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World Bicycle Relief: Social Enterprise Business Model

In May 2018, FK Day, co-founder and chairman of World Bicycle Relief (WBR), scrutinized the organization's 2017 Impact Report. WBR had achieved considerable success: since its founding, it had donated or sold more than 392,000 bicycles in 19 developing countries and had trained more than 1,900 bicycle mechanics. Although satisfied with WBR's growth and performance, Day and his team felt compelled to do more, given the need for affordable, reliable transportation they had witnessed in the field and the impact their organization had made.

To help meet this need, in 2008 WBR established a for-profit social enterprise subsidiary, Buffalo Bicycles Ltd. (BB). BB allowed WBR to raise additional funds, beyond donations, by selling bicycles to development partners, companies, and individuals in developing countries. With this model, WBR was able to multiply its impact, reduce costs through economies of scale, and, importantly, use customer feedback for product development and innovation. But expanding operations into new countries would require further improvement of the operating model to avoid unsuccessful entries and waste of resources.

The WBR senior management team agreed they needed additional tools to grow successfully. First, they needed to develop a model to analyze how the number of bicycles in the field influenced a market's demand for BB's bicycles. Second, they needed to develop a structured plan of entry to new countries, including a method to assess the expected return on investment (ROI) and optimal quantity of bicycles to sell and donate. Third, BB was considering distributing some of its bicycles through local stores and needed a business case for a profitable store.

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History

On Sunday, December 26, 2004, Day and his wife, Leah Missbach Day, saw the first reports about the deadly Indian Ocean tsunami that hit more than a dozen countries, including Sri Lanka. They immediately decided to go to the disaster area and see how they could help. One of the post-disaster problems that aid workers, students, and entrepreneurs faced was the lack of transportation.

As a co-founder of bicycle component manufacturer SRAM* Corporation and an avid bicycle enthusiast, Day quickly understood that the object of his passion could be a simple and effective solution. That realization led to his co-founding of World Bicycle Relief with Leah in 2005.

But Leah and FK Day had a problem: neither SRAM nor WBR made bicycles. Founded in 1987 in Chicago when Day, his brother Stan, and some friends developed a novel grip shift gear-change technology, SRAM focused on the design and manufacturing of components for high-end bicycles, the kind ridden by professional cyclists in the Tour de France. In 2005, SRAM launched its first road groupsets, Force and Rival, at the Eurobike trade show in Friedrichshafen, Germany. Its strategy of focusing on components proved very successful; by 2018, SRAM was one of the world's largest bicycle component manufacturers, with annual revenues of more than USD 700 million and more than 3,500 employees worldwide. It did not produce bicycle frames, however, nor did it have a complete design team for the task. Therefore, Day and his team had to work with local suppliers in Sri Lanka. Nevertheless, Day's deep bicycle-component expertise ensured that the chosen bicycles were of relatively good quality.

Eventually, WBR distributed more than 24,000 bicycles to tsunami survivors, aid and community workers, students, and entrepreneurs in Sri Lanka. The concept proved effective and attracted numerous partners among development groups and bicycle organizations. "Sri Lanka was such a success!" Day said. "We measured and published our impact in three areas: healthcare, education, and development."

Compelled by the quantified impact in the Sri Lanka disaster relief, FK and Leah Day began to investigate whether large-scale bicycle programs could assist in overcoming the barriers of distance to access healthcare, education, and economic opportunity in other developing countries. Impressed by "the Power of Bicycles"¹ in Sri Lanka, the organizations partnering together in the RAPIDS program in Zambia[†] invited WBR in 2006 to provide bicycles to caregivers combating the HIV/AIDS pandemic. The caregivers,

When I got the bicycle from RAPIDS, I found myself spending extra time with clients and getting to know them better—this is because I was making frequent visits.

— RAPIDS caregiver

* The company's name was derived from its founders' initials.

† RAPIDS, or Reaching HIV/AIDS Affected People with Integrated Development and Support, was a US-funded program that provided support services to HIV/AIDS patients in Zambia.

now mobilized and empowered, could reach more patients and spend more time with them.²

At first, WBR attempted the Sri Lanka strategy of procuring local bicycles, but the quality of the local “Bicycle Shaped Object (BSO),” as FK called inferior models, was insufficient. WBR would need to design a new sturdy bicycle that could survive local conditions. Day reached out to engineers from bicycle companies across the globe, including Trek, Specialized, and Tata India, to partner with SRAM’s engineers in creating the most durable bicycle possible for WBR’s clientele.

WBR was strengthened by Dave Neiswander, who joined as Africa Director after 15 years of experience in investment banking.

Working closely with the Tata product development and supply chain, the bikes were manufactured in India, where the design center was located, then shipped CKD (complete knock-down, i.e., as a kit of entirely non-assembled parts) and assembled in Zambia. The assembly process was problematic; informal workers with little assembly experience sat on the floor, each of them putting together a full bicycle with piece-rate compensation. The assembly supervisor, who relocated to Zambia from India, barely spoke English. According to Neiswander, “That supervisor would fix the assembled bicycles himself and sign them with his name—so workers would just assemble without much regard for quality and later put all responsibility on him.”

I truly believe that WBR would never have grown beyond the RAPIDS project without Dave. His business experience was of paramount importance.

— FK Day

In 2008, WBR undertook the arduous task of bringing assembly in-house, which also involved bringing in procurement and warehousing, and improving the state of the facility. When WBR realized it had reached the limits of Indian bicycle technology, its international product development team, led by Day, switched to Taiwan-based Giant as product development and supply chain partner. Giant also collaborated with WBR to further improve the product design. Day carefully monitored how the distributed bicycles were being used and what parts regularly broke down. “All answers are found in the field,” he often said.

Eventually, the design was improved to the level that the bicycle was “as solid as a tank,” according to Day. Though it was about twice as expensive as competing bicycles, the quality of the WBR bicycle distributed via the RAPIDS program started to attract the attention of local organizations tired of BSOs. They inquired whether WBR could also provide them with bicycles. Realizing that the proceeds from selling bicycles could help fund their philanthropic activities, Day and Neiswander set up the for-profit subsidiary Buffalo Bicycles (BB) in 2008. Thus, WBR became a social enterprise, combining non-profit and for-profit activities.

By the end of the RAPIDS program, WBR had donated more than 23,000 bicycles and had launched programmatic initiatives to support sustainability: distributing in community-led ceremonies that included signing service-to-own contracts with bicycle beneficiaries; training

community-based bicycle field mechanics; and connecting communities to a supply chain for spare parts.

Bicycles for Educational Empowerment Program

In sub-Saharan Africa, 75 percent of girls start school, but only 8 percent finish secondary school.³

In 2009, WBR launched its Bicycles for Educational Empowerment Program (BEEP) with the aim of providing female students in sub-Saharan Africa greater access to education with a reliable, safer, and faster transportation option.

One of the main reasons for dropping out of school was the challenging journey from home to school, which might be as long as 15 to 25km in countries that lacked public transportation. Long trips made students too tired to follow the classes. The dropout rate for girls had far-reaching societal consequences, going beyond their lack of education. According to UNESCO, missing out on part of her education made a girl more likely to have children at an early age and less likely to find work.⁴

About 70% of the bicycles in the BEEP program went to female students. Studies showed that academic performance (as measured in grades and attendance) among bicycle recipients increased by as much as 30% in such countries as Kenya, Zambia, Malawi, and Zimbabwe.⁵ There was a significant decrease in days missed from classes (down by 35% in Zambia) and dropouts. The overall student enrollment increased by 14% for girls with Buffalo bicycles in Kenya. In Zambia, the number of students missing more than 10 days of school per year decreased by 59%.

But not only the pupils benefited. Their families used the bicycles to improve the productivity of their entrepreneurial activities. For example, dairy farmers with Buffalo bicycles were able to increase their number of deliveries by 25%. Thus, bicycles simultaneously created long- and short-term social impact. All of this positively affected the growth of GDP.

Bicycles facilitate the development of a mobility ecosystem. It is an economic engine.

— FK Day

To select participating schools, WBR worked closely with the local education agencies. First, they identified target regions (by looking at the average distance from the school). Then, they selected the schools with the most urgent transportation needs. Next, WBR established a Bicycle Supervisory Committee (BSC) made up of school representatives, parents, community leaders, and students, for monitoring purposes.

Information about the program was sent home with students. Families interested in participating in BEEP completed an application form that included the distance traveled to the school, as well as the student's attendance history and academic performance.

Organization of WBR

WBR is a section 501(c)(3) tax-exempt public charity, incorporated on June 20, 2006, and existing under the Illinois General Not-For-Profit Corporation Act, to provide access to independence and livelihood through the power of bicycles. BB, a for-profit subsidiary of WBR, is a trading conduit for the product development, purchase, and selling of bicycles. All taxes owed on BB profits are paid in-country by the subsidiary.⁶

An important challenge for non-profit organizations is how to fund their activities sustainably, considering the uncertainty around government grants. WBR's for-profit subsidiary, BB, was designed to address this challenge along multiple dimensions:

- Its profits generated additional funding that allowed WBR to donate more bicycles.
- Economies of scale lowered the costs of WBR's philanthropic bicycles.
- Better business practices from the for-profit division could be applied to WBR, too.
- Feedback from BB's customers helped improve the bicycle construction.

WBR developed a sophisticated network of subsidiaries and assembly facilities in Zambia, Kenya, Zimbabwe, and Malawi. However, given the lack of manufacturing base in Africa, all components were imported from Asia. This once led to a costly recall because defects were found too late. In addition to those centers, WBR established fundraising offices in Canada, the UK, Germany, and Australia.

In 2018, WBR had the following leadership team based in Chicago: FK Day served as co-founder and chairman of the board; Dave Neiswander as CEO; and Jeff Bosken as director of finance. Brian Berkhout, based in Zimbabwe, served as vice president for Africa, and David Major, based in South Africa, served as BB's CFO. Dozens of other leaders were located elsewhere in the world, serving a variety of functions.

As a non-profit organization, WBR relied on a robust base of individual grassroots supporters in addition to its corporate partners. Most of these corporate partners had approached WBR with invitations to take part in their programs. Day explained that that was due to the organization's growing reputation of being effective and reliable. Moreover, WBR had positioned itself as a high-impact partner, which was important for the firms seeking to deliver the highest social benefit.

In total, WBR's partners could be classified as corporate (donor partners), field (organizations that purchased Buffalo bicycles for their own programs), and community (individuals and groups that made philanthropic donations). WBR also worked with such development organizations as InterAction, Global Washington, and the Chicago Council on Global Affairs. Numerous volunteers helped organize awareness campaigns.

The Buffalo Bicycle

As a leader in the bicycle industry with more than 30 years of experience at SRAM, Day was instrumental in the product development design of the Buffalo bicycle (see **Exhibit 1**). The bicycle

was designed to be simple and sturdy, to address the challenging conditions and terrain found in the developing world, such as the lack of asphalt roads and scarcity of repair shops and spare parts. To emphasize its product's durability, BB provided a five-year warranty on its frames, forks, and rear carriers.

The bicycle was made mainly of steel alloy and could withstand a load of up to 100 kg on its rear carrier. It had as few parts as possible and had just a single speed. The carrier's rigidity was directly coupled with the frame to facilitate the transportation of goods.

Only one type of frame was offered: a "bent" frame that compromised between a women's single-tube and a men's top-tube structure. Fewer stock-keeping units (SKUs) reduced product development and inventory costs, plus it prevented gender-frame mismatches that could cause discomfort for students.

WBR's first bicycles in Zambia had the words "World Bicycle Relief" on the frame. When the organization began selling bicycles to individuals, it had to find a brand name because, as Day pointed out, "no one wanted the word 'Relief' on a bicycle they had purchased." Weighing in at about 23 kg, the bicycle was named after the large and powerful buffalo, inspiring whoever saw it with awe. Moreover, the name was not considered to be offensive in the markets WBR was entering. "We had to go to the field and ask people whether our name ideas had any bad juju," Day said.

With a price tag of approximately USD 147 (the price varied by country depending on import duties and local costs), Buffalo bicycles were expensive, but they remained popular because of their reputation for durability. BB's for-profit focus inspired continuous improvement and market discipline. Yet Neiswander believed that in the consumer market of the developing world, BB had relatively limited room to maneuver, as price increases could drastically lower the demand.* The balance between improvement and price always had to focus on optimizing the value proposition to the end user. Continued discipline also had to be applied to field overhead costs while working with suppliers on improved pricing.

By designing, importing and locally assembling its own high-quality bicycles, WBR took a different approach from other organizations that were contributing to increasing awareness about or donating bicycles into Africa. For example, some organizations (e.g., Re-cycle charity, Jole Rider) collected secondhand bicycles in developed countries and shipped them to Africa. Others, such as Ghana Bamboo Bikes, designed and built their own bicycles in Africa using bamboo for frames.

Of course, BB also had commercial competitors, from either Africa or abroad. Some, such as Zambikes in Zambia, engaged in philanthropic activities but remained for-profit companies. This included BSOs, although some bicycles were more sophisticated, with multiple-speed transmissions.⁷ New-entrant competitors were leveraging the design look of BB but without the component quality or support programming.

* To put the price tag in perspective, USD 147 is one-tenth of the annual average income in Zambia (USD 1,480 GDP per capita) and about half the annual average income in Malawi (USD 342 GDP per capita, compared with USD 62,150 in the US).

WBR Business Strategy

WBR's goal was to "provide access to independence and livelihood through the Power of Bicycles."⁸ Progress could be measured along multiple dimensions, including:

- Total number of bicycles distributed (philanthropic and sold). Raw quantity of bicycles in the field, however, was not sufficient: "We don't want to just donate or sell bikes and then walk away; we want our bikes to have a lasting impact. We do not want to be just a banner," Day said. "But we can't make them too expensive, either," Neiswander added. Therefore, it was important to somehow capture the quality of the bicycle measured by its expected lifespan and sustainable impact.
- Share of funds going to philanthropic programs versus costs of fundraising campaigns and managerial expenses
- Number of published M&E (monitoring and evaluation) studies that rigorously demonstrated improved social impact
- Number of bikes sold. As Day noted, "Philanthropy allows WBR to implement programs of excellence whose results can be quantified and communicated broadly. But philanthropy alone cannot make a dent in the transportation needs of millions living in the developing world. Only through the free-market mechanism of selling bicycles through social enterprise can we make a difference. That is why we expect BB sales to outgrow WBR philanthropic programs: I envisage 80% bicycles sold to 20% funded by philanthropy."

Exhibit 2 shows the statements of finances, activities, and changes in WBR's net assets. BB sold its bicycles to non-governmental organizations (NGOs), government agencies, corporations, and individuals. The majority of bicycle demand came from the first two, which distributed the bicycles to empower healthcare workers or volunteers to further the organizations' objectives.

A typical client for BB was a dairy cooperative that could comprise several dozen farmers. Because the farmers could not easily afford a bicycle, BB offered microfinancing to assist with the purchase. A leader of the cooperative would mediate in the preparation of contracts that would pay a portion of farmers' salaries to BB.

Other major clients were humanitarian organizations. For example, Care International, which received some of the philanthropic bicycles in Zambia, contacted WBR to buy more. Neiswander noted that the philanthropic bicycles could stimulate greater demand for bicycle sales: "BB's best advertising is the word of mouth reputation of a Buffalo bicycle in the field."

BB sold bicycles directly, through its network of dealers, and, more recently, through its own retail BB stores that employed a highly trained staff. "It costs on average USD 10,000 to open a store, and it breaks even within nine months," Day said. "We open about eight to ten stores per

**One cannot just donate
a million bicycles and
expect a transportation
revolution to happen.**

— FK Day

year.” Though some stores found it difficult to break even, others prospered. For example, a store in Zimbabwe could make USD 300,000 in annual sales, more than an average bicycle shop in the US. Such numbers were possible because, in contrast to the American market, the African continent remained largely underserved and presented attractive business opportunities.

The assembly, storage, and shipping for both philanthropic and social enterprise bicycles, as well as the training of mechanics, was overseen by the corresponding BB division. Economies of scale were realized through shared costs over both philanthropic and social enterprise operations. Bicycle CKDs, ordered from Giant, took an average of 60 days to produce and 30 days to deliver. A single container could hold components for 800 bicycles. Currently, WBR had a contract with Giant for up to 1 million bicycles per year.

Despite exhibiting well-prepared business operations, the region where WBR operated was complex and challenging. Many of the countries imposed a significant import tax for the sold bicycles that could be as high as 25%. (Philanthropic bicycles were mostly not subject to the import tax.) Moreover, unstable political environments sometimes led to blockages of ports and interruptions with shipments of components, as well as high volatility of local currency. This required WBR to hold several months’ inventory versus a more efficient just-in-time system.

Building on Success and Looking Forward

With the help of BB and a growing number of donors, WBR expanded rapidly (**Exhibit 3**). By 2018, more than 392,000 bicycles had been distributed in 19 countries across sub-Saharan Africa, South America, and Far East Asia. WBR was primarily active in Africa (Kenya, Malawi, Zambia, Zimbabwe, with limited programs in Eritrea, Ghana, Uganda, Tanzania, Mozambique, and Angola), Colombia, the Philippines, Indonesia, and Thailand. In addition to bicycle programs and sales, WBR tried to train one local bicycle field mechanic per 100 bicycles distributed. By 2018, it had trained more than 1,900 mechanics (see **Exhibit 4** for more detailed statistics).

And WBR wanted to do more. To implement an expansion strategy, the board and management team wanted a structured planning model to predict whether the entry would be successful from the perspective of its philanthropic and commercial goals. Country attractiveness would be judged by the following three qualitative criteria:

- *High Impact*: Is there a high-need segment of consumers? Will the bicycle fundamentally change the lives of those targeted?
- *Ease of Implementation*: Can we operate successfully in this location? What external forces might affect our operating success?
- *Social Enterprise Opportunity*: Is there sufficient demand for the product to sustain social enterprise retail operations in the long term?

These criteria categorized countries in three types:

- *Type 1*: A country with a historically strong bicycle culture where WBR and BB can experience sufficient demand immediately (e.g., Zambia, Zimbabwe, Kenya, and Malawi)

- *Type 2:* A country with a strong bicycle culture and need but with significant challenges related to government and economic stability, terrain, or social enterprise barriers (e.g., Democratic Republic of Congo, Somalia, and South Sudan)
- *Type 3:* A country with limited historical bicycle culture, where the local population does not accept bicycles (even those donated) and where there is no obvious social enterprise opportunity (e.g., South Africa)

The majority of WBR's countries were type 1. Zambia was a particularly important experience for WBR, as it led to a business strategy that became a cornerstone of the organization's success: first, donate a critical mass of bicycles to raise awareness, thereby kick-starting market demand for for-profit bicycles. Then, use the proceeds to organically expand the donations and the production of bicycles for sale.

The Challenge

The qualitative evaluation must be complemented with a quantitative evaluation: How well is WBR positioned for country-specific launches? To determine whether a generic type 1 country is suitable for WBR's goal of maximizing the Power of Bicycles, the senior management team is seeking advice to answer the following questions:

1. From a general strategic perspective, how can a non-profit organization benefit from a for-profit subsidiary? How would you represent WBR's business model, including the synergies between philanthropic and sold bicycles, where donated bicycles stimulate (or "accelerate") next year's demand for sold bicycles?
2. What are WBR's key performance metrics? How would you formulate WBR's objective(s), and how do its key performance metrics link to that objective?
3. What strategies do WBR's competitors use? Do these competitors form a threat or an opportunity?
4. Build a decision support model to analyze how the number of bicycles in the field influences a market's demand for the for-profit division. Use the model to develop an entry plan into a generic type 1 country or market over n years that maximizes WBR's objective function and captures its business model: to find optimal planned quantities of bicycles to sell and/or to donate in each year. What is the value of social enterprise?
5. In addition to the information in the case, suppose that in a given year, BB expects a stable monthly demand of 20,000 bicycles. BB incurs shipping costs of USD 7,000 per container. Moreover, BB incurs an annual unit holding cost of USD 8 per bicycle (in CDK form) per year held in inventory. What is the optimal quantity of containers to order (round up to the nearest integer) and the optimal frequency of orders?

Exhibit I: Buffalo Bicycle

Source: Mike's Bikes, press release, "Announcing a New Partnership with World Bicycle Relief," October 10, 2012, <http://www.mikesbikesafrica.com/blog/announcing-a-new-partnership-with-world-bicycle-relief>.

Exhibit 2: Statement of Activities and Changes in WBR's Net Assets (in USD)

	Unrestricted ^a	Temporarily Restricted ^b	Total
REVENUE AND SUPPORT	11,452,106	93,000	11,545,106
Contribution and grants	4,236,445	—	4,236,445
Bicycle social enterprise program	240,001	—	240,001
Other income	75,000	(75,000)	—
Net assets released from restrictions			
<i>Total revenues and support</i>	16,003,552	18,000	16,021,552
EXPENSES			
Program services			
Social enterprise	7,902,052	—	7,902,052
BEEP	2,692,231	—	2,692,231
<i>Total program services</i>	10,594,283	—	10,594,283
Supporting services			
Management and administrative	970,744	—	970,744
Fundraising	3,055,799	—	3,055,799
<i>Total supporting services</i>	4,026,543	—	4,026,543
<i>Total expenses before tax expense</i>	14,620,826	—	14,620,826
TAX EXPENSE	98,413	—	98,413
<i>Increase in net assets from operating activities</i>	1,284,313	18,000	1,302,313
OTHER NON-OPERATING CHANGES IN NET ASSETS			
Investment return	12,290	—	12,290
Foreign exchange loss	(66,857)	—	(66,857)
<i>Increase in net assets</i>	1,229,746	18,000	1,247,746
NET ASSETS—BEGINNING OF THE YEAR	5,030,729	75,000	5,105,729
NET ASSETS—END OF THE YEAR	6,260,475	93,000	6,353,475

^a Unrestricted net assets represent resources that are available for use in carrying out the mission of the organization and include those expendable resources that have been designated for special use by the board of directors.

^b Temporarily restricted net assets represent those amounts that are donor-restricted with respect to purpose or time. When a donor restriction expires—that is, when a stipulated time restriction ends or the purpose of a restriction is accomplished—temporarily restricted net assets are reclassified to unrestricted net assets and reported in the accompanying consolidated statements of activities and changes in net assets as net assets released from restrictions. Permanently restricted net assets represent contributions with donor restrictions that mandate the original principal be invested in perpetuity. The organization currently does not have any permanently restricted net assets.

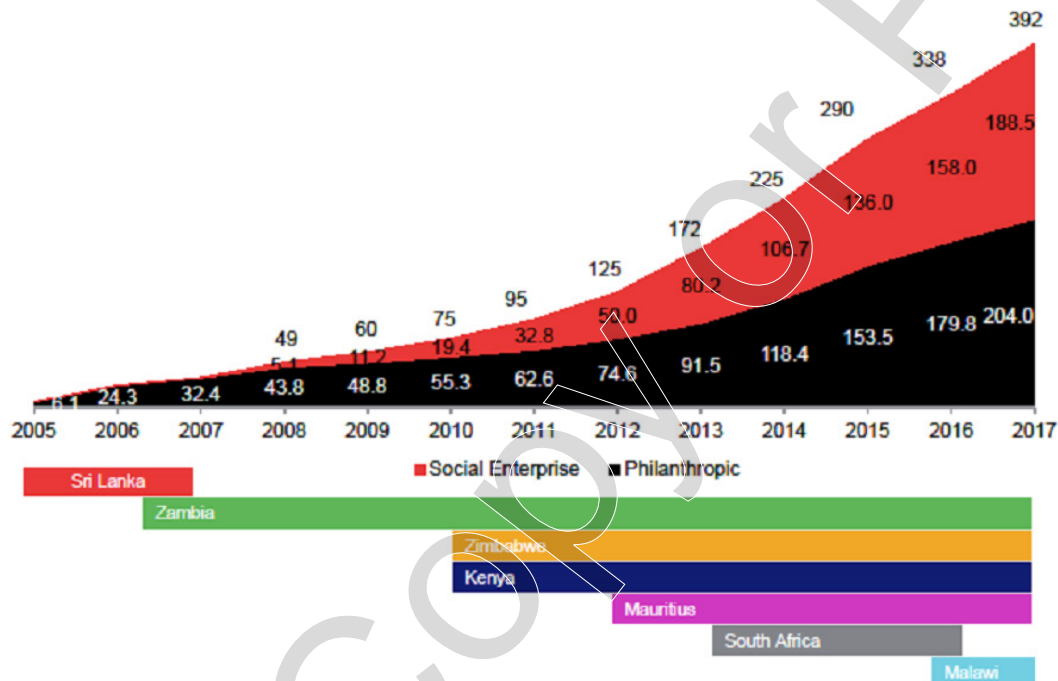
Exhibit 2 (continued)

	Program Services		
	Social Enterprise	BEEP	Total Programs
Bicycles and bicycle parts	4,458,146	36,855	4,495,001
Personnel	1,408,844	1,305,982	2,714,826
In-kind expenses	128,425	32,175	160,600
Professional expenses	456,470	52,197	508,667
Travel	397,174	112,837	510,011
Occupancy	233,780	38,427	272,207
Shipping and freight	97,864	14,585	112,449
Registrations and license fees	33,375	—	33,375
Product development costs	99,831	—	99,831
Repairs and maintenance	57,621	13,649	71,270
Supplies	191,444	11,793	203,237
Depreciation	98,200	18,275	116,475
Bank service charges	23,077	846	23,923
Printing	15,686	1,729	17,415
Insurance	27,463	1,164	28,627
Other expenses	140,567	(18,786)	121,781
Grants	—	939,017	939,017
Bad debts	27,356	—	27,356
Taxes and duties	—	131,486	131,486
Advertising	6,729	—	6,729
<i>Total</i>	<i>7,902,052</i>	<i>2,692,231</i>	<i>10,594,283</i>

Source: World Bicycle Relief Financials, accessed September 13, 2018, <https://worldbicyclerelief.org/en/story/financials>.

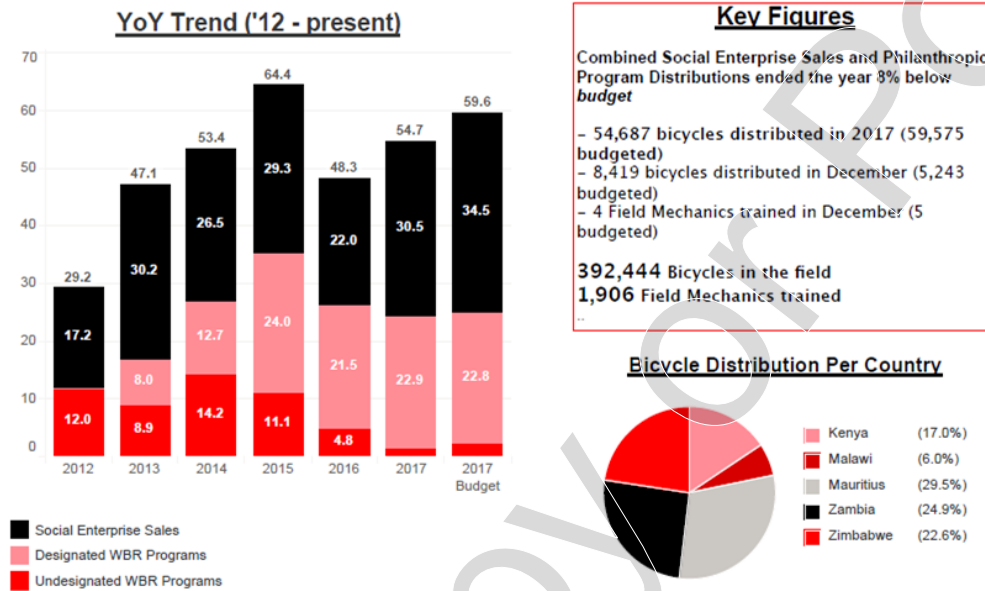
Exhibit 3: The Growth of WBR

Total Bicycles Cumulative



Source: World Bicycle Relief.

Exhibit 4: Key Statistics Per Country, Year, and Program



Source: World Bicycle Relief.

Endnotes

- 1 World Bicycle Relief, “Our Mission,” accessed September 10, 2018, <https://worldbicyclerelief.org/en>.
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- 3 Gene B. Sperling and Rebecca Winthrop, *What Works in Girls' Education: Evidence for the World's Best Investment* (Washington, DC: Brookings Institution Press, 2016), <https://www.brookings.edu/wp-content/uploads/2016/07/whatworksingirlseducation1.pdf>.
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- 7 Zambikes, “Zambike Amaka Sana,” accessed September 10, 2018, <http://www.zambikeszambia.com/products/products-for-zambia/zambike-amaka-sana>.
- 8 World Bicycle Relief, “The Service Course Takes on Dirty Kanza 200,” accessed September 10, 2018, <https://worldbicyclerelief.org/en/the-service-course-takes-on-dirty-kanza-200>.