tears of joy and disbelief when they saw the Inveneo computer system installed, working and connected to the Internet. We had to demonstrate almost 20 times that the system can indeed print letters, exam papers, etc., meaning they won’t have to make the daylong trip to do similar tasks anymore. Life will not be the same again for these people.”

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