

Power Play

Freeplay Energy and the Freeplay Foundation Expand Access to Energy, Information, and Education

Innovations Case Narrative: Freeplay Energy and Freeplay Foundation

Thirty-five percent of the world's population has no access to electric power. Another 35 percent has access to electricity, but only intermittently. Only the 30 percent of people residing in the world's wealthiest places can rely on electricity as a dependable resource for life and work.

For places without power, the existing energy options are biomass, candles, kerosene, and batteries. These sources of energy are not just unsustainable, they are actively destructive. Household dependence on biomass cook-stoves depletes forests, contributing to erosion, threatening ecosystem viability, and exacerbating the adverse impacts of climate change. Candles and kerosene are costly; kerosene is also a hazardous chemical inappropriate for household storage. The health impacts of relying on these energy sources are severe. The pollutants released from the burning of biomass and kerosene within households constitute the world's

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Kristine Pearson is the CEO of the Freeplay Foundation. She serves on the Women's Leadership Board of Harvard's Kennedy School of Government and was honored with the James C. Morgan Global Humanitarian Award in 2005, presented by the Tech Museum of Innovation. In 2001, representing the Freeplay Foundation, she accepted the first Tech Museum Award in Education.

In 2003, the Schwab Foundation for Social Entrepreneurship recognized Pearson and Stear as Outstanding Social Entrepreneurs. In 2007, TIME magazine selected them as "Heroes of the Environment."

Pearson and Stear have been married since 1995.

leading air pollution problem, responsible for more than two million premature deaths globally per year.¹

Among the sources of energy on which the majority of the people in the world depend, disposable batteries are arguably the worst of all. Batteries are energy sinks, since they require 50 percent more energy to be produced than they will ever return. When used, they become dangerous pollutants—more toxic even than kerosene. By concentrating energy in a condensed form, they facilitate the concentration of power within households; in many places, men routinely take the batteries with them when they leave

the house to ensure that women or children do not “waste” the valuable energy resource in their absence. As a consequence of the high cost and otherwise undesirable characteristics of batteries, household appliances that depend on batteries drain the family of resources rather than contributing to their enhancement.

The urgency of providing the majority of the world’s population with reliable and sustainable energy sources cannot be overstated. Power means productivity, and productivity means progress. Recent developments in the world economy have only served to underscore the interdependence of the glob-

al economy. A central element of this interdependence is that the world’s wealthiest 30 percent will face diminished prospects if we do not find ways to include the 70 percent who continue to be either imperfectly integrated into the world economy, or are excluded altogether.

The Freeplay Energy Group is the developer and distributor of technology and products that deliver the energy to excluded and marginalized members of the world’s population. Freeplay Energy has developed and marketed self-sufficient products that harness human, solar, and rechargeable energy to power durable portable devices, from radios to lanterns to mobile phone chargers. The Freeplay Foundation, an independent but related organization, is a pioneer in making information and education accessible through sustainable energy. Together, the two organizations—one a for-profit company, the other a not-for-profit foundation—share a common mission of energizing development by empowering people. Over a period of 13 years, Freeplay Energy has sold well over five million prod-

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ucts, of which hundreds of thousands have gone to underserved and neglected people in the developing world, largely through the efforts of the Freeplay Foundation. Freeplay's technology is the product of three distinct phases of development, each of which has been patented successfully. With a global scope of operations that has included the U.S., Europe, Africa, India, and China, Freeplay PLC conducted a successful stock offering on the AIM (London Stock Exchange) in 2005. In July 2008, Freeplay Energy was created out of Freeplay PLC as a private company.

This case narrative tells the story of the Freeplay initiatives. The first half of the essay is authored by Rory Stear, the co-founder and co-chairman of the Freeplay Energy Group. The second half is authored by Kristine Pearson, the CEO of the Freeplay Foundation. The authors have been married since 1995.

PART I. BY RORY STEAR.

I hail from Port Elizabeth, South Africa. Starting at age 18, I worked my way through a series of entrepreneurially based businesses—a mobile disk-jockey operation that provided entertainment at parties and a somewhat primitive sports marketing business, to name a couple. Eventually I started a restaurant with a friend. We ultimately sold that business. From the experience of that sale, I not only accumulated my first real capital, but also realized that many other people wished to sell food service establishments like my own. Since I knew something about the industry by then, I began to broker a lot of those sales. Subsequently, I branched out into brokering sales of other kinds of businesses, and then merged my operation with a national operation belonging to a friend of mine. As a fifty-fifty joint venture, we ran a brokerage fee-based business, buying and selling enterprises across South Africa.

Our business received an unexpected boost in 1990 when Nelson Mandela was released from prison. Mandela's release, and the election that was expected to follow, had a chilling impact on South Africa's business climate.² As emigration from the country surged, many South African business owners were suddenly interested in selling. (Potential buyers were not as numerous.) During that period, Chris Staines, who would come to play a major role in the Freeplay story, came to work for me in the Cape Town office of my business brokerage. Staines came from the United Kingdom, and knew a lot about mergers and acquisitions from working in some of the bigger accountancy houses there. In 1993, the assassination of Chris Hani³ caused the pre-election environment of South Africa to worsen, and Staines returned to England. We maintained a formal business relationship, however. Since we wanted to be more than a South Africa based operation, Staines began watching for deals that came available in his region.

As the election approached, it became apparent that Mandela and the ANC would win. As a result it was a time of hope and opportunity. From a business perspective, for the very first time we could look to Africa as a market, which during apartheid was largely closed to white South Africans like me. In an enormous

stroke of luck, on April 15th, 12 days before the general election, Staines saw a BBC television program in England called *Tomorrow's World* that featured a British inventor who had come up with a concept called a "clockwork radio." This radio had gotten nowhere close to being a commercially viable product, but had proven an engineering principle of harnessing human energy using wound metal coil. (See text box below titled "Freeplay Driven.") A series of companies had declined the opportunity to acquire the rights to the technology. When Chris saw the TV show, he phoned me and asked, "What do you think of this?" We acted immediately in order to beat others who had seen the program. Staines met with the inventor just two days later on April 17th with a business plan in hand that he had written with my input. We struck a deal. At a moment when a market comprised of 660 million people was about to open to commerce from South Africa for the first time, we were newly in possession of a technology for a hand-crank radio that we theorized could, to a substantial, extent obviate the need for batteries across an entire continent.

We sought to develop our newly acquired technology and added to our initial momentum throughout the rest of 1994, by acquiring our first sum of money from a very unlikely source: the U.K.'s Overseas Development Administration (now called the Department for International Development [DFID]). Staines had filled out and submitted a huge number of forms to receive a grant from DFID, and Andy Bearpark, then the Head of Emergency Preparedness, had happened to look at them. Following the Rwandan genocide and aware of the role that radio had played in the crisis, Bearpark had seen the power and relevance of the medium. Having funds available he gave us a grant of £143000 to commercialize the product. Additionally, Hylton Applebaum, who headed the foundations for Liberty Life and Liberty International in South Africa, invested a million South African rand toward setting up the company, marketing the radio, and developing the technology. Based on this initial progress and with the encouragement of Kristine Pearson—who had a much better sense for the needs of Africa than I did—in late 1994 I left the corporate financing firm in which I was involved and I began to work on the radio project full time.

We never intended to manufacture our products ourselves; indeed, when Hylton Applebaum from Liberty Life invested, he had done so on the basis that we would manufacture abroad in a low-cost manufacturing environment. Manufacturing in South Africa was difficult because the unions that had played such a positive role in the struggle to bring down apartheid in South Africa were now approaching business owners with a militant attitude. Our new venture was up against a wall, though. Originally intending to manufacture in China, we soon found that to produce there we would need to order a minimum of 30,000 units. With a new technology previously untested in the market, we weren't sure that we could sell even that minimum amount, nor did we have enough working capital to carry so much inventory. South Africa seemed like our only manufacturing option, despite its drawbacks and the many cautions we received from senior figures in the South African business community.

The Origin of the Freeplay Foundation

The foundation was born out of the realization that the self-powered technology and the radio it powered weren't getting to the people who needed it the most and who could afford it the least. In 1997, we began to grapple with the dilemma of how we would remain true to our initial vision of bringing our radio to Africa and how we could broaden the social mission that was at the core of our brand. Almost all of our sales at that time came from the U.S. and the U.K. at an average price between \$50 and \$70. I responded to this with the idea of establishing a complimentary non-profit organization that would operate independently from us. At the start, there was a lot of resistance to this concept. Even as I was pitching the foundation at a board meeting, I noticed one of the directors who represented a corporate investor write a note to his colleague, which said, "This is the dumbest idea I've ever heard." From his paradigm of how businesses work, this was just ludicrous; but we managed to convince the great majority of the board to do this, and the foundation was successfully established in the U.K. in 1998.

The first trustees of the Freeplay Foundation were civil society leaders who had expressed support for Freeplay and its technology, like Terry Waite, Bill Leeson (the founder of War Child*), Andy Bearpark, Hylton Appelbaum and Baroness Lynda Chalker. We set out to find a director, a process that progressed along an interesting trajectory that led to my wife, Kristine Pearson, organizing the foundation and formulating its goals using her extensive knowledge of an experience in Africa. Kristine initially started as director for a three-month interim basis working pro-bono while taking a sabbatical from her professional consulting position. In the meantime, the board and its trustees would find a full time director who had experience running a non-profit. Ultimately, Kristine took on the job of CEO; as a result, what it is, what it does, how it does it, and what issues it attacks today are all things she and her team identified. With the foundation we began to address the issues of how to get Freeplay technology into the hands of the people who most needed them [See Part II, by Kristine Pearson for more on the Freeplay Foundation].

* Founded by Bill Leeson and David Wilson in 1993, War Child assists children affected by violent political conflict in regions around the world.

Appelbaum was, and is, an incredibly creative guy, and he stepped forward with an idea. Seeing the situation, he suggested that we create a workforce utilizing the constituents from one of the organizations his foundation financed: the disabled movement of South Africa. Committing a million rand to us (which became share capital in the company owned by the disability movement), Appelbaum started the partnership with that community to manufacture the hand-crank radio

in South Africa. As a consequence of that expeditious partnership we received an astounding amount of positive press coverage.

On the marketing side, we enjoyed another stroke of luck when the BBC traveled to South Africa to film an episode of the television show *Q.E.D.* that featured our new venture.⁴ Shot in June of 1995 in Cape Town, the show was a phenomenal piece about how Staines and I had put together the company. They interviewed Hylton Applebaum and spoke to Dr. William Rowland, the blind head of the disability movement in South Africa. By chance, we even managed to feature Mandela commenting on our innovation at a breakfast meeting we had set up with him for that purpose. This 30 minute video provided us with an enormous amount of publicity and was a turning point for the company. But it was also pure luck, as we hadn't formulated or employed a strategy to attract the coverage.

All of the positive press that stemmed from the *Q.E.D.* documentary had the pivotal result of introducing us and our product to new partners who would help to build Freeplay. Among them were Gordon and Anita Roddick of The Body Shop.⁵ Having seen the *Q.E.D.* documentary in 1995 when it aired, Gordon Roddick contacted me. In late 1995, he came to see me in South Africa, initially expressing interest in the project because of the potential it had to benefit the Kayapo Indians of South America, a people whose cause he had taken up. To help us, he invested \$500,000, which bought him a share of the company. (Since then he has thrown us several lifelines at our moments of most pressing financial need.) Other investors would join Gordon during that period, including General Electric's Pension Trust Fund, Worldspace Inc., and Zephyr Management through their South African Capital Growth Fund.

Also during this time, we began to make lasting relationships with supporters of the technology and our commitment to realizing its potential in the developing world. Among those supporters is Terry Waite,⁶ who today remains active with the Freeplay Foundation. I met Terry at a trade show in the U.K. in 1997, where he told me story about being given a transistor radio late in his time spent in solitary confinement. Desperate to keep the batteries from running out, he would listen for only a couple of minutes a day to hear the news, knowing the proper time from the public call to prayer. To me, this was such a powerful story about the limits of batteries and what the technology of radio could be without them. Terry and I became friends after that, and in 1998, we invited him and Nelson Mandela (two of the world's most high-profile former detainees) to open our second factory in South Africa. To staff this factory, we again received the help of Hylton Applebaum, and this time employed rehabilitated offenders and abused women. The opening of this factory and the attention it received established our firm social commitment, and we continued to find new avenues for getting our responsibly manufactured products into the hands of those who needed them the most. (See text box above titled "The Origins of the Freeplay Foundation.") However, the core values that inspired these actions would face tough tests as the new millennium approached, when the model we relied on began to unwind.

Y2K Reveals a Bug in the Freeplay Business Model

In 1999 and 2000, the Freeplay company reached a new turning point, as we made major transitions and faced squarely some significant obstacles that brought our company to the brink of collapse.

Like almost all technology companies, we were losing a substantial amount of money on every dollar we made because of tremendously high costs, particularly in research and development (R&D). The R&D expense alone made doing business unfeasible, as we, like many of our other high-tech contemporaries, tried to navigate through the new market space without any sense of its size. In 1999 our sales reached a peak of \$37 million, but we lost \$6 million. This problem was only exacerbated in 2000. The primary driver for our sales in North America (which represented about 60 percent of our total in 1999) had been Y2K preparedness—the phenomenon prior to the turn of the millennium wherein many believed that a computer glitch would cause a complete shutdown of the world’s network infrastructure. The wind-up radio would help during such a crisis by operating without power from the primary grid. However, by January 2, 2000, everyone realized that the clocks hadn’t stopped. At Freeplay we had underestimated the impact that the evaporation of Y2K sales would have on our revenues. Suddenly our warehouse was full with \$12 million worth of inventory.

Despite these major problems, we were slow to respond. Positive press had put us in a state of denial. *BusinessWeek* had just recognized Chris Staines and I among the “Entrepreneurs of the Year” for 1999.⁷ Groups invited me to speak at their events. We were hailed as archetypal “children of the new economy.” But amidst all the acclaim, we faced the hard fact that our vertically integrated business model just wasn’t working. An operation like ours wasn’t sustainable. Would we go for the easy option and sell the business, leaving it to someone else to figure out the answers to the challenges we faced? Would we do nothing and go out in a blaze of glory? Or would we start to make the really tough choices required to make our business sustainable?

In trying to figure out our next step, we spent about \$500,000 on detailed and extensive market research to assist us in determining if the technology we had developed and the products it powered was viable in the future. Information we received from the U.S., U.K., and Germany suggested that we had something valuable, but we had to bring down the price, which meant lowering our costs. Our organizational model as it existed covered every aspect of product development and production: we conducted the research on the technology, undertook the product design, managed the manufacturing, and shipped to our own warehouses in the U.K. and the U.S. Furthermore, since South Africa lacked any consumer electronics industry of note, we had to import and pay cash for all of the parts for the radios. This translated into a need for a huge amount of working capital in order to keep the business going. The bottom line was that we had to identify aspects of our organization where we could spend less through outsourcing, in addition to partnering with other companies to boost our income.

Freeplay Driven: The Evolution of Freeplay Technologies

The development of new Freeplay products has closely followed the innovations in the technology used to power them. This technological development has largely centered around the relationship between the harvest of energy from external sources, like wind-up energy and solar, and the efficient storage and release of that energy. A “negator” arrangement powered the first Freeplay radios, as a pre-formed flat metal band, tightly coiled around a storage spool, winds around another spool as the user cranks the radio. As the metal band returns to its original form, power is transferred to a DC motor that acts as a generator, earning the product the nickname of the “clock-work radio” for its mechanically oriented configuration. Designed to power the radio at full volume, any excess energy accumulated by playing the radio at a lower volume would charge a capacitor, and the power release from both the capacitor and the spring powered the radio. The second Freeplay radio also included a solar panel.

Rechargeable batteries with an extremely long lifespan, referred to as NiMH (Nickel-Metal Hydride), became affordable in the late 1990’s, and replaced capacitors as the main storage mechanism in Freeplay’s first flashlight. The incandescent bulb employed by the light required a steady voltage in order to avoid drastically reducing the life of the light bulb. Freeplay designers provided this by placing the battery in parallel to the generator and coil, ensuring that the light drew a steady stream of power from the battery itself.

The greatest technological innovation employed by Freeplay in its next generation of products eliminated the need for the coil entirely. Known as direct charge, this system generates electrical power through the immediate conversion of human energy to electricity, which is then stored in a battery. Direct charge technology rectified many of the drawbacks of the coil system, such as size, weight, and the possibility of breaking the radio by winding it counter-clockwise. Efficiency improved from 40% to an overall more than 70%, and allowed for a wide range of generator sizes. This system, in combination with the introduction of LED (light-emitting diodes) light bulbs for lighting devices, acts as the primary power generation system currently employed in Freeplay products.

The solution we came up with was to trim the company down to its “core competencies.” We retained our R&D because we believed, and still do, that we are the best in the world at harvesting human energy, storing it, and controlling its release to power our products. We also determined that we were, at times at least, world class product developers (although then, and now, I held the view that our products could benefit from a bit more “sex appeal”—as with an iPod, once you see it, you just have to own it.) At the junction of R&D and product development, we determined that we had an excellent track record of taking technology and putting it into appropriate products, particularly in the developing world—notably, the Lifeline radio and Kristine’s work with the Foundation. (See part II of this case narrative.)

The current suite of products offered by Freeplay give the user the option of charging the battery in a variety of ways, including solar, hand-crank, and even plugging directly into the outlet. Products designed for the home, emergency readiness, or outdoor use include the Jonta heavy-duty flashlight, the Indigo lantern, and the Eyemax and Summit Radios. Other products, including the Freecharge and the Weza foot-powered generator, provide portable energy generation for emergency or development use. The Lifeline and Scout radios, in addition to the ECO charge LED flashlights, play crucial roles in aid projects in Africa and India, and illustrate Freeplay's continued commitment to bringing renewable energy products to those who can use them most.

Among our hurdles were our still relatively fresh deals with Motorola and Coleman. Partnering with them was part of a very logical strategy for controlling our margins, which on the manufacturing side we rectified by moving out of South Africa, and on the sales side by partnering with the larger companies who had established brands in industries where we believed we could have great success. In the particular cases of Coleman and Motorola, however, flaws in the specific deals and problems within those particular companies prevented our co-branded products from really taking off. With both companies, which had hundreds of products each, we felt that we lacked input in the sales process. The product designs on which we had spent so much money were in the hands of people in those companies who simply weren't accountable for their success or failure, which I know now to be crucial. Additionally, Coleman had been taken into bankruptcy by its struggling parent company, American Home Products. Motorola, on the other hand, was undergoing a major reorganization, and the teams of engineers in that corporation tasked with certifying and testing the FreeCharge for use with their phones had been scattered about the company. So despite the money we had spent designing the product, not to mention the enormous amount of publicity it was receiving (Time.com had named it one of 2001's Inventions of the Year),⁸ it never went to market. We terminated the Motorola relationship, and with Coleman we simply allowed the contract we had with them to expire.

Partnering with other organizations for marketing and distribution were critical as well. Although we had to control the sales process, we didn't need to do everything ourselves. In 2000, we began to identify those organizations that had huge distribution networks, products that complimented ours, and thus with whom we could co-brand. I ultimately concluded a deal with Coleman for the camping and outdoor market, and together we produced the Sentinel Flashlight and Outrider Radio, which utilized our new direct-charge technology. We also signed an agreement with Motorola to bring a phone charger to market, branded as "Freeplay Driven." Finally, we concluded negotiations with Swiss Army Brands. However, after the attacks of September 11, 2001, that company faced the biggest

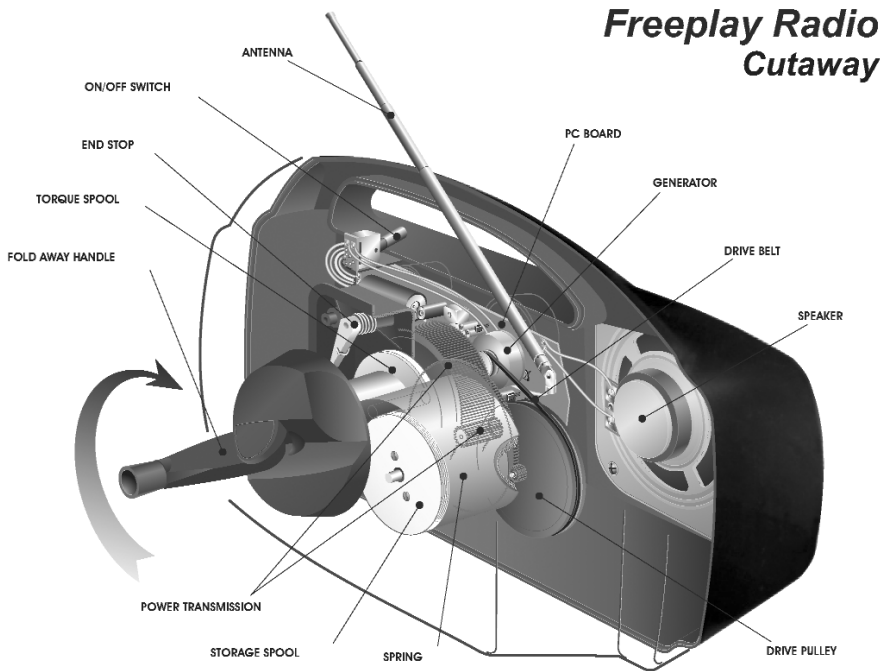


Figure 1. The Clock-Work Radio

crisis in their history as they quite suddenly lost the core of their business: selling knives in airports. Although they had some product extensions at the time, they reinvented themselves as largely a luggage and clothing organization. With this change in direction, our organizations mutually agreed to leave aside our plans for cooperation.

Starting in 2000, we began the most difficult component of our transition: outsourcing our labor. This meant closing our South African factories and moving our production to facilities in China. After having for a time been the darling of the South African media, I personally went to being a demon in no time at all. I recognize now that we did handle the transition poorly. We were politically naïve, and in against pros—the unions were feeding out to the media the confidential information that was being discussed in meetings. We looked insensitive, but I don't think anyone appreciated or gave us credit for the comprehensive efforts we undertook to find employment for every worker. To make matters worse, I had to be in Japan during the latter stages of the negotiations with the unions, and so instead of concluding the talks personally, I relied on the CFO of the company to do it. We might have been better off taking a very tough position by shuttering the business and starting again, rather than attempting to do the right thing by everyone involved. I believed at the time that we had an obligation to staff and to customers. It was much more expensive to make the transition as we did, but ulti-

mately I believed moving forward and making it work was what we stood for as a company, and that's what we needed to do.

Moving our production out of South Africa remains one of the most difficult decisions I've had to make. I do think that the transition ended up being pretty well structured, and that overall we did a whole lot right. But reading the South African media at the time you would have gotten an entirely different impression.

Freeplay Goes Public

Following our transition, we continued to grow the company by developing new products, both on our own and in partnership with other companies and organizations. The Lifeline radio was among these new products. Developed specifically for the aid sector and with funding received from the Freeplay Foundation, we set out to create a radio against a design brief that the Foundation submitted to our engineers in 2002. (See Part II of this case narrative for more on the Lifeline radio.) The technology that powered the Lifeline replaced the metal spring technology in the original radio with direct charge, a concept we implemented in our new generation of consumer products as well. Over the next couple of years, the designs for the new suite of products had enormous potential to bring in new income, although we began to run into hurdles actually getting them to market.

An additional hindrance with which we had to contend came from our agreements with shareholders. We addressed this hindrance and regained more control over Freeplay's business by entering the public market in the United Kingdom in March 2005. Before the public stock offering we had three different classes of shares belonging to different investors. By going public, we replaced the three classes of shares with ordinary shares only. Additionally, the public offering raised capital that allowed us to take the products we'd developed and put them into production; while we were still private we didn't have enough money to invest in taking our product development into the next phase. By selling shares publicly, we could get the product to market, in addition to making money available for me to hire some of the executives that I needed. We had to retire our existing shareholders' agreement for the sake of the growth of the business. The new arrangement gave us flexibility. We'd been hampered as a consequence of negative control from big institutional investors; with the new structure we no longer had to ask permission for every strategic decision. As a public company, Freeplay's board of directors could run the company as they saw fit.

The markets, however, do shine bright lights on a business. Slow sales in 2005, coupled with the enormous cost of R&D for new products, made for a difficult transition. We improved sales in the years following the public offering, and in an effort to further improve our share price and continue to grow the company we acquired Dixie Sales, a distribution operation in Greensboro, North Carolina. This would not only appease the market but also help to develop those aspects of Freeplay that I believed to be the most vital—brand, and distribution. Technology alone can be something of a red herring, even for a company like ours. Even the best ideas can't get off the ground if distribution isn't right and the brand isn't

built. With Dixie, we acquired an excellent foundation to ensure that this key box was checked for Freeplay.

A Breakthrough Partnership in India

In addition to the acquisition of the distribution company, Freeplay made another tremendous step in 2006 when it entered into a fifty-fifty joint venture with the Narang Group in India to do business in that country. I had been interested in India for a long time because I felt that our products met the needs of that market very appropriately, but in India a domestic partner is crucial. Even major corporations like General Motors and Coca Cola went in and were carried out on a stretcher because they hadn't started by making the appropriate partnerships. By chance, Freeplay's own opportunity for building such a relationship came in February 2006 at the Global Leadership Conference of the Young Presidents Organization (YPO), of which I am a member. There Devin Narang, the head of the Narang Group in India, had been introduced to Freeplay products from some demonstrations we had given, and instantly understood that this was potentially very lucrative for the Indian market. Devin is also a member of YPO and had acted as president of his family's company, which had specialized for many years in India in the brewing industry. They had just sold those holdings to SAB Miller, and the company was well-structured to enter a new sector. Devin and I developed a great friendship, and in October 2006 we announced a fifty-fifty joint venture between the Narang Group and the Freeplay Energy PLC to start Freeplay India, which would get our renewable energy products into the Indian market. I served on the board of that company from the start, and was excited about the real opportunity that India represented for us to redirect our business to where we had always intended—the developing world.

Earlier this year (2008), I became frustrated that Freeplay's share price wasn't going anywhere, despite the inroads we were making in India and a huge order there from the Indian Farmer's Fertilizer Cooperative (IFFCO), which represents 55 million Indian farmers. Although we were moving in the direction I thought was right for the company, I knew it would take some time to unlock that potential. In the interim, we would still face the obligation to report earnings to the market every six months. In an effort to circumvent this pressure, I devised a strategy whereby the public Freeplay company would sell the Freeplay business entirely. Our Indian partner, Devin, made an offer, financed in part by our major customer IFFCO. A colleague and I, representing the public company, negotiated with Devin and reached an agreement whereby the public company sold Freeplay Energy for cash while Devin would also take all the Freeplay related debts off the public company's balance sheet. After closing the deal, I negotiated to purchase a bigger stake in Freeplay than I ever had while it was publically held.

Now Freeplay Energy is well capitalized, and by doing business in India, we avoid most import duties by manufacturing locally. (See Text Box, "The Pressures Toward the Charitable Model," for more on the impact of duties.) I can increase the focus on Africa once again, and spend more of my time in the aid and human-

itarian sector without having to worry about presenting to shareholders skeptical about the pace of building a business focused largely, but not exclusively, on the developing world. What remains of the public company now is an investment holding vehicle with Dixie Sales as currently its sole operating company. (The trademark and our production business now belong to the new, private Indian company.)

In India, where energy poverty is also a major issue, we're well-positioned with Devin's huge network and our very appropriate technology to take advantage of the tremendous opportunities in a very large market. We've done specific product development for India's needs, and will focus more on self-powered lighting products that are simpler and cheaper than existing options. The lighting products could subsequently obviate the rationed kerosene prevalent in rural areas, saving billions of dollars of subsidy expense per year for the Indian government and addressing many of the health issues associated with kerosene use. Another opportunity exists in powering cell phones: India adds seven million new mobile users every month. In rural areas, Freeplay can be a part of that dramatic increase in connectivity with the technology we've already developed for other markets.

All this happens as we continue to do excellent business in the developed world, where the focus is less on self-powered technology and more on appropriate energy usage from a multitude of renewable energy sources. In the energy environment of those regions, the crank acts as a backup where one can charge the radio or light by plugging it in. We're utilizing solar technology as a power source usable even for digital radios—devices that in the past have used far more power than a traditional radio, but which we've managed to redesign for substantially improved energy efficiency. We have a partnership with Roberts Radio in the U.K. for Digital Audio Broadcasting (DAB) radio products that rely on this technology; we have applied the lessons we learned from our past partnerships in structuring this new arrangement.

Over the 13 years that Freeplay Energy has been in existence, learning has been the primary constant. After many attempts, we have finally reached a point where we can truly unlock the potential of the technology that motivated us to launch the company in the first place. Technological innovation can do a tremendous amount of good for people in poor places, but only if the products of innovation are commercially viable and thus reliably accessible to those who need them most. Having been a pioneer in energy technology, Freeplay is now poised to be a pioneer in energy impact.

PART II. BY KRISTINE PEARSON.

"Yesterday I didn't know anything, but tomorrow, I will know everything," announced Fatima, a 60-year-old grandmother of 24 who had never before owned a radio.

Fatima's exclamation of hope and possibility last year impressed upon me the urgency of Africa's need. Africa has once again been left behind, this time missing



Famed Kenyan distance runner Tegla Loroupe, the author Kristine Pearson, and 60 year-old grandmother Fatima with her Lifeline radio.

the Information Revolution. Historically, the great inventions pass Africa by. The first sub-Saharan African city to use the printing press, Cape Town, did so in 1806, more than 350 years after Gutenberg invented it. Engineers built the first electric power grids to serve households and businesses in Europe and the United States well over a century ago, but even today more than 500 million Africans have no access to modern energy. By 1904, millions of Americans were using the telephone, but it has only been in 21st century, and thanks to cell phones, that most Africans have had the opportunity to benefit from telecommunications. Computer use exploded in developed countries in the 1980s, but in sub-Saharan Africa, where less than 5 percent of the population has access to the Internet, the impact of the computer revolution remains to be felt. It is this historic knowledge gap—this energy inequity—that I am seeking to narrow through the work of the Freeplay Foundation.

My involvement in the Freeplay Foundation developed as something of an accident, but it's certainly been no mistake. As a girl growing up in Sacramento, California, I never traveled beyond a week-long vacation in the family station

wagon to Disneyland. But nevertheless, I fell in love with Africa on the glossy pages of *National Geographic*.

When I completed university, my curiosity to explore and understand other cultures became so intense that I set off on my own. As a young woman, in 1986 I spent three months traveling alone in East and Southern Africa, and I knew that I belonged there. (Since then, I've been fortunate to travel to more than 90 countries, each one giving me a deep appreciation of the strength and dignity of the human spirit.)

I immigrated to South Africa in 1988, at the height of the country's political crisis. I moved to Africa not as a humanitarian aid worker, but as someone who intrinsically recognized the enormous potential of women to shape the future of the continent. I arrived passionate about role and potential women and created a consultancy specializing in the development of women in business. That led to my appointment as an executive with a large banking group involved with creating sweeping change-management initiatives that affected thousands of employees.

In 1998, Rory, my husband and the co-founder of Freeplay Energy, approached me to lead the newly formed Freeplay Foundation. I thought it would only be temporary—lasting until the foundation's board could install an experienced non-profit CEO. But I had believed in this technology and encouraged Rory from the start—I knew that what Freeplay sought to achieve was appropriate and important. Taking the job would not only alter my worldview. It would define my life.

The penny dropped while sitting on the ground with rural women in a traditional mud and thatch village in Mozambique early in 1999. They told me that men had money and they bought radios and the batteries to power them. Women told me that men even removed batteries from their radios so the women couldn't use them. This meant that the men controlled access to listening and that there was a good chance that the women weren't hearing important, possibly life-saving radio programs. I realized then and there that if *women* had unfettered access to information, Africa and the poverty that besieged it could have a different outcome—and this radio could help improve the lives of millions. Women are the very foundation of African life, especially in rural areas. They grow crops, rear children, collect firewood, cook food, raise animals, and care for the ill. But what many don't do is go to school and become educated as males do. I saw that Freeplay radios could provide to women an essential tool to rectifying this imbalance: information. If we could just get the radios into their hands, they would gain greater control and freedom in their lives.

Millions of dollars are invested each year in important developmental radio content aimed at the poor; however, what is the point of programming if you can't hear it? I agreed to take on the role of CEO based on these realizations, and set the foundation on a course that would empower key constituencies—women and vulnerable children—to access the information they needed to make more informed choices and decisions. Ten years later, the Freeplay Foundation has worked in more than a dozen African countries, is a registered non-profit on three continents, and has assisted an estimated ten million people. We partner with organizations rang-



Masai women listening to a health program broadcast in the Masai language in Kenya.

ing from national governments and international corporations to in-country local charities, and we work across many disciplines including health, education, agriculture and disaster relief. We regularly refine our methodologies for applying Freeplay technology based on radio usage and distribution.

Although, due to our successes, Rory and I might be seen as pioneers in the social enterprise sector, I don't feel that I did anything especially remarkable. I've thought creatively about how to achieve the goal of the foundation despite the constraints that have arisen, and tried to conceive of new solutions through the innovations that technology can provide for those who need it. In the case of the Lifeline radio especially, the force of new ideas in technology and product design have won enormous support, illustrating for me how resonant the concept is among so many even in the age of nanotechnology!

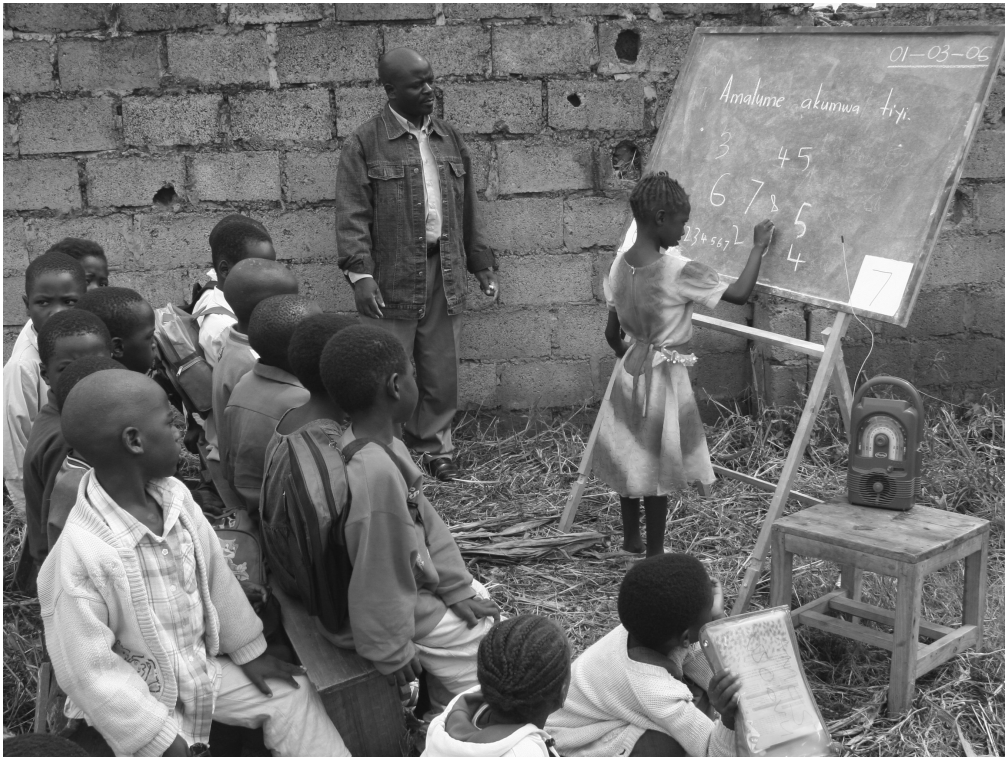
Early Involvement in Africa and Child-Headed Households

Asking the right questions and active listening are paramount in the development sector. This has been clear to me from our first major project, when thousands of Freeplay's original hand-crank radios were distributed to Mozambicans displaced by the catastrophic floods in 2000. The relief community justifiably focused on providing food, clean water, and medicine. But when interviewing flood-displaced people myself, they told me how frightened they were and that they wanted to

know what their government was doing, but had no way of finding out. They wanted to know how to locate relatives from whom they had been separated, if more rains would come, when they could return home, and to how to replace lost identity documents. This illustrated to me how vital basic information is to those who have lost everything and face an uncertain future. In refugee camps, rumors are rife, and radio also provides a reliable, and cost-effective way to reach displaced populations immediately. But refugees don't have batteries at hand and there isn't exactly a kiosk to buy them. The solution was for Media Action International⁹ to create informational programming for the displaced in their own languages and to use our radios to hear it on demand. Freeplay radios played a critical role in the relief efforts that year.

I truly began to internalize the power of radio while working on an early project in Rwanda with children who headed their own households. In 2000, few were aware that disease and conflicts unfolding across sub-Saharan Africa were causing an added crisis by orphaning millions of young people throughout the region. Family systems were collapsing, and many children became caregivers of parents who were dying from AIDS, or lived in a house without any adult at all. Little has changed in 2008. These children often exist in destitution. Traumatized from their loss, they face discrimination and exploitation, and most are malnourished. They receive scant outside financial or psycho-social support. The heads of households, some as young as nine (and mostly girls), must eke out a living on the land, fetching water and firewood, cooking and doing whatever they can to keep their families alive and intact—often without the most basic of necessities. Where they get the courage to cope and carry on, I just don't know. I was astonished, and still am, by their resilience and their efforts to better their lives. Although no one really knows the number of orphans in sub-Saharan Africa, the best estimates are more than 42 million. Surely this is the first generation in the history of our world, that I am aware of, that must raise itself.

We became involved early on in this issue in Rwanda, where original-model Freeplay radios were distributed to these young families. I interviewed dozens of the child recipients, and their feedback was contrary to what I expected. When I asked what they listened to, they all said, "the news." They wanted to be informed, to increase their knowledge, to get ideas and feel empowered, which resonated so strongly in an environment where the children didn't trust the adults around them. In post-genocide Rwanda, they said that their adult neighbors treated them badly, but with the radio, the adults would come over, listen, and become friends. Some children even suggested that the radio was like a parent or brother. Another favorite show was a health soap opera drama called *Urunana*, broadcast in the local language, Kinyarwanda, which has a child family woven into the storyline. Not only could the young listeners learn about HIV/AIDS, but they also related to the challenges the soap opera's child characters faced, and the program thereby helped provide the guidance they were missing. They also wanted to listen to practical programs on farming, peace and reconciliation, children's rights, and, of course, like everyone, they wanted to hear weather reports. When they did listen to music,



A girl following the radio teacher, Mrs. Musando, and writing numbers on the blackboard in Lusaka, Zambia. The “mentor” or voluntary teacher looks on. The distance education program, “Learning at Taonga Market”, is a collaboration between the Education Development Center and the Ministry of Education.

it was most often gospel, where they could sing along, feel closer to God, and feel hope for the future. They all said that the radio eased their isolation and helped them to feel safer and more secure at night. Most told me that they listened to the radio the entire time they were awake.

Children as Design Consultants and the Birth of an Idea

However, those original radios had serious limitations. The handle would wind only in a clockwise direction and if it was turned counterclockwise, it would break. Also, children snapped off the antennae and used it to herd goats or to stir the food in their cooking pot. For those to whom the radio played such an important role, a breakage was devastating. It made me realize that we needed to design a radio that would overcome the limitations of those original black spring-powered radios and create a new one specifically engineered for children living on their own, as well as for distance education.

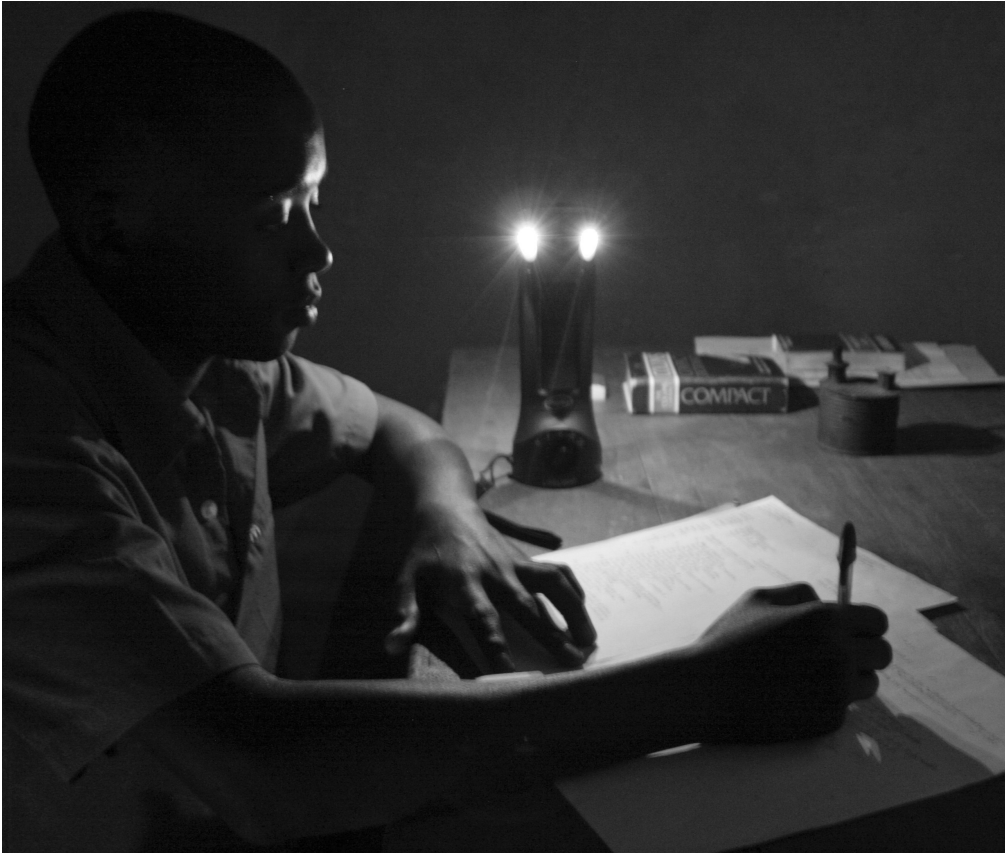
I asked these users what would be the “perfect” radio. They wanted a radio that didn’t need batteries, that could play for many hours with loud voices they could understand, would be easy to operate, and wasn’t black (it got too hot to hold when in the sun). Girls told me that if it was shaped like a handbag they could carry it

Kerosene's Deadly Side Effects

The World Bank estimates that 780 million women and children worldwide inhale kerosene fumes that are the equivalent of smoke from two packs of cigarettes a day. Two-thirds of female lung cancer victims in developing countries are non-smokers. In Africa, local health workers cannot perform even basic procedures effectively after dark without light. Pit latrines have been built across Africa to combat diseases, but many people still use buckets by their bedside at night for toilet use. There are risks like snakes and other dangers—real or imagined—just walking to a toilet in the dark. Children are afraid to walk at night without a light. Malaria kills more than a million children each year in Africa, and mosquito nets, though effective, may catch fire if a candle or kerosene lamp is placed too close to the net. In South Africa alone thousands of shacks catch fire each year, claiming the lives of between 2,500 and 3,000 people. Many thousands more suffer serious burns, which carry lifelong physical and psychological scars. Children drink kerosene believing it to be water.

In the last year, we undertook lighting needs assessments of very poor and vulnerable families (child- and granny-headed households) in rural and urban slum areas in South Africa. We found that child-headed families mainly depended on the generosity of neighbors for candles and matches. Only in households with a live-in grandmother, who received a government pension, did we find that families could afford to burn kerosene. Children described how they had to share a candle to study, either by taking turns or cutting it in half. If children studied by kerosene, they complained that they could only do so for a few minutes at a time, citing the noxious fumes and their eyes becoming red and sore. Many commented on how “stressed” they felt when using candles or kerosene.

To diminish dependency on fuel-based lighting and toxic batteries, the Freeplay Foundation is working to provide lighting solutions that rely on efficient and bright light emitting diodes (LEDs) powered by a robust hand crank and coupled with solar power. The first of our new range of portable light sources, called Lifelights, has recently been field tested in South Africa. For this project, we're working to move beyond women's participation as only consumers. We plan to launch a sweeping effort called “Women Lighting Up Africa,” in which women will be engaged in every step of our Lifelight effort. It will incorporate replicable, scalable micro-lending and micro-business schemes for African women to start their own small energy businesses to rent or sell Lifelights and power low-energy devices. With World Bank Development Marketplace funding, we piloted an income-creation initiative in Rwanda, whereby women used a Freeplay foot-powered generator to earn fees for charging cell phones, small LEDs, and other devices. “Women Lighting Up Africa” would build on those successes and lessons learned.



A Rwandese secondary school boy studying by his Lifelight. It replaced a kerosene lamp made out of a tin can, which stung his eyes and made his throat hurt from the noxious fumes.

into the fields so they could listen while they were farming. My interviews and their suggestions would drive the birth of a radio that would correct the faults of the original design and would be called the Lifeline.

I returned from my interview trip in late 2000 committed to developing this radio. Few people, with the exception of Rory and my team, thought this idea had traction or a market. It would be fair to say that I responded like a single-minded zealot. But the idea made sense to me. And to its credit, the Lifeline radio has had an unbelievable impact since I launched it in a Tanzanian refugee camp in 2003. Aid and development organizations working in Africa recognize the Lifeline as a valuable tool in their arsenals, and seldom a week goes by that the foundation is not asked to donate Lifeline radios to some good project or another.

The development of the Lifeline radio began with an unexpected success—winning the first Tech Museum of Innovation Award for Technology Benefiting Humanity in November 2001. I had learned about the award, brand-new that year, 24 hours before its submission deadline. My colleague, Michelle Riley, and I



These Weza pioneers in Zambia earn income from charging cell phone and other small devices

dropped everything to submit a paper on the concept of what would become the Lifeline radio. The committee named us as finalists, but I doubted whether in the high-tech heartland the judges would “get” analogue radio. They did, and we used the \$50,000 grant to fund the research and development of the radio. Freeplay Energy’s engineering team was true to the design brief created by the children in Rwanda, and every progressive prototype of the radio was field tested in focus groups of Rwandan, Kenyan, and South African orphans who had little or no exposure to technology. I learned only afterwards that our Lifeline project team had instinctively followed the Lemelson Foundation’s proven “Idea to Impact” process.¹⁰ The funding from the Tech award, combined with additional grants from Vodafone Group Foundation, Anglo American, Leonard J. Fassler, and technology pioneer Brad Feld, enabled the Lifeline to progress from concept to market in just 24 months. Exactly two years after the Tech Award application was submitted, Devotte Hafashimana, a shy 17 year-old Burundian refugee living in a Tanzanian refugee camp, became the first Lifeline radio recipient as part of a Voice of America sponsored project.



Pokot women under a tree in the West Pokot district of Kenya. This was the first radio that they had ever owned.

The Many Facets of Energy Poverty

With our Lifeline radio efforts solidly in place and growing in communications projects across Africa, it was clear we had to continue to innovate if we were to begin to close the gap, especially for the abjectly poor. In 2007, my attention turned to another energy inequity, specifically how the Freeplay Foundation could help light up Africa. My own evenings in the dark in Africa showed me the link between energy poverty, lighting, and the pressing issues of health, education, and productivity in rural communities. Something as simple and straightforward as safe lighting could transform people's lives immediately.

The overwhelming majority of Africans lack access to modern energy. They spend anywhere from 15 to 40 percent of their meager incomes on candles and toxic kerosene (a diesel fuel) and batteries for flashlights. Forests are denuded in the quest for firewood for cooking, which also provides residual lighting. Furthermore, the majority of Africans live near the equator, where the sun rises and sets at the same time every day. People have to finish up their activities before the sun goes down, and after a hard day of scratching out a subsistence living, a rural African has little light remaining to study, read, or undertake income generation tasks like sewing or weaving. The brunt of energy poverty, like all aspects of poverty, is borne by girls and women. Self-powered lighting could provide additional productive hours each day for those who have so little.

Lighting projects that utilize Freeplay technology are progressing through their development stages, and I have continued to plan for new product development opportunities. For example, we are adapting the Lifeline radio to include MP3 capability to help revolutionize rural information delivery. The content possibili-

Gender Bias in ICTs

Gender bias remains a tangible issue in Africa with all information and communication technologies (ICTs). Every technology has a gender bias in Africa, driven by restrictive cultural, traditional, religious and economic factors. Economically, women have less money for radio batteries, mobile phones, air time and Internet use. Rural Internet telecenters have far fewer girls and women using them. Working in fields, households, and doing chores, they simply don't have the time, and on the whole women are less literate than their male counterparts. In any ICT initiative, including radio, the needs and circumstances of women and girls must be considered and catered to in order to maximize their chances for inclusion in all forms of information delivery and transfer.

ties for an MP3-enabled Lifeline radio would be limited only by one's imagination. Educational, agricultural, environmental, peace building, climate change, basic financial literacy, and health programming could all be recorded onto a memory stick. For rural schools, which depend on radio distance instruction, an MP3 Lifeline radio could replay lessons on demand, and repeatedly for those with learning disabilities, at a time convenient for pupils. Audio content from computers at rural telecentres and Internet cafes can be downloaded and played back later on a memory stick in local communities when they had time to listen.

The further extension of educational content is only one application of an MP3-enabled Lifeline radio. This innovative device will help bridge the gap between radio and the Internet, making pre-recorded content available on any subject 24/7 without electricity or expensive disposable batteries. The introduction of recorded content to the Lifeline radio will significantly increase the effectiveness of reaching even larger populations, including those living in isolated areas and pastoral and nomadic communities in their own languages. Every technology has its limitations, and radio is no exception—in some parts of Africa, reception can be poor and inconsistent, especially in mountainous terrain and in stormy weather. The dependable wind-up and solar charging systems of the Lifeline radios will work equally well with a low-power consumption MP3-enabled device. As was the case with the successful Lifeline radio, the Freeplay Foundation believes there is a significant demand for an MP3-enabled radio. We plan to begin field trials early in 2009.

When products are developed for Western consumers, end-users are consulted, as companies don't want to make mistakes in their highly competitive environment. However, product options for "majority of the pyramid" end users are often limited and of inferior quality. Our approach employs rigorous field trials in order to fully understand for what purpose and how a radio or light is to be used, carefully considering the ergonomics and other factors that impact a product and its use. The poor deserve quality, safe products and proper instruction in their use, whether it is a mosquito net, a solar home cooker, a lantern, or a radio.

The Difficult Path to Funding

I hadn't expected to have the level of emotional engagement with this work and this also applies to fundraising which is a constant squeaky wheel. Designing programs and implementing projects in Africa is deeply rewarding. Weeks can be spent putting your heart and soul into writing a proposal you know that would benefit thousands of children. Then with all the 'warmth' of a bank manager, a rejection email arrives from someone who may never have been invited into a rural home, met a child orphaned by AIDS, or even visited Africa for that matter. It is a demoralizing experience which is all too frequent in the non-profit sector. Many donors demand low overheads but allow no way to recoup time and admin costs on an unsuccessful proposal. It takes the same amount of staff time and resources to raise \$10,000 as it does \$200,000 and may attract the same reporting requirements. I've encountered donors who have asked me to revise our proposals to suit their own outcome needs. This would not happen in business when an investor invests in a stock, as they wouldn't require the company to rework its business plan to fit their special interests. Unrestricted funding allows a non-profit the flexibility it requires, but is the most difficult support to obtain. From my vantage point, the donor relationship and sometimes even the project itself is most successful when all parties treat each other with trust and as equal partners.

To ensure a more reliable income stream and to partially negate the reliance on donor and grant income, we have established the for-profit Freeplay Foundation Trading Ltd. (FFTL). This trading company will procure all products for the humanitarian sector for either by the Freeplay Foundation or other aid agencies. Profits earned will accrue to the foundation to support our work as unrestricted funding. Given the "hit" that charitable organizations will take in the near and medium term due to the global financial crisis, this trading arm contribution will provide necessary cover for our non-project overhead expenditure.

Non-profits rely heavily on sponsors and patrons, particularly during uncertain economic times. The Freeplay Foundation is very grateful to our strong supporters, including the actor Tom Hanks. Tom encountered Freeplay technology on his own and has since helped to fund several Freeplay Foundation projects. He takes a real interest in the new applications of Freeplay technology, and is the primary funder for both our lighting research and development and for the creation of the new MP3-enabled Lifeline radio. Tom provides priceless visibility by serving as our American Ambassador, which he has done since 2003.

Political and Bureaucratic Barriers to Development

The success, quality and vibrancy, of many community radio stations in Africa have a great deal to teach those in the development sector in other regions of the world. As media has become liberalized both economically and politically on the continent, Africa has led the way in establishing community-based radio stations, which broadcast in local languages to nearby populations. Lifeline radio recipients tell us news programs are most popular, exemplifying my belief that having access to information from diverse sources is a basic human right. However, control of

The Pressure Toward the Charitable Model

High import duties, corruption, bureaucratic barriers...the African economic environment is fraught with protectionism and inefficiency that close those countries to business, development, and the distribution of much needed goods to an underserved market. In the developing world, price is everything, but most products cost more in Nairobi than in New York because of the expense of wrangling with inefficient bureaucracies and taxes. These forces make the charitable model the only alternative to organizations like Freeplay, and to this day the Freeplay Foundation, as well as other humanitarian organizations like the United Nations and the Red Cross, remain our biggest customers precisely because of their exemptions from duties. Even despite these exemptions, battles with government customs in some countries make delivering needed products to African communities an extremely expensive endeavor. Despite the income generation aspects of many of the Freeplay Foundation's programs in Africa, the potential increased tax base is overlooked in favor of the short-term gain from duties.

Although some argue that domestic manufacture avoids the high cost of importing, the scale of a country's domestic market and the cost of importing a device's components when none are available in country must be taken into account. The African continent contains an estimated 955 million people in 54 countries, each with a sovereign government and bureaucratic apparatus with which one must deal individually.* India also has a high import duty, but has a billion people under one government. They have an enormous scale and a domestic manufacturing base, and Freeplay has an incredible opportunity in that country to reach people who can benefit from our product and acquire it at a price they can afford.

* Almost 800 million people live in the 47 countries of sub-Saharan Africa, and the U.S. government expects the population to increase by one billion by 2020.

information for political aims persists in many countries, to the detriment of its citizens who are left with hearsay, rumor and government propaganda. In addition, male-dominated social structures may detour accurate and helpful information away from women and vulnerable children.

Mistrust of government-owned news sources is prevalent in many African countries, and it is no wonder then that when asked, many listeners choose foreign news services like the BBC and Voice of America as their primary information providers. In Zimbabwe, any outside source of information accessible by the public—and especially the Lifeline, with its two shortwave bands—could pose a threat to government control

In Kenya, during the political crisis following the disputed presidential elections, I was pleased that our radios provided access to foreign news services which

offered much needed, trusted information during a very unsettled time for that country. However, the process by which the radios got into Kenya in the first place illustrates how many African governments have made development work and providing access to information like climbing a ladder without rungs. Late in 2004, 10,000 Lifeline radios, jointly funded by the Vodafone Group Foundation and Safaricom Foundation landed in Kenyan customs, where they languished for 30

AM, FM, and shortwave radio aren't exactly sexy technologies, but ... radio remains the only technology that has the potential to reach entire populations immediately and cost effectively.

months. A government ministry was determined to extract more than \$100,000 in duties from us. Despite filling out all of the forms according to their instructions, clear labeling in multiple languages that the radios were not for sale, together with reams of paperwork

describing the various humanitarian projects in which the radios would be used, the civil servants remained intransigent and apathetic.¹¹ More than half the radios were earmarked to support the government's own educational broadcasts, but no one cared.

The situation was outrageous. Amid claims of lost paperwork, expired forms, bureaucratic doublespeak, and months spent chasing up the finance ministry, I became intensely disheartened. Regardless, we had a moral and ethical to both our donors and the people whom we sought to serve and we persevered. Finally, a change of ministers and support from more enlightened government officials secured the release of the radios from customs without anyone asking for anything in return. However, our entire distribution and training budget had been eaten up through this process. Vodafone Group Foundation generously made another grant that enabled us to cover our local distribution and training costs. Unilever was extremely helpful in assisting us with offsetting some of the transport costs, and with the assistance of our partner organizations, like Plan Kenya, UNHCR, PATH, Tegla Loroupe Peace Foundation, and the Kenya Met Service, we were able to distribute almost all 10,000 radios in three months across the country to impoverished and underserved communities.

Reflections on the Foundation's First 10 Years

In the ten years since I started at Freeplay Foundation, bureaucratic bottlenecks like the one noted above have continued to be a threat to constructive development work. But positive changes also have occurred. The social enterprise sector has demonstrated incredible potential, and market force trends for non-profits have

accelerated the rate at which things get done and systems get changed. Despite these changes in the global economy and innovations in the methods of philanthropic organizations, we are still able to utilize an existing, perhaps almost antique, technology in new and innovative ways. AM, FM, and shortwave radio aren't exactly sexy technologies, but despite the emergence of computer-based platforms for health and education, radio remains the only technology that has the potential to reach entire populations immediately and cost effectively. It provides benefits not easily measured, like easing isolation; providing safety, security, and a voice people can trust; feeling safe at night; and education about food, health, and taking care of children and animals. Information and education spread via radio can change people's lives overnight, and a turn of a knob opens their world—provided they have access. Therein lies the role for technology in transcending the limits imposed by energy poverty.

CONCLUSION. BY KRISTINE PEARSON AND RORY STEAR.

Our friend and mentor Anita Roddick long ago observed to us that business often measures the wrong things. In the journey we have shared over more than a decade with Freeplay Energy and the Freeplay Foundation, we have had many occasions to reflect on Anita's insight.

For Freeplay Energy, the discipline of market acceptance has tested our strategic vision time and time again. At the outset we measured ourselves by the standard of technical ingenuity. We focused almost entirely on developing market-leading technology. We grew rapidly, but neglected to assess risks to our business model or to focus adequately on costs. Our learning over time has placed us in a position to achieve the impact to which we have long aspired. We fully expect that success for Freeplay Energy in the future will be reflected in conventional business metrics, as the market opportunity we have the possibility to create is substantial. However, for Freeplay Energy just as for the Freeplay Foundation, we will certainly miss the mark, miss the moment, if our planning and self-assessment is focused on quarterly reports to our respective boards.

For all of the emphasis that is rightly placed on the need for institutional sustainability, enduring as an organization still matters less than providing a quality service to people. At Freeplay Energy and at the Freeplay Foundation, we are very serious about getting self-powering radios and lights into homes, and getting the kerosene, candles, and batteries out. Over the coming decade we look forward to tallying with great pride the number of women, children, and men whose days have been extended, minds have been expanded, and opportunities have been enhanced, thanks to our products.

But we are also serious about keeping with us the words, and the spirit, of Anita Roddick. We are providing radios not for the hours of programming they deliver, but for the feelings of pride, dignity, comfort, and empowerment that the radios offer. We are providing lights not for the increased average household earnings that can result from an extended workday, but for the moments of hope,

promise, and happiness that increased opportunities create.

No one reading this essay will ever know the courage it took for a 17 year-old boy to enroll in first grade radio school to get over his humiliation at not being able to read money, or the anxiety of a tired schoolgirl trying to finish her reading lessons before her stub of a candle burns out, all the while afraid she might fall asleep and accidentally tip it over while it is still burning. No one among us will likely feel the anguish of a refugee who, having lost his home and been separated from his family, is then deprived of any information that might be a guide to safety as a consequence of the simple fact of a dead battery. We believe that we will have succeeded when this and the many other human moments of angst, pain, and deprivation that follow from energy inequities gradually resolve—like the system of apartheid we saw crumble as this venture was born—into the fading scars of history.

Acknowledgements

The authors thank Adam Hasler, Winthrop Carty, and Philip Auerswald for their assistance in preparing this case narrative.

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1. John P. Holdren and Kirk R. Smith, "Energy, the Environment, and Health," in *The World Energy Assessment: Energy and the Challenge of Sustainability*, ed. Jose Goldemberg, New York: UN Development Programme, 2000, pp. 61-110.
 2. Nelson Mandela was released from Victor Verster Prison on February 2, 1990. Once freed, he again became active with the African National Congress in negotiating for multi-racial elections in South Africa and an end to apartheid.
 3. Chris Hani, head of the South African Communist Party and a participant in the African National Congress's negotiations for multi-racial elections, was shot outside of his home in Boksburg, South Africa on April 10, 1993.
 4. Q.E.D. was a BBC science documentary that aired in the United Kingdom from 1982 to 1995. The episode "Clockwork Radio," aired on August 8, 1995.
 5. Gordon and Dame Anita Roddick, the now deceased founders of Body Shop International, have wide fame as supporters of environmental, animal, and human rights issues. Four out of this year's five finalists for the U.K. Social Entrepreneur of the Year award noted Gordon as a supporter of their projects.
 6. Hostage negotiator and special envoy to the Archbishop of Canterbury, Terry Waite became internationally known when, between 1987 and 1991, he was held in solitary confinement as a hostage by the Hezbollah. He is now an active writer and lecturer on humanitarian issues.
 7. "Freeplay's Fast Track," *BusinessWeek*, January 10, 2000, p. 82.
 8. "2001 Inventions of the Year," *Time.com*, November 11, 2001.
 9. Registered in Berne, Switzerland in 1998, Media Action International is a non-profit organization of professional journalists that monitors crisis reporting in the developing world to ensure its accuracy and compliance with international journalistic standards.
 10. See "From Idea to Impact: Funding Invention for Sustainability" by Julia Novy-Hildesly, *Innovations* 1(1), Winter 2006, for more on the Lemelson Foundation and the "Idea to Impact" social enterprise model.
 11. U.N. agencies have bi-lateral agreements with host nations and received duty/VAT exemptions as a norm, but it is not always possible to partner with the UN.