

**MOBILITY
AND THE
SUSTAINABLE
DEVELOPMENT
GOALS**



MOBILITY AND THE SUSTAINABLE DEVELOPMENT GOALS

In 2015, world leaders at a UN Summit adopted 17 goals as part of a new sustainable development agenda. The Sustainable Development Goals, or SDGs, aim to end poverty, protect the planet, and ensure prosperity for all by 2030.

Mobility is an essential element of development strategies that aim to achieve the SDGs. In sub-Saharan Africa alone, there are over 600 million people who walk as their main mode of transportation. The lack of efficient, reliable transportation adversely affects economic and social development in regions where distance is a barrier. Connecting individuals to basic needs can help achieve SDGs that benefit these communities.

Overlooked as a development tool, the bicycle can drive global progress. Compared to walking, bicycle riders can carry five times as much cargo in just a quarter of the time. A high-quality bicycle in a developing rural area is a powerful, cross-cutting intervention that immediately improves livelihoods and educational and healthcare outcomes.

Buffalo Bicycles are sustainable, affordable, built to last, and can be used by individuals of all ages; they are essential to achieving the SDGs and creating long-term sustainable change in developing countries.



OUR PROGRAMMING DIRECTLY CONTRIBUTES TO ACHIEVING NINE SUSTAINABLE DEVELOPMENT GOALS

Goal 1 – No Poverty

Bicycles can help people overcome the barrier of distance and make it possible for people to transport more in less time, giving families and households the freedom to pursue a livelihood or expand a business. Bicycles are valuable tools that increase a household's net worth.

Goal 2 – Zero Hunger

With bicycles, families can transport more produce from farm to market, more grain to the mill, and more milk to the dairy collection center, creating nutritional access and improving food security for the entire community. In addition, bicycles increase outreach and coverage for extension agents carrying important knowledge about agricultural production and good nutrition.

Goal 3 – Good Health & Well-Being

People access health facilities, community health workers carry life-saving information, and medications are transported using bicycles, promoting well-being for all. Bicycles also motivate and retain healthcare volunteers who provide quality outreach services to people in distant communities. Access to bicycles results in higher quality care and healthier communities.

Goal 4 – Quality Education

In rural areas of developing countries, schools are often long distances from homes. Providing bicycles to students living far from school can improve their attendance, performance, and retention in primary and secondary school.

Goal 5 – Gender Equity

Cooking, cleaning, collecting water and firewood, and most household chores are considered "women's work" in many parts of the world. Bicycles can be used to make household chores easier and faster, freeing up girls' time for other pursuits - including school. Compared to walking, bicycles are a safer way for women and girls to travel long distances.

Goal 6 – Clean Water & Sanitation

In developing countries, fetching water is an essential and time-consuming chore. Bicycles can make it easier and safer to reach water sources and carry larger quantities of water back home.

Goal 10 – Reduced Inequalities

Individuals who have been excluded from essential income-generating activities due to distance or lack of transportation are able to pursue more opportunities and earn more with a bicycle. With a bicycle, all riders are empowered to overcome the barrier of distance to enjoy greater freedom of choice.

Goal 11 – Sustainable Cities and Communities

Bicycles are a safe, affordable, reliable, and sustainable transport option accessible to all people.

Goal 12 – Responsible Consumption and Production

Bicycles are an eco-friendly alternative to transportation that requires fossil fuels. The bicycle is a productive economic asset used for a variety of livelihood-enhancing activities. It is a sustainable and environmentally clean mode of transport that connects people, resources, and places, building inclusive, resilient, and mobile communities.

STRONG LIKE A BUFFALO



All bicycles are not equal. Most suppliers of bicycles in developing countries have become disconnected from the end-user, resulting in bicycles that aren't designed for rough terrain and heavy loads. As a result, these "Bicycle-Shaped Objects" can break down, stranding riders and costing them valuable time and money to repair. Years of research and constant innovation have helped us build a bicycle that's purpose-built for the needs of rural communities: the

Buffalo Bicycle. Durable, well-designed, and supported with a network of trained mechanics and affordable quality spare parts, the Buffalo Bicycle delivers the greatest utility and value to those in developing countries and allows individuals and communities to accomplish much more in a single day.

1 NO POVERTY



23%

DAIRY FARMERS
INCREASED THEIR INCOME
BY 23% WITH A BICYCLE



45%

FARMERS' TRAVEL
TIME DECREASED BY 45%
WITH A BICYCLE

“To fail to deliver milk even once is a loss. Since I got the Buffalo [Bicycle], I never failed to deliver milk, not even a day.”

– GEORGINA
SITUMBEKO, SMALL-SCALE DAIRY FARMER
AND MEMBER OF THE PALABANA DAIRY
COOPERATIVE

SDG 1: NO POVERTY

In areas of the developing world where walking is the primary mode of transportation, distance is a challenge to earning a livelihood. WBR seeks bicycle mobility solutions for men and women living in rural areas, often on less than \$1.25 USD per day. Bicycles can eliminate the barrier of distance and make it possible for people to transport more goods and earn a bigger income. Providing bicycles to students makes it easier for kids to complete their education and improve their future economic prospects. A Buffalo Bicycle is an important economic resource and asset that unlocks access to education, healthcare, and livelihood activities.



CASE STUDY: The Palabana Dairy Cooperative

Between 2011 and 2014, farmers in the Palabana region of Zambia purchased 281 bicycles through an Employee Purchase Program (EPP) at the Palabana Dairy Cooperative. The loan payments were subtracted over a three-month period out of the farmers' earnings from milk deliveries, enabling farmers to buy a high-quality Buffalo Bicycle without an upfront payment. Without bicycles, farmers would walk their milk jugs 2-17km to the collection facility - often resulting in late deliveries and poor milk quality. A comprehensive study of the impact of Buffalo Bicycles on the Palabana Dairy Cooperative reported a 25% increase in

the number of deliveries made by farmers with bicycles, and a 23% increase in the volume of milk accepted by the cooperative (which also raised farmers' income by 23%). A 45% reduction in travel time to the dairy cooperative when biking vs. walking meant that the delivered milk was fresher. Plus, the reduction in travel time meant farmers could spend more time on other tasks. In addition to increased productivity, 95% of farmers use their bikes to better their families' lives by accessing education and healthcare, attending community meetings, and visiting friends.



Download the report at: worldbicyclerelief.org/palabana-study-2016



To learn more about WBR's contributions to SDG 1, visit worldbicyclerelief.org

2 ZERO HUNGER



120%

LEAD FARMER VISITS
TO FOLLOWER FARMERS
INCREASED 120%
WITH A BICYCLE



LEAD FARMERS BENEFITED
FROM USING BICYCLES FOR
ADDITIONAL DAILY TASKS

“Now that we have been provided these bicycles, it is easier to constantly check on farmers, and I am able to visit all of them in one week.” – A LEAD FARMER ON THE EFFICIENCY OF HIS BUFFALO BICYCLE

SDG 1: ZERO HUNGER

In regions where food insecurity is related to distribution challenges, affordable, reliable transportation can be the key to improving nutritional access for the entire community. A bicycle's increased carrying capacity transports more produce, grain, milk, and meat than is possible on foot. With bicycles, both farmers and consumers can travel to markets that are further away, expanding the availability of and access to different foods. As farms are often located in rural regions, distance can be challenging to overcome when traveling between farms, distribution centers, and markets. Bicycles make travel both faster and easier, giving farmers more time and energy to spend on other important tasks.



CASE STUDY: The Conservation Agriculture Scaling Up Program (CASU) in Zambia

In Zambia, smallholder farmers face many challenges, including soil degradation, high supply prices, a small market for their produce, and limited transportation options for moving produce to market. A conservation agriculture program implemented by the Food and Agriculture Organization of the United Nations (FAO), Conservation Agriculture Scaling Up (CASU), aims to improve productivity and yields in Zambia while preserving the land for long-term farming success. FAO purchased 4,500 Buffalo Bicycles for lead farmers in the CASU program to help them comply with program requirements. With the bicycles, lead farmers were able to increase their involvement in CASU-related activities at a lower cost. The

average number of monitoring visits to follower farmers increased 120%, and 79% of lead farmers were able to visit more follower farmers per month after receiving a bicycle. 70% of lead farmers were able to attend meetings regularly and on time with their Buffalo Bicycles. The average time taken to cover the longest distance reduced 60% with a bicycle, from 120 minutes to 48 - and 57% of farmers felt less tired traveling by bicycle than on foot. Lead farmers also used their bicycles to help with everyday tasks, such as carrying produce to market (90%), transporting maize to the hammer mill (57%), visiting a health center (40%), and transporting water (36%).

 Download the report at worldbicyclerelief.org/farmer-mobility

 To learn more about WBR's contributions to SDG 2, visit worldbicyclerelief.org

3 GOOD HEALTH AND WELL-BEING



128,415

COMMUNITY HEALTHCARE WORKERS HAVE BEEN MOBILIZED WITH BUFFALO BICYCLES 2005-2018



87.5%

WITH A BICYCLE, HEALTHCARE VOLUNTEERS MAKE 87.5% MORE PATIENT VISITS

SDG 3: GOOD HEALTH AND WELL-BEING

In the developing world, individuals often live far from clinics and must traverse rugged terrain on foot to access care. Likewise, Community Health Workers (CHWs) often walk long distances to provide care for patients in remote areas. CHWs with bicycles reach 88% more patients, visit patients more frequently and provide better, more consistent care. The retention rate of volunteer healthcare workers is close to 100% when the program includes bicycles. Access to bicycles results in higher quality care and healthier communities.



CASE STUDY: Bicycles Support Tuberculosis Care In Kenya

In many parts of rural Kenya, CHWs walk long distances to reach households to provide health services such as tuberculosis care. It takes CHWs an average of 40-60 minutes on foot to travel from their homes to the health facilities to file reports. It can take much longer to reach clients in their homes. The long distances can be discouraging and time-consuming, leading to decreased morale among workers.

In partnership with WBR, PATH in Kenya has provided 1,100 bicycles to CHWs to ease the burden of transport and reduce time spent walking to clients' homes. CHWs received strong, reliable bicycles that served as an effective tool to improve the health workers' motivation and efficiency as well as improve access to tuberculosis-infected individuals. The CHWs worked to own the bicycles after two years of effective service to their communities.

As volunteers for the Ministry of Health, these CHWs conducted TB screening, referred patients to health facilities, identified patients who interrupted their TB treatment regimen, and provided home-based care and support to tuberculosis patients.

A study showed the Buffalo Bicycles increased the efficiency and quality of tuberculosis care by CHWs as follows:

- Increased number and frequency of visits from an average of 8 to 9 per month without bicycles to an average of 15 to 23 per month with bicycles.
- Increased number of TB patient referrals to health facilities from about 20 to 30 patients per month
- Increased time spent with patients
- Improved tracing of drug defaulters

Supervisors of the TB caregivers at the community level noted that CHWs with bicycles were more motivated than those without. The study also suggested that owning a bicycle enhances the social status of the CHWs, who are mostly women and homemakers. The community interprets the provision of bicycles as recognition of the importance of the workers' function within the healthcare delivery system.



To learn more about WBR's contributions to SDG 3, visit worldbicyclerelief.org

4 QUALITY EDUCATION



28%

WITH A BICYCLE, STUDENT ATTENDANCE INCREASES UP TO 28%



151,819

STUDENTS MOBILIZED WITH BUFFALO BICYCLES (2009-2017)

SDG 4: QUALITY EDUCATION

In rural developing countries, the biggest barrier to education is often the physical act of getting to school. WBR's Bicycles for Educational Empowerment Program (BEEP) provides bicycles to students living far from school to improve their attendance, performance, and retention in primary and secondary school. 70% of BEEP bicycles go to girls, who face greater challenges to staying in school than their male classmates. Regular school attendance helps students acquire knowledge and skills to be future leaders of sustainable development. By shortening commute times and easing the effort of travel, bicycles make education more accessible to all students.



CASE STUDY: Improving Girls' Educational Outcomes with Bicycles

The Improving Girls' Access through Transforming Education (I-GATE) program was designed to identify and reduce barriers that impede girls' educational access, retention, and learning outcomes in Zimbabwe. I-GATE was funded through the UK Department for International Development and targeted more than 100,000 girls. BEEP I-GATE, implemented through World Vision Zimbabwe and funded by World Vision Switzerland, World Vision USA and World Bicycle Relief, aimed to improve access to and retention in school for girls and boys aged 10-14 years in grades 4-7 in 10 districts of Zimbabwe. Executed from 2014 - 2016, the initiative is the largest BEEP distribution to date.

The main objective of BEEP I-GATE was to improve equitable access to education through the provision of bicycles and strengthened community support systems. The project was expected to:

- Reduce absenteeism
- Improve safety and security
- Improve retention
- Improve concentration/performance

The inclusion of BEEP in the I-GATE program resulted in a holistic education intervention that also addressed the barrier of distance to school.

Students reduced their commute time to school by 47% with bicycles, from 77 minutes to 41 minutes on average. Reducing travel time allows students to get more sleep and spend more time on homework or leisure, while improving their willingness to travel to school. The time saved has a bigger impact on girls, who have additional chores and responsibilities at home. In some cases, bicycles can even reduce time spent on chores by making it easier to fetch water and bring goods to market.

All students with bicycles maintained a passing mark (>50% average) over all terms and had an average 36% higher pass rate compared to students without bicycles. From 2015-2016, students with bicycles had twice the passing rate of students without. The overall impact of a bicycle on girls' performance was greater than the impact on boys' performance.

 Download the report at worldbicyclerelief.org/student-mobility

 To learn more about WBR's contributions to SDG 4, visit worldbicyclerelief.org

5 GENDER EQUALITY



6X

GIRLS WHO FINISH SECONDARY SCHOOL ARE SIX TIMES LESS LIKELY TO BE MARRIED AS CHILDREN.



25%

ONE YEAR OF SECONDARY EDUCATION FOR GIRLS CORRELATES TO 25% HIGHER WAGES LATER IN LIFE.



40%

GIRLS (5-14) SPEND 40% MORE TIME ON DOMESTIC CHORES THAN BOYS

“Going to school has become fun for me. I never want to miss one day.” –

STELLA, 19-YEAR-OLD STUDENT AND BUFFALO BICYCLE RIDER

SDG 5: GENDER EQUALITY

In rural Africa, systemic gender inequality limits opportunities for girls and women. Cooking, cleaning, collecting water and firewood, and other forms of unpaid domestic labor are considered “women’s work”, and they take precedence over schoolwork. Bicycles can be used to make household chores easier and faster, freeing up girls’ time for other pursuits. Bicycles also facilitate safe travel to and from class, reducing incidences of harassment and violence experienced on foot. With bicycles, it’s easier for girls to get to school, stay in school, and graduate - improving their economic prospects for the rest of their lives.



CASE STUDY: Girls Ride Toward A Brighter Future

Three years ago, nineteen-year-old Stella’s educational future was in peril. She gave birth to a baby girl just before she was expected to graduate from primary school. Home all day with an infant, Stella’s future looked bleak. High school was 12km away and Stella lacked the funds for school fees. And yet, she still dreamed of becoming a Kenyan diplomat promoting Kenya’s business affairs. So Stella gathered the strength to take her examination, pass, and go on to secondary school at Our Lady of Peace in Muhoroni Township, Kenya.

In 2016, Stella was one of 150 Our Lady students to receive a Buffalo Bicycle. She still starts her day very early to care for her daughter and complete the household chores expected of all Kenyan girls. But she has gained two hours because her bicycle has dramatically reduced her commute time to school. More importantly, Stella now feels safe on her daily route. “My daughter can now confidently

cycle past the sugar cane cutters who have the tendency of sexually harassing young girls and women who they come across,” Stella’s mother says. The threat of rape along school routes is a daily consideration for young girls in Kenya. A bicycle is an important tool in the fight to protect girls from violence, early marriage, and teen pregnancy.

Motivated by her dreams and powered by her bicycle, Stella is inspired to excel. When Stella received her Buffalo Bicycle, she found immediate relief from the challenge of distance. But she still lacked the funds for school fees. Now, Stella is using her bike in innovative ways to earn money. She plans to start transporting and selling excess produce from her family’s garden and fetching water for her neighbors. Stella’s bicycle has empowered her to re-envision her future, which is now looking bright.



To learn more about WBR’s contributions to SDG 5, visit worldbicyclerelief.org

6 CLEAN WATER AND SANITATION



6Km

WOMEN IN AFRICA
WALK 6KM (ON AVERAGE)
TO COLLECT WATER



5X

WITH A BICYCLE, FARMERS
AND ENTREPRENEURS CAN
CARRY 5X MORE GOODS

SDG 6: CLEAN WATER & SANITATION

In developing countries, fetching water is an essential and time-consuming chore that can keep children out of school and impact women's productivity. Buffalo Bicycles facilitate access to water by offering a productive, sustainable alternative method of transport. Compared to walking, riding is four times faster and allows a person to carry five times as much water per trip. When children - especially girls - are able to save time and effort by using bicycles for water collection, they are able to focus on their education. Educating children creates a ripple effect that empowers the whole community.



CASE STUDY: The Impact of Bicycles on Water Collection

In rural Africa, schoolchildren and women spend a majority of their time collecting water. In surveys from 45 developing countries, two-thirds of households have women and girls collect water if a water source is not nearby. Women walk 10-15 kilometers (6-10 miles) per day to carry 15 liters (4 gallons) on their shoulders or heads. According to the World Bank, women represent 40% of the global labor force, yet in Sub-Saharan Africa, 40 billion working hours (equivalent to a year's worth of labor in France) are lost to water collection annually.

The time lost to water collection prevents women and children from attending school and pursuing income opportunities. It also restricts the time for family care and community life that are important in any culture. Quality of life improves when there is a shorter distance to hike for water. For example, in Tanzania, school attendance increased by 12% when water was made available.

With Buffalo Bicycles, students and their families can take easier, shorter trips to safe wells. The carrying capacity of the Buffalo Bicycle enables these students to carry more water than is possible on foot. Students and families participating in our programs are also able to transport water in a way that is less exhausting. With access to clean water by bike, the benefits to children, women, and families are exponential. The immediate benefits include improved household hygiene, better food safety, and the prevention of waterborne sickness and disease. The transformative benefits are that students and families have more time and energy to thrive. Less time spent walking for water means more time for school, economic opportunities, and future welfare.



To learn more about WBR's contributions to SDG 3, visit worldbicyclerelief.org

10 REDUCED INEQUALITIES



70%

BY DISTRIBUTING 70% OF BEEP BICYCLES TO GIRLS, WE ADDRESS GENDERED INEQUALITIES RELATED TO EDUCATION AND DOMESTIC LABOR



SAVE TIME



TRAVEL FARTHER



CARRY MORE

“The donkey is okay. The bicycle is VERY good.” –

MARY, ON THE EFFICIENCY OF HER BUFFALO BICYCLE

SDG 10: REDUCED INEQUALITIES

Individuals who have been excluded from well-paid employment due to distance or limited carrying capacity can pursue more opportunities and earn more with a bicycle. The Buffalo Bicycle is a productive economic asset used for a variety of livelihood-enhancing activities. This sustainable and environmentally clean mode of transport connects people, resources, and places, building inclusive, resilient, and mobile communities. Rural students with bicycles are more likely to get good grades and graduate, improving their long-term economic prospects. Bicycles offer all riders greater freedom of choice.



CASE STUDY: A Bicycle Becomes a Valuable Family Asset

In 2016, World Bicycle Relief and development partners World Vision and the Ministry of Education rolled out a Bicycles for Educational Empowerment Program (BEEP) at Raliew Secondary School in Siaya County, Kenya. Two years later, a follow-up visit revealed the many ways that Buffalo Bicycles impacted students and their families.

Mary, a single mom and dressmaker whose daughters attend Raliew Secondary School, told us a surprising story about the dramatic economic savings that had come to the family once her daughter received a Buffalo Bicycle. “My daughter Jane is using the bicycle and coming to school on time. I am using it when I go to collect water. The jugs are wrapped with a rope, we tighten them down and just do it,” she said. The bicycle keeps Mary from having to shell out her hard-earned money just to meet basic needs. “We use the bicycle for transporting maize from the shamba (farm, field, plot) instead of paying 200KSH (\$2) for things like

donkey transport.” Mary’s girls now move their maize, potatoes and water via bicycle rather than going by donkey. The bicycle can carry half of a sack of vegetables at a time, which weighs 50kgs (110 lbs), or two to four water jugs. The girls can ride the bicycle when carrying a half bag or two jugs. If they choose to carry four water jugs, they push the bicycle like it is a cart.

With access to clean water by bicycle, the benefits to students, women, and their families are exponential. Benefits include improved hygiene, better food safety, and the prevention of waterborne sickness and disease. Students and families have more time and energy to thrive.

Pushing a bicycle is much easier than pushing a donkey. Either way, whether making two trips or pushing a heavy load, the bicycle is always faster. Mary sums this up, “The donkey is okay. The bicycle is VERY good.”



To learn more about WBR’s contributions to SDG 10, visit worldbicyclerelief.org

11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



SDG 11: SUSTAINABLE CITIES AND COMMUNITIES

SDG 12: RESPONSIBLE CONSUMPTION AND PRODUCTION

In sub-Saharan Africa, there are 550 million people who walk as their main mode of transportation. Everyday tasks can quickly become a struggle against time and fatigue. The lack of efficient, reliable transportation adversely affects economic and social development in regions where distance is a barrier.

In regions of the world where infrastructure is lacking and paved roads may still be generations away, a bicycle is an effective, sustainable, and environmentally friendly transportation option that connects people to resources and extends opportunity to the distant last mile. Connecting people to markets, schools, and healthcare allows individuals and communities to accomplish more every day.



100Kg

BUFFALO BICYCLES ARE PURPOSE-BUILT FOR AFRICAN TERRAIN AND HEAVY CARGO; THE REAR RACK CAN CARRY 100KG+ LOADS



BUFFALO BICYCLES ARE DELIBERATELY COMPATIBLE WITH LOCALLY AVAILABLE SPARE PARTS

CASE STUDY: Girls Ride Toward A Brighter Future

As a 13-year-old, Priscah received a bicycle through WBR's Bicycles for Educational Empowerment Program (BEEP). Five years later, Priscah's parents and five younger siblings have also benefited from the life-changing power of Buffalo Bicycles. From accessing healthcare to transporting their family farm's produce, this family is now on the move.

Priscah received a bicycle while she was in grade six at Chikanda Basic School in Mumbwa District, Central Zambia. Before receiving her bicycle, Priscah would wake at 5am to walk the 8km to school in time for class at 7am and was often late.

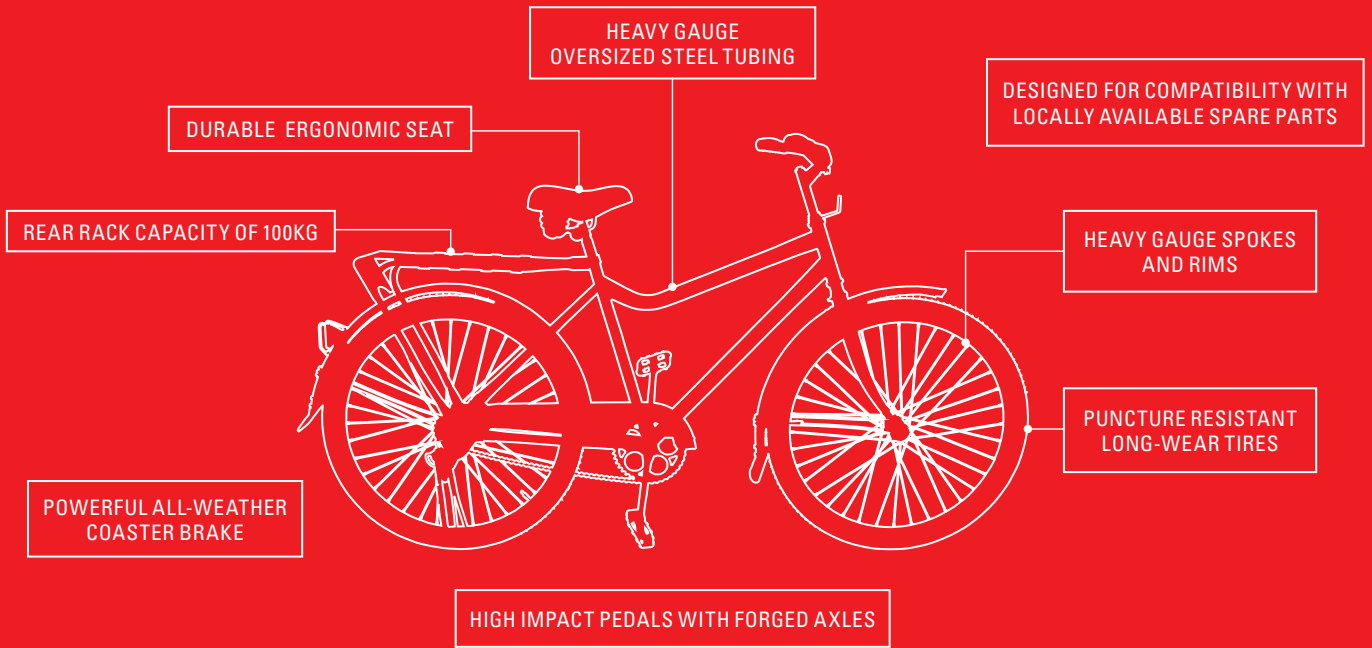
With a bicycle, Priscah was able to get an extra hour of sleep each morning and take care of her morning chores. After school, she would use the bicycle to fetch water, wash dishes, and get home in time to study in the daylight.

After Priscah graduated from primary school, her brother inherited her bicycle. It has since been passed on to another sibling, who ferries two younger siblings on the rear carrier.

Priscah's parents use the bicycle to carry more of their small farm's produce to sell at the market. When the local market price for their vegetables was too low, Priscah's father pedaled to a market 20km away to earn a better price. The extra income they earned enabled them to pay school fees, hire workers, purchase a truck for the farm, and even build a store for their produce!

A single Buffalo Bicycle typically impacts five individuals. In Priscah's family, a total of eight people used her bicycle to improve the family business, access healthcare and travel to and from school.

 To learn more about WBR's contributions to the SDGs, visit worldbicyclerelief.org



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WORLD BICYCLE RELIEF MOBILIZES PEOPLE THROUGH THE POWER OF BICYCLES.

WE ENVISION A WORLD WHERE DISTANCE IS NO LONGER A BARRIER TO INDEPENDENCE AND LIVELIHOOD.

We believe that mobility is a fundamental human right. With bicycles, individuals can more easily access education, healthcare, and economic opportunities, empowering people to make positive change in their lives and communities. Through our innovative model and mobility solutions, we are committed to achieving the UN's Sustainable Development Goals to end poverty, protect the planet, and ensure prosperity for all by 2030.