Empowering Lives in Kenya: The Chebaiywa Clinic

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In January 2009, David Tarus walked through the cow pasture, past his neighbors sitting in front of their mud houses and towards the small building that served as Empowering Lives International (ELI) Kenya’s Kipkaren River headquarters. In his hand was an anonymous letter which, hours before, had been found pinned to the door of ELI’s Chebaiywa Dispensary (the Clinic). The letter contained harsh criticism for the Clinic and its staff, accusing them of neglecting their duty to the community—of miserly preoccupation with fee collection, of disregarding patients’ needs and feelings, and of becoming deaf and blind to the requirements of the community. This was the latest in a series of headaches for Tarus, who days before had been charged by his organization’s board with making the Clinic “financially sustainable.” As the popularly-anointed “bishop” of Kipkaren and director of ELI’s economic and community development efforts in this rural western Kenyan village, Tarus knew that the letter did not represent the majority view. Still, in the context of financial pressures such vocal public criticism gave Tarus pause.

Founded in 2000, the Clinic had grown into an important provider of basic medical care in the Kipkaren community. From its two buildings atop a hill in the neighborhood of Chebaiywa, the Clinic served a catchment area with some 12,000 residents. Management had recently brought on a new clinical officer, installed electricity with solar backup, and sent one employee each to dental and optician schools. The Clinic was also running a huge budget deficit, and relied on external funding for nearly 75% of its operating expenses. Would the Clinic ever be able to support itself financially? Was it even possible for a community of rural maize farmers in western Kenya to support a clinic of this quality?

Tarus had been speaking with several friends and co-workers about his options for improving the Clinic and its performance. The letter required a response, but first Tarus needed answers to several
key questions before he could reach out to the community at large and ask for their support in making the Clinic a long term-success.

Political and Economic Context

Kenya

A nation of 38 million people, Kenya covered nearly 225,000 square miles, from the Indian Ocean at Mombasa in the east to the fertile Kenyan Highlands and Lake Victoria in the west, and from the verdant Masai Mara savannah in the south to the desert bordering Sudan and Ethiopia in the north. Kenya’s fertile land had been occupied by indigenous farming tribes, Arab and European traders, and more recently German colonists (arriving in 1885) followed by the British (arriving in 1890).

Since achieving political independence in 1963, Kenya had developed into a relatively peaceful and economically stable sub-Saharan state, though serious problems still troubled the nation. In January 2008, tribal violence broke out when claims of electoral tampering surrounded the presidential election between President Mwai Kibaki of the south- and east-Kenyan Kikuyu tribe and Raila Odinga of the Luo tribe, largely of western Kenya. Over 1,000 people died and a quarter million were displaced in the weeks that followed, largely in western Kenya from Eldoret to Kisumu. Although this dispute was settled when Kibaki took Odinga on to be his Prime Minister, tension had not dissipated completely one year later. In addition to tribal governmental conflicts, corruption was seen as a widespread problem throughout the country.

In 2008, Kenyans lived on a per capita GDP of US$1,800 (144,000 Kenyan shillings), and the nation ranked 144 out of 179 in the UN Development Programme’s Human Development Index. A 40% unemployment rate posed a considerable challenge to the country, which relied on agricultural products (maize, coffee, tea, sugarcane, beef) and some manufacturing for the bulk of its economic output. The capital city of Nairobi was known as a center of finance and trade for all of East Africa. The relative political stability of the country since independence was a primary reason for this important economic position. GDP growth in 2008 was estimated at 4.1%.

Central Rift Valley: Eldoret and Kipkaren

Approximately 200 miles northwest of Nairobi on the Mombasa to Kampala road, the city of Eldoret served as the hub of the high and agriculturally fertile plains of the Central Rift Valley. While Eldoret was indeed known for its agriculture, its nearly 7,000’ base elevation also made it the birthplace and training ground for Kenya’s elite marathon runners. The village of Kipkaren, 30 miles west of

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Eldoret, was typical of villages in this area. The majority of its approximately 12,000 residents were subsistence farmers, growing largely maize on an average of 1 to 5 acres of land. With maize yielding 180 bushels per acre at 240-400 Ksh (US$3-$5) per bushel, per capita incomes were often lower than the nationwide average. Detailed household income data can be found in Exhibit 1. For many families, the seasonal income and grain stores generated during the late summer harvest needed to last the whole year. As shown in Exhibit 2, land and livestock ownership were the largest portion of personal wealth, paying dividends in the form of milk, eggs, and meat. For most households, education was a major expense, and for larger families school fees could eat up more than half of their annual income. Exhibit 3 provides an example of a typical family budget. A minority of residents had access to electricity, although a majority owned mobile phones. And while a small portion of residents pulled water from clean wells or boreholes, most filled jerry cans from local streams and the Kipkaren River.

Kenya’s Healthcare System

The majority of Kenya’s citizens received healthcare through a multi-level system of government-run facilities. In general, patients received primary care from their nearest government health facility, usually a dispensary or health center, and were referred to more sophisticated facilities when necessary. Government health facilities included:

- **Dispensaries.** Staffed by a registered nurse. Diagnosed and treated mild malaria and flu, and provided simple outpatient services.

- **Health Centers.** Led by a clinical officer and run by a staff of nurses, technicians and other administrators. Provided outpatient and limited inpatient services, laboratory testing, maternal health services and minor surgery.

- **District Hospitals.** Served as a referral center for lower-order facilities. Provided a wide range of inpatient and outpatient services, including surgery.

- **Provincial Hospitals.** There were eight provincial hospitals in Kenya.

- **National Hospitals.** Kenya had two national hospitals: Moi Teaching and Referral Hospital in Eldoret and Kenyatta National Hospital in Nairobi.

In addition to these government facilities, communities were also served by private, for-profit clinics and pharmacies (chemists) and also by non-profit clinics like the Chebaiywa Dispensary. Some larger towns and cities had hospitals run by missionary organizations, or specialist institutions such as the Sabatia Eye Hospital situated halfway between Eldoret and Kisumu. As in other developing nations, non-governmental organizations (NGOs) had set up disease-specific programs and infrastructure in parts of the country to treat patients for HIV/AIDS, tuberculosis, and certain other diseases. The city of Eldoret was the base for one such NGO, AMPATH (Academic Model Providing Access to Healthcare), a collaboration between the Indiana University School of Medicine and Moi University...
School of Medicine that had grown to treat some 70,000 HIV-positive patients at 18 sites in urban and rural western Kenya.5

Healthcare in Kipkaren

As in all of Kenya, the health problems for which residents of Kipkaren most often sought treatment stemmed from infectious disease. Malaria was responsible for 30% of outpatient cases and resulted in the death of 36% of children before they reached their first birthday.6 Malaria, which was spread by mosquitoes, affected the population year round. However, the infection rate was the highest during and after the rainy season, which lasted from March to June, at which time malaria treatment could exceed two-thirds of all treatments delivered. HIV/AIDS prevalence was 6.8% in 2003, but was reported to have risen to 7.3% by 2007.7 Hepatitis A, tuberculosis, typhoid and various diarrheal diseases were also common.

For most patients, decisions pertaining to health care came down to price. During the harvest months of August and September, cash might be available for medicine, but after the harvest there was usually very little money left. Families might wait until symptoms became severe and then sell a chicken or goat to pay for services, or sometimes not visit a clinic at all. In addition to price, quality of service factored into decisions, as compassionate treatment, drug availability, drug quality and proper diagnosis through laboratory tests were highly valued by patients, even if they were at times out of financial reach. Finally, distance of travel and means of transportation (or lack thereof) could act as a major barrier to receiving care. Transportation was primarily by foot, or via the hire of a motorbike or bicycle. For many, this meant that a trip to a medical care facility necessitated forgoing a day of work.

Residents of Kipkaren had several options for health care (Exhibit 4). Most residents were within walking distance (<2 hours) of one of two government dispensaries, which provided treatment for a consultation fee of 50 Ksh. While most patients considered these clinics affordable, they also complained that long queues meant service could take as much as a day, staff were often insensitive and demeaning, and more often than not, patients had to purchase prescription drugs from a private pharmacist at higher prices due to government clinic stock-outs.

Meanwhile, four non-governmental clinics operated in Kipkaren center. Three private clinics staffed by doctors or nurses had a reputation for high quality care, attentive staff, and prices often 10 or 20 times higher than government clinics.

5 http://www.medicine.iupui.edu/kenya/
6 http://www.newsfromafrica.org/newsfromafrica/articles/art_596.html.
ELI’s Chebaiywa Dispensary (the Clinic) was the only non-profit or missionary clinic in the area. Its reputation for quality and friendliness had traditionally rivaled that of private clinics, recent controversy notwithstanding, and its prices averaged approximately 20% of those at private clinics. (See price list in Exhibit 5.)

ELI

Empowering Lives International (ELI), which by 2009 had operations in four African countries including Kenya, was the brainchild of American Christian missionary Don Rogers. Rogers founded ELI in 1994 not only to minister to Africans, but also to address the physical suffering faced by the communities in which he ministered. In 2009, ELI continued this “holistic work” in “spreading both the Word of God and practical ideas for breaking the cycle of poverty at the village level.” ELI was headquartered in Los Angeles, where a largely American staff raised funds for global operations. In Kipkaren and other sites in Africa, operations were run by nationals working with Americans on long-term or permanent missions. The ratio of nationals to Americans was approximately 10:1. Salaries and operating expenses were generally paid for by American donations. Additionally, volunteers from the United States participated each year in short-term opportunities at ELI sites in Kenya and other sub-Saharan African countries.

The organization carried out its goal of “remov[ing] the barriers that hinder spiritual transformation” by building and running programs to economically empower communities. Key to ELI’s strategy were five Skills for Life training centers across Kenya, Tanzania, the Congo and Sudan. In 2006, the training centers provided ecumenical, agricultural, animal husbandry, vocational, and other life skills training for more than 1,000 people in sustainable agriculture. Tumaini na Afya, which translates from Swahili as “hope and health,” served as ELI Kenya’s umbrella organization for many of its social programs, including training centers, health clinics, home based care, an orphanage, and outreach programs to reduce problems such as drug and alcohol abuse. In 2004 and 2006, ELI established two children’s homes in Kenya, including one in Kipkaren. In each, 96 children orphaned by AIDS, alcoholism, and disease lived as part of four family groups, attended school at ELI-operated private community schools, and received health care from ELI-operated community clinics including the Chebaiywa Dispensary. In fact, the Kenyan government legally required that each children’s home have ready access to such a clinic.

ELI in Kipkaren

It was no exaggeration to say that, with different motivations, David Tarus, ELI’s director in Kipkaren, could have been one of Africa’s legendary military-political strongmen. Over six feet tall and of imposing build, Tarus’ booming voice, charismatic persona, gift for storytelling and pastor’s inflection commanded respect and rapt attention from all around. He was a selflessly devoted and

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8 ELI website: http://www.empoweringlives.org/about.html.
9 ELI training manual.
inspirational leader in the community of Kipkaren, and his vision had transformed the village from just another truck stop between Nairobi and Uganda’s capital Kampala into a community with an economic and spiritual center.

In the Kipkaren neighborhood of Chebaiywa, Tarus, along with deputies for whom he served as pastor and mentor, had established a complex which included an ELI training center, children’s home, primary school, organic farm, and clinic. By 2009, ground had been broken on a secondary school, as the first class of primary school children were soon to finish Standard 8 (equivalent of the 8th grade in the United States). Several other community empowerment projects were also underway. A new bridge connecting the village of Ng’enyilel with ELI’s school and clinic was ready for use as soon as Ng’enyilel was connected to it by a road. In the center of town, concrete was being poured to support the 6,000-liter vats of a new milk cooling facility, which would allow local dairy farmers to more than double their output and income once completed.

ELI’s health activities in Kipkaren focused on two areas: the Clinic and outreach programs, largely for HIV/AIDS and alcoholism. HIV/AIDS outreach, operating under the Tumaini na Afya banner, was a particular strength of the organization, and its community interventions and rallies were known to bring in up to 120,000 people for voluntary HIV counseling and testing. Tumaini na Afya also operated a home-based HIV care program from Chebaiywa. In addition to HIV outreach, ELI Kenya staff and volunteers worked to prevent and treat alcoholism, having provided economic opportunities for 430 unlicensed alcohol distillers, run an intensive two-month rehabilitation program for alcoholics at the Kipkaren training center, and raised community alcohol abuse awareness through soccer tournaments and other programs.

The Chebaiywa Dispensary

ELI Kenya’s Chebaiywa Dispensary was born out of personal tragedy. One evening in 1998, Tarus’ family sat around their outdoor kitchen’s open fire as water came to a boil for their staple starch, ugali. Suddenly, Tarus’ five-year-old niece came racing through, chased by a sibling, and before the adults could react she had fallen into the boiling pot. Hearing screams, Tarus came racing out of the house, scooped up the burned and screaming child, and lacking a car, access to an ambulance, or even a bicycle, began the 2.5 mile trek to the nearest clinic. By the time he arrived the sun had set, the rain was pouring, and the government clinic was closed for the day. He then carried the anguished child another two miles to a private clinic, where after two hours of pleas, protestations, and negotiations, the staff agreed to treat the child by offering her a bed and some aspirin. Unfortunately the hours of travel and waiting had taken their toll on the girl, who did not survive. The experience distressed Tarus to a point where “God planted a vision in his heart to begin a clinic in his own community.”

He donated one acre of his land as a site for the Clinic, which he and his father cleared by hand, and members of a local church raised funds to construct the first building in 2000.

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11 Allison Tjaden, personal interview.
By 2009, the Clinic had expanded from one building to two, and from one nurse to a staff of seven. Electricity had been brought in a few years earlier, although there was still no access to clean running water. The Clinic was registered with the Kenyan government as a “mission,” meaning it belonged to a church, and salaries were funded by ELI’s international donors. ELI also provided fundraising support for specific capital expenditures such as new buildings and equipment. The Clinic was overseen by a 15-member committee—three members of the Clinic staff, eight church members, two ELI missionaries, and two members of the ELI Board—who met monthly to discuss issues related to the Clinic.

With a clinical officer, two nurses, a pharmacist, and a lab technician on staff, the Clinic provided primary care for routine medical issues: malaria, diarrheal diseases, childhood immunizations, and pre- and post-natal care in addition to emergency childbirth. A dentist and an optometrist in training, each of whom saw a limited number of patients each week, also served on the Clinic staff. A recent activity analysis revealed that the Clinic was adequately staffed to handle the patient volume (Exhibit 6).

Registered as a “dispensary,” the Clinic was limited in the services it could provide, but management hoped to transition it to a “health center,” licensed to provide full maternity and dental services. Steps had been taken towards this goal, such as hiring a more highly-trained clinical officer, but health center status would require running water, and drilling a well would cost 4 million Ksh. Two Clinic staff—the clinical officer and one nurse—lived on the grounds with their families and provided on-call care 24 hours per day. Importantly, the Clinic also had access to an ambulance for transporting serious cases to Eldoret for tertiary care.

In addition to acute medical treatments, the Clinic provided a limited array of preventive health services, and educational materials were available to those who wanted them. Until recently the Clinic had distributed insecticide-treated mosquito nets, although government programs had taken over that role. Water purification tablets were also available, though sales were minimal due to the aftertaste from drinking such water. The Clinic provided outreach activities to local schools and had set up mobile clinics in neighboring communities, and had seen an uptick in patients from the communities in which mobile clinics operated. An innovative program trained traditional birth attendants in basic midwifery, improving the care available to mothers who preferred traditional at-home births. The Clinic also served as a government-certified HIV Voluntary Counseling and Testing Center, and partnered with the Eldoret-based NGO AMPATH for HIV treatment and outreach.

As members of a mission-supported organization, and part of the ELI Kipkaren community, the Clinic committee and staff held themselves to high standards relative to government and even private clinics. Facilities were clean and well-stocked. Staff had policies and procedures in place to ensure respectful and compassionate treatment of patients, and feedback from the community was in general very positive. Furthermore, to maintain quality, ELI provided funds for Clinic staff to pursue ongoing
education to maintain their knowledge and skills in both medicine and customer service. Providing attentive and personalized customer service was a significant challenge for the sizable staff, who had minimal process standardization and little experience thinking from the customer’s point of view.

At the outset, the Clinic’s services were offered at no cost to the patients, funded instead by donations by Americans and Kenyans. Often, mission doctors would arrive for one- or two-week stints, providing free specialty services such as dental or eye care. In 2004, however, things changed. Funding issues and the dictates of ELI’s long-term strategy—namely trying to balance its core missions of ministry and education with providing community services—pushed the Clinic to transition to fee-for-service care. Even though these fees were two to three times less than those charged by private clinics, many community members were upset, and accused the committee of greed and failing to adhere to the ELI mission. Indeed, some Clinic staff silently dissented with the new policies, and refused to charge fees or greatly reduced them for patients in need.

The fees charged by the Clinic were set to cover variable costs such as medicines and supplies with an approximate 30% margin, but were in the end wholly inadequate to cover all operating expenses. (See Exhibit 7 for the 2008 income statement.) By 2009, the Clinic was running an annual deficit of approximately 1.4 million Ksh on revenues of 490,000 Ksh, a nearly 300% deficit. Under pressure from the committee to become more “sustainable,” Clinic staff had recently begun to enforce a strict policy on patient debts, which angered some patients and yet made very little impact on the bottom line. With the global economy contracting and charitable donations shrinking, Tarus and other committee members were concerned about the Clinic’s future viability. Tarus also believed that the long-term solution to providing quality healthcare in Kipkarren was economic development. It was risky to rely on donor aid because it could dry up. By fostering the economic health of the community, the ELI approach held the promise that patients could eventually afford to support their own clinic for generations to come.

What would it take to make the Clinic financially viable? Was it even reasonable to think that the community could support the Clinic?

The Path Forward

Brainstorming late one night with his wife, Allison, and chief deputy, Peter, Tarus had begun to consider several areas of change which might have a financial impact on the Clinic.

Quality Improvements

Tarus had a feeling that the quality of overall customer care could be better at the Clinic. But, at the same time, he felt that the quality of care available at government clinics was significantly worse. For example, government clinics had routine stockouts of necessary medicine, and Tarus had heard only occasional complaints that Chebaiywa didn’t have medicine—for the most part, medications seemed to be available.
Beyond the availability of medicine, Tarus had the feeling that the Clinic staff could improve its focus on overall patient satisfaction by treating patients with a level of empathy and care equal to that of the private clinics, but was not sure whether this would really make a difference in the Clinic’s financial performance. He also was not sure how to articulate this need to the Clinic staff.

**Cost Improvements**

The Clinic’s revenues covered its operating, non-salary costs, but perhaps there was room to improve cost management. Tarus knew that most medicines were purchased on a once-weekly trip by a Clinic staff member who took a *matatu* (public transportation) to Eldoret and bought needed supplies at a retail chemist (pharmacy) whose prices were trusted. The Clinic staff had assured Tarus that there was no significant difference between these prices and those charged by the Mission for Essential Drugs and Supplies, an organization that supplied medicines to over 1,000 health-care delivery organizations in Kenya, including others in the area.

**New Payment Options**

Tarus continued to wonder about the payment scheme at the Clinic, specifically whether fee-for-service was the right revenue model. One of the ELI managers in the United States had wondered if an insurance or membership model might work. Given that most people in Kipkaren received monetary income only during the annual maize harvest, there might be an opportunity for the Clinic to set up a pre-payment program whereby people paid health fees in advance.

This was an intriguing idea. After all, pre-paid mobile phone minutes had become a staple of life in Kipkaren, and the analogy seemed clear. A model to collect payments when money was relatively plentiful could address the liquidity problem people faced when they wanted health care during other seasons of the year.

But would people be willing to pay? Tarus thought patients might resist the prepayment idea or, worse, subscribe to it with unreasonable expectations. People might feel that prepayment entitled them to dictate terms for their own care or receive care more expensive than their balance allowed, simply because the Clinic had already taken their money.

Even if people were willing to pay, there were many specific variants on the theme such as a pure insurance model or a “health savings account” model. Tarus had heard about insurance programs in nearby Rwanda, known as “mutuelles,” and he knew that a number of micro-insurance schemes had been tried by NGOs and church groups around Kenya, but none he knew of had succeeded to any major degree.
Pricing

The Clinic tried to maintain a relatively affordable fee structure for its patients, but Tarus knew that it continued to suffer from the perception of some that as a “missionary” entity the Clinic should never charge for services. But Chebaiywa was still significantly cheaper than the private clinics—perhaps it could gain margins by raising prices across the board.

Another possibility was to somehow charge more to those with a higher willingness or ability to pay for services. A small portion of the local population was relatively wealthy and could afford to pay a great deal in medical costs; maybe the Clinic could offer house-call services at a premium price, or guarantee “special access” to the medical staff upon walking into the Clinic. It seemed such services would be profitable, but it was unclear what impact they would have on the Clinic’s ability to serve the rest of the non-premium patients. Perhaps a more simple solution would be to merely assess a family’s wealth and charge on a sliding scale.

Marketing

Simply getting more patients in the door would help to close the gap—the gross margin was positive on every single Clinic transaction. But there remained the question of how many more patients the Clinic could handle, and how to attract them. Tarus believed word of mouth was the most powerful advertising mechanism. As a respected community leader, he was certainly in a position to drive word of mouth—but what should the message be, and where and to whom should it be delivered?

Tarus was also intrigued by the possibility of combining pricing with marketing by issuing customer loyalty cards similar to those he had seen in U.S. supermarkets. The Clinic could offer a discount with the use of a free card, in turn encouraging loyalty from customers.

New Services

Another avenue to consider was new services beyond those currently offered by the Clinic. For example, several members of the community had complained that they had to go far away to get insulin for their diabetes treatments, and asked why the Clinic couldn’t offer diabetes care.

Tarus’ ambitions to transform the dispensary into a health center would allow the Clinic to offer inpatient care and non-emergency maternity services. Across the main road in the next district, Lumakanda district hospital delivered over 500 infants every year. Could some of those deliveries take place in Chebaiywa? At a price of 1,000 Ksh per delivery, maternity services could have a big impact on the Clinic’s income.

Likewise, the lab technician in the Clinic argued strongly for acquiring a CD-4 counter to conduct blood cell counts and enable direct monitoring of HIV patients. Currently the Clinic transported its HIV patients every week to an AMPATH satellite clinic in Turbo, about 10 kilometers down mostly unpaved roads. HIV care also had the advantage of being funded by the government and NGOs.
However, full HIV care would require tuberculosis care as well, for which an x-ray machine was essential.

Dental services were another area of potential expansion. ELI Kenya was sponsoring one of the staff through dental school already, and he was performing extractions once a week at Chebaiywa. He was eager to set up a full dental practice including fillings and tooth scaling. But the startup costs were significant: 710,000 Ksh just to get a proper dental chair. Furthermore, dental services could only be provided once the Clinic had running water, which would cost 4 million Ksh. The staff, after analyzing competitive market information, summarized in Exhibit 8, believed the dental services could be very profitable for the Clinic. Tarus, however, had his doubts as only a few patients per week were coming for the Saturday extractions, generating close to zero revenue for the Clinic.

Optical services were another part-time offering, as one of ELI’s sponsorees—a former clerical worker at the Clinic—was studying optometry at an eye hospital a few hours away. But much like dental, the services were limited and the number of patients small. Only two or three patients came in for glasses every week, and more investment would be needed as the Clinic’s stock of donated lenses and frames was dwindling. Based on available market information, the staff member was convinced that expanding the service offering would generate significant profit. (See Exhibit 9.) However, 300,000 Ksh would be required in order to expand services to offer more complex lenses like distance lenses or bifocals.

External Funding

One of the questions that kept coming up in Tarus’ conversation with the Clinic committee was whether Chebaiywa needed to be a self-sustaining entity. After all, it was intimately connected to the rest of ELI’s operations: the school, orphanage, and training center were served by the Clinic. Perhaps there was a way to subsidize the Clinic by tapping into revenue from these operations.

Along these lines, Tarus had two ideas. The first involved the milk cooling facility that he was building as a for-profit business. The facility would buy small quantities of milk from individual farmers each day, test and cool the milk, and sell the aggregated milk to processing companies in Eldoret. Tarus expected that this facility would become profitable quickly and generate much higher incomes for the local farmers as well. Perhaps the profits from this facility could be used to subsidize the Clinic. Or, even more interestingly, perhaps the cooling facility would present an opportunity for ELI to encourage farmers to devote a portion of their profits to a Clinic subscription or health savings account.

Another income-generating idea was to build grain storage facilities so that farmers could sell maize when the market price was high rather than immediately following harvest. As with the milk-cooling facility, such a business could either subsidize the Clinic directly or serve as a means for farmers to invest a portion of their incomes in health care.
And finally, perhaps Tarus could simply make a stronger case to the ELI Board for continued donor funding of the Clinic. Compared to some of the other options, it might be easiest simply to invest time in finding more overseas donors to maintain or even grow the number of Clinic funders.

**Conclusion**

With decisions to make, Tarus did not know where to begin. Could internal changes to the Clinic sustain operations? Would outside support always be necessary? Could a community the size of Kipkaren support the Chebaiywa Clinic, particularly with so many other provider options around? Tarus did not feel comfortable that he even knew where the real problems lay, let alone what to do about them. He leaned back in his chair, blew the steam off his chai, and prayed for inspiration.
**Exhibit 1  Average Household Income and Employment Status**

<table>
<thead>
<tr>
<th>Income and Employment</th>
<th>Western Kenya</th>
<th>Random Sample Households</th>
<th>Mean</th>
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</thead>
<tbody>
<tr>
<td><strong>Adults over 18 years</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Activities in past 7 days</strong></td>
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</tr>
<tr>
<td>Worked for a wage</td>
<td>17%</td>
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<tr>
<td>Worked on own farm</td>
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</tr>
<tr>
<td>Worked in own business</td>
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<td></td>
</tr>
<tr>
<td>No work done in past week</td>
<td>12%</td>
<td></td>
<td></td>
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<tr>
<td><strong>Activities in past 1 year</strong></td>
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<td></td>
</tr>
<tr>
<td>Worked for a wage</td>
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<td></td>
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<tr>
<td>Worked on own farm</td>
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<td>Worked in own business</td>
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<td></td>
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<tr>
<td><strong>Total hours worked in past week</strong></td>
<td>34.3</td>
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<td></td>
</tr>
<tr>
<td><strong>Total income in past month (Ksh)</strong></td>
<td>2,354</td>
<td></td>
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</tr>
</tbody>
</table>

| Households (Ksh) |               |                          |       |
| Total income in past month | 7,250  |                          |       |
| Wage              | 3,360         |                          |       |
| Farm              | 1,984         |                          |       |
| Business          | 1,906         |                          |       |
| Total per-capita income in past month | 1,276  |                          |       |
| Total per-capita income in past year | 15,312 |                          |       |

*Exchange rate: 80 Ksh = US$1 (January 2009).*

**Exhibit 2  Asset Ownership, Western Kenya**

<table>
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<tr>
<th>Asset Ownership</th>
<th>Random Sample Households</th>
<th>Mean</th>
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<tr>
<td>Acres</td>
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<td>6.74</td>
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<tr>
<td>Value per acre</td>
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<tr>
<td>Livestock (value)</td>
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</tr>
<tr>
<td>Cows</td>
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<td>47,879</td>
</tr>
<tr>
<td>Calves</td>
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<td>7,464</td>
</tr>
<tr>
<td>Goats</td>
<td></td>
<td>905</td>
</tr>
<tr>
<td>Sheep</td>
<td></td>
<td>3,574</td>
</tr>
<tr>
<td>Chickens</td>
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<td>1,076</td>
</tr>
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<td>Total value</td>
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<td>60,820</td>
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<td>Farm equipment</td>
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<td>Large equipment</td>
<td></td>
<td>13,384</td>
</tr>
<tr>
<td>Small equipment</td>
<td></td>
<td>1,376</td>
</tr>
<tr>
<td>Transport (cars, bikes, etc)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Value</td>
<td></td>
<td>14,846</td>
</tr>
<tr>
<td>Consumer Durables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total value</td>
<td></td>
<td>7,227</td>
</tr>
<tr>
<td>Total Assets</td>
<td></td>
<td>780,912</td>
</tr>
<tr>
<td>Total Assets (land value at median)</td>
<td></td>
<td>767,966</td>
</tr>
<tr>
<td>Total Assets (without land)</td>
<td></td>
<td>98,285</td>
</tr>
</tbody>
</table>


**Exhibit 3 Sample of a Family Budget in Kenya, Kipkaren region**

(8 people--2 parents, 6 children)

2 children in secondary school, 3 in primary or nursery school, 1 not in school

<table>
<thead>
<tr>
<th>Item</th>
<th>MONTHLY AMOUNT (Ksh)</th>
<th>YEARLY AMOUNT (Ksh)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FOOD--monthly</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar 5kg @ 80</td>
<td>400</td>
<td>4,800</td>
</tr>
<tr>
<td>Tea leaves</td>
<td>100</td>
<td>1,200</td>
</tr>
<tr>
<td>Cooking fat 2kg @ 160</td>
<td>320</td>
<td>3,840</td>
</tr>
<tr>
<td>Salt</td>
<td>10</td>
<td>120</td>
</tr>
<tr>
<td>Tomatoes/onions</td>
<td>100</td>
<td>1,200</td>
</tr>
<tr>
<td>Sukuma wiki Ksh 20/day</td>
<td>600</td>
<td>7,200</td>
</tr>
<tr>
<td>Soaps (5 bar soaps @ 70 + omo 100)</td>
<td>450</td>
<td>5,400</td>
</tr>
<tr>
<td>Paraffin 3L @ 70</td>
<td>210</td>
<td>2,520</td>
</tr>
<tr>
<td>Flour 2 packets @ 120</td>
<td>240</td>
<td>2,880</td>
</tr>
<tr>
<td>Royco</td>
<td>65</td>
<td>780</td>
</tr>
<tr>
<td>Meat 2kg @ 180</td>
<td>360</td>
<td>4,320</td>
</tr>
<tr>
<td>Fruits</td>
<td>100</td>
<td>1,200</td>
</tr>
<tr>
<td>Grinding maize 24 korokoros @ 7</td>
<td>168</td>
<td>2,016</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td><strong>3,123</strong></td>
<td><strong>37,476</strong></td>
</tr>
<tr>
<td><strong>HEALTHCARE--yearly</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 visits/year x 200</td>
<td>167</td>
<td>2,000</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td><strong>167</strong></td>
<td><strong>2,000</strong></td>
</tr>
<tr>
<td><strong>SCHOOL FEES/NEEDS (5 children)--yearly</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary school 2 x 25,000</td>
<td>4,167</td>
<td>50,000</td>
</tr>
<tr>
<td>Primary school 3 x 15,000</td>
<td>3,750</td>
<td>45,000</td>
</tr>
<tr>
<td>Shopping/supplies 5 children x 3 terms x 3,000</td>
<td>3,750</td>
<td>45,000</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td><strong>11,667</strong></td>
<td><strong>140,000</strong></td>
</tr>
<tr>
<td><strong>FARMING (2 acres)--yearly</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seeds 1 bag x 2,000</td>
<td>167</td>
<td>2,000</td>
</tr>
<tr>
<td>Fertilizer 4 bags x 3,500</td>
<td>1,167</td>
<td>14,000</td>
</tr>
<tr>
<td>Tractor 2 acres x 1,500</td>
<td>250</td>
<td>3,000</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td><strong>1,583</strong></td>
<td><strong>19,000</strong></td>
</tr>
<tr>
<td><strong>COWS (2 cows)--monthly</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dipping 2 cows x 4 weeks x 15</td>
<td>120</td>
<td>1,440</td>
</tr>
<tr>
<td>Salt</td>
<td>500</td>
<td>6,000</td>
</tr>
<tr>
<td>Cowboy</td>
<td>500</td>
<td>6,000</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td><strong>1,120</strong></td>
<td><strong>13,440</strong></td>
</tr>
<tr>
<td><strong>CLOTHING (once per year)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents</td>
<td>167</td>
<td>2,000</td>
</tr>
<tr>
<td>4 girls x 1,500</td>
<td>500</td>
<td>6,000</td>
</tr>
<tr>
<td>2 boys x 2,500</td>
<td>417</td>
<td>5,000</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td><strong>1,083</strong></td>
<td><strong>13,000</strong></td>
</tr>
<tr>
<td><strong>TRANSPORT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td><strong>1,000</strong></td>
<td><strong>12,000</strong></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>19,743</strong></td>
<td><strong>236,916</strong></td>
</tr>
</tbody>
</table>


August 13, 2009
**Exhibit 4  Location of Chebaiywa and Other Local Clinics**

<table>
<thead>
<tr>
<th>Clinic Name</th>
<th>Visits Per Year</th>
<th>Source</th>
<th>Capacity</th>
<th>Source/Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chebaiywa</td>
<td>3,000</td>
<td>Chebaiywa data</td>
<td>7,000</td>
<td>Time measurement studies</td>
</tr>
<tr>
<td>Osirangai (Govt)</td>
<td>3,133</td>
<td>Clerk interview</td>
<td>5,200</td>
<td>20 per day in malaria season</td>
</tr>
<tr>
<td>Ng’enyilel (Govt)</td>
<td>7,800</td>
<td>Interview at clinic</td>
<td>7,800</td>
<td>Assumes current usage is peak</td>
</tr>
<tr>
<td>Private Clinic 1</td>
<td>2,730</td>
<td>Clinic Owner</td>
<td>4,680</td>
<td>Peak usage of 15 per day</td>
</tr>
<tr>
<td>Private Clinic 2</td>
<td>2,730</td>
<td>Estimate</td>
<td>4,680</td>
<td>Estimate</td>
</tr>
<tr>
<td>Private Clinic 3</td>
<td>2,730</td>
<td>Estimate</td>
<td>4,680</td>
<td>Estimate</td>
</tr>
</tbody>
</table>

Source: Interviews with ELI Kenya staff, others as noted, and authors’ extrapolations, January 2009.
**Exhibit 5  Chebaiywa Clinic Services and Prices**

Charges for Selected Conditions and Other Services Offered (2008)

<table>
<thead>
<tr>
<th>LABORATORY CHARGES</th>
<th>KSH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widal test (for typhoid fever)</td>
<td>100</td>
</tr>
<tr>
<td>Blood slide for malarial parasites</td>
<td>50</td>
</tr>
<tr>
<td>Brucelline test</td>
<td>100</td>
</tr>
<tr>
<td>Stool for ova &amp; cyst</td>
<td>50</td>
</tr>
<tr>
<td>Haemoglobin level</td>
<td>100</td>
</tr>
<tr>
<td>Blood grouping</td>
<td>100</td>
</tr>
<tr>
<td>Pregnancy test</td>
<td>100</td>
</tr>
<tr>
<td>Urinalysis</td>
<td>100</td>
</tr>
<tr>
<td>VDRL</td>
<td>100</td>
</tr>
<tr>
<td>ANC profile (for pregnant women)</td>
<td>200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>KSH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaria in adults (simple)</td>
<td>180</td>
</tr>
<tr>
<td>Malaria in children (simple)</td>
<td>150</td>
</tr>
<tr>
<td>Complicated malaria (adults &amp; children)</td>
<td>250</td>
</tr>
<tr>
<td>Trauma wounds (suturing/stitching)</td>
<td>300</td>
</tr>
<tr>
<td>Trauma wounds (simple/clean &amp; dress)</td>
<td>200</td>
</tr>
<tr>
<td>Typhoid fever</td>
<td>300</td>
</tr>
<tr>
<td>Respiratory tract infections (adult)</td>
<td>180</td>
</tr>
<tr>
<td>Respiratory tract infections (child)</td>
<td>150</td>
</tr>
<tr>
<td>Dental caries</td>
<td>120</td>
</tr>
<tr>
<td>Urinary tract infections</td>
<td>200</td>
</tr>
<tr>
<td>Diarrhoeal diseases (children w/o dehydration)</td>
<td>150</td>
</tr>
<tr>
<td>Diarrhoeal diseases with dehydration (infusion)</td>
<td>250</td>
</tr>
<tr>
<td>Dehydration in adults</td>
<td>300</td>
</tr>
<tr>
<td>Skin disorders (adults &amp; children)</td>
<td>150</td>
</tr>
<tr>
<td>Asthmatic attack (adults &amp; children)</td>
<td>200</td>
</tr>
<tr>
<td>Arthritis</td>
<td>150</td>
</tr>
<tr>
<td>Abscesses (incision &amp; drainage)</td>
<td>150</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EMERGENCY DELIVERIES</th>
<th>KSH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Augmented labor &amp; delivery</td>
<td>1,300</td>
</tr>
<tr>
<td>Normal labor &amp; delivery</td>
<td>1,000</td>
</tr>
<tr>
<td>Delivery with episiotomy</td>
<td>1,300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MCH</th>
<th>KSH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANC first visit</td>
<td>70</td>
</tr>
<tr>
<td>ANC subsequent visits</td>
<td>30</td>
</tr>
<tr>
<td>Baby immunization first visit</td>
<td>70</td>
</tr>
<tr>
<td>Baby immunization re-visit</td>
<td>30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FAMILY PLANNING</th>
<th>KSH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depo provera injection</td>
<td>50</td>
</tr>
<tr>
<td>Oral contraceptive pills</td>
<td>20/cycle</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DENTAL DEPARTMENT</th>
<th>KSH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tooth extraction</td>
<td>300</td>
</tr>
<tr>
<td>Extraction with antibiotics</td>
<td>400</td>
</tr>
</tbody>
</table>

*Procedure charges includes treatment (drugs) given to patient.

*Exchange rate: 80 Ksh = US$1 (January 2009).*

*Source: Clinic data.*
Exhibit 6  Chebaiywa Clinic Capacity Utilization

Source: Clinic data, January 2009.
### Exhibit 7  Chebaiywa Clinic Income, 2008

| Chebaiywa Dispensary Income Statement, 2008 | Jan 08 | Feb 08 | Mar 08 | Apr 08 | May 08 | Jun 08 | Jul 08 | Aug 08 | Sep 08 | Oct 08 | Nov 08 | Dec 08 E | 2008 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Revenue** | 25,130 | 25,990 | 37,720 | 44,605 | 31,940 | 32,010 | 34,045 | 32,930 | 19,860 | 29,560 | 28,420 | 17,110 | 359,320 |
| Treatment | 4,800 | 2,500 | 2,400 | 900 | 3,000 | 1,800 | 5,400 | 7,400 | 6,900 | 3,200 | 28,540 | 59,075 |
| Dental | 5,290 | 6,065 | 6,470 | 2,780 | 5,970 | 2,850 | 6,420 | 1,740 | 5,370 | 4,740 | 6,830 | 4,550 |
| **Total Revenue** | 35,220 | 34,555 | 50,040 | 52,485 | 42,440 | 39,790 | 46,815 | 39,170 | 33,260 | 43,800 | 43,100 | 24,860 | 485,535 |
| **COGS** | 18,240 | 31,880 | 20,920 | 23,650 | 21,431 | 14,386 | 14,308 | 20,300 | 20,000 | 22,150 | 24,180 | 3,200 | 234,645 |
| Drugs | 4,550 | 4,576 | 4,110 | 6,600 | 5,650 | 1,330 | 13,500 | 40,316 | 2,870 | 8,100 |
| Lab + Supplies | 1,600 | 270 | 500 | 500 | 1,000 | 1,000 | 1,000 | 1,000 | 2,600 | 3,040 |
| **Total COGS** | 24,390 | 39,226 | 25,230 | 32,590 | 27,581 | 16,216 | 28,808 | 20,800 | 21,000 | 22,150 | 25,180 | 5,800 | 288,971 |
| **Gross Profit** | 10,810 | (4,671) | 24,810 | 19,895 | 14,859 | 23,574 | 18,007 | 18,370 | 12,260 | 21,650 | 17,920 | 19,060 | 196,564 |
| **Gross Margin** | 31% | -14% | 50% | 38% | 35% | 59% | 47% | 37% | 49% | 42% | 77% | 40% |
| **SG&A** | 900 | 600 | 1,500 | 900 | 900 | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | 400 |
| Photocopies | 200 | 640 | 1,500 | 900 | 1,000 | 1,500 | 1,500 | 1,500 | 3,500 | 1,500 | 12,840 |
| Transport | 2,812 | 3,160 | 3,000 | 3,000 | 4,200 | 5,797 | 4,200 | 5,000 | 4,910 | 4,000 | 45,139 |
| **Total SG&A** | 6,082 | 7,388 | 10,240 | 6,500 | 12,395 | 15,597 | 11,900 | 11,160 | 11,300 | 20,810 | 16,200 | 5,920 | 135,622 |
| **Salaries** | 27,110 | 27,110 | 27,110 | 27,110 | 27,110 | 27,110 | 27,110 | 27,110 | 27,110 | 27,110 | 325,322 |
| **Total Salaries** | 117,598 | 117,598 | 117,598 | 117,598 | 117,598 | 117,598 | 117,598 | 117,598 | 117,598 | 117,598 | 1,411,178 |


**Source:** Chebaiywa Clinic.
**Exhibit 8 Market for Dental Services**

**Eldoret - Dentist**

<table>
<thead>
<tr>
<th>Dentists in Eldoret</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients per day</td>
<td>22</td>
</tr>
<tr>
<td>Patients from outside Eldoret</td>
<td>80%</td>
</tr>
<tr>
<td>How far do patients come from (km)</td>
<td>80</td>
</tr>
<tr>
<td>Patients performing Fillings and Root Canal</td>
<td>60%</td>
</tr>
<tr>
<td>Revenue from extractions and other services</td>
<td>40%</td>
</tr>
</tbody>
</table>

**Price Comparison**

<table>
<thead>
<tr>
<th>Service</th>
<th>Government Health Center</th>
<th>Chebaiywa Pricing</th>
<th>Chebaiywa Cost Estimate</th>
<th>Service Time (in mins)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraction</td>
<td>500</td>
<td>300</td>
<td>61</td>
<td>40</td>
</tr>
<tr>
<td>Cleaning</td>
<td>500</td>
<td>100</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Scaling</td>
<td>1000</td>
<td>200</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Polishing</td>
<td>500</td>
<td>100</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Fillings Simple</td>
<td>1500</td>
<td>500</td>
<td>220</td>
<td>45</td>
</tr>
<tr>
<td>Fillings Complex</td>
<td>1500</td>
<td>1200</td>
<td>286</td>
<td>60</td>
</tr>
<tr>
<td>Fillings Composite</td>
<td>2000</td>
<td>500</td>
<td>268</td>
<td>45</td>
</tr>
<tr>
<td>Fillings Composite Compex</td>
<td>2000</td>
<td>1800</td>
<td>650</td>
<td>60</td>
</tr>
<tr>
<td>Root Canal Pre Molars</td>
<td>2000</td>
<td>882</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Root Canal Molars</td>
<td>5000</td>
<td>3000</td>
<td>1295</td>
<td>100</td>
</tr>
</tbody>
</table>

*Exchange rate: 80 Ksh = US$1 (January 2009).*

*Source: Interviews with ELI Kenya and private clinic staff, January 2009.*
### Exhibit 9  Market for Optical Services

**Eldoret - Eye Care**

- Optometrist in Eldoret: 2
- Patients on File (per Optometrist): 7200
- Patients from outside Eldore: 45%
- Radius Served (km): 70

<table>
<thead>
<tr>
<th>Reading</th>
<th>Rev</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>List</td>
<td>Consult</td>
</tr>
<tr>
<td>Premade plastic frames</td>
<td>500</td>
<td>200</td>
</tr>
<tr>
<td>Premade metal frames</td>
<td>700</td>
<td>200</td>
</tr>
<tr>
<td>Custom made frames</td>
<td>1500</td>
<td>200</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infection &amp; Allergies</td>
<td>0</td>
<td>200</td>
</tr>
<tr>
<td><strong>Distance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>4000</td>
<td>200</td>
</tr>
<tr>
<td>Bi Focals</td>
<td>5000</td>
<td>200</td>
</tr>
<tr>
<td>Transition</td>
<td>10000</td>
<td>200</td>
</tr>
<tr>
<td>Tri Focals</td>
<td>10000</td>
<td>200</td>
</tr>
</tbody>
</table>

*NOTE: Revenue and cost data in Ksh. Exchange rate: 80 Ksh = US$1 (January 2009).*  
*Source: Interviews with ELI Kenya and private clinic staff, January 2009.*