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# Nyamagabe Solar Lamp Project

A REPORT ON THE FIRST TWO YEARS FOR:

**WORLD VISION REPRESENTATIVE:**

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## NYAMAGABE SOLAR LAMP PROJECT



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*A higher standard.  
A higher purpose.*



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*Motivated by  
our faith in  
Jesus Christ,  
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of God's  
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love for all  
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## Executive summary

Thanks to a partnership with the Christ Presbyterian Church community in Madison, Wisconsin and other visionary donors, rural Rwandan children are being helped to succeed in school by providing their families and their teachers with solar lamps. Contributions to date have provided 6,894 households with solar lamps, making it possible for eager students and dedicated teachers to read, study, and plan lessons at night—hours that otherwise would be essentially lightless and unproductive.

We are grateful for your prayers and your financial gifts to support vulnerable and impoverished Rwandan schoolchildren in their quest for learning and academic success. A quality education offers these young people a way out of poverty, paves the way for their future opportunities, and can be an effective catalyst in transforming their lives, their families, and their communities.

*Our vision for every child, life in all its fullness.*

*Our prayer for every heart, the will to make it so.*

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## Solar Lamp Project

The Solar Lamp Project in Rwanda started in Rwanda's Nyamagabe area development program (ADP) in fiscal year 2011 (October 2010 to September 2011). The following pages describe the project and what was accomplished during the first two years, thanks to your support.

### The need to create light without electricity

Less than two percent of people in Nyamagabe have access to electricity, and most rural schools have no electricity at all. The Rwandan government recently set a goal of 30 percent electrification by the year 2030. However, the reality for now is that a stable, reliable, and affordable electric grid is decades away for rural areas like Nyamagabe. In the absence of a power grid, rural households depend on candles, kerosene lamps, or coal to meet their lighting needs. These fuel-based lighting sources generate poor light quality, cause health problems, and result in high recurring expenditures—fuel costs consume close to 25 percent of household budgets.

Deadly fires ignited by candles and kerosene lamps are all too common. And the smoke, especially from crude homemade lamps, is a major cause of serious respiratory disease. Emphysema, asthma, and tuberculosis are common ailments in this community.

## **NYAMAGABE SOLAR LAMP PROJECT**

World Vision is a Christian humanitarian organization dedicated to working with children, families, and their communities worldwide to reach their full potential by tackling the causes of poverty and injustice. Motivated by our faith in Jesus Christ, we serve alongside the poor and oppressed as a demonstration of God's love for all people. World Vision was founded in 1950, and today we work in nearly 100 countries, serving millions of people regardless of religion, race, ethnicity, or gender.

Given the daunting obstacles to extending the power grid, development organizations have explored off-grid lighting approaches as a solution. In the last few years, a particularly practical product emerged: robust, affordable, solar-charged LED lamps for a low price. When compared to the costs of fuel-based lighting, the payback period for the solar-charged LED lamps is typically less than six months.

### **Accountability and sustainability**

Families who have purchased solar lamps are encouraged to form an accountability group, and each member signs a joint purchase agreement binding them to their group's repayment obligation. The goal is that families can hold each other accountable for timely payments, decreasing default rates. The purchase plan for one lamp is set at a weekly payment that equals approximately what a typical family would pay for fuel-based lighting. Families who can afford only a portion of the lamp cost are supported with discount vouchers, making it possible for all interested families to own a solar lamp. Because all families are purchasing the lamps (even those who use discount vouchers) their self respect is honored and there is pride of ownership in the lamps.

Each interested school creates a lighting committee to oversee the program. The leader of each accountability group gathers weekly payments from its members and submits the total payment to the lighting committee.

As an added incentive to complete payments for the lamps, 10 to 20 percent of the total payments can be given to the school for their own use, once the school has recovered all payments for the lamps. The community lamp payment funds can be used to help schools buy large solar panels for general electricity and lighting purposes. The remainder of the purchase money paid by the families is used to fund solar light projects at other schools.

The success and sustainability of this project depends on the level of partnership between World Vision and other stakeholders, including the Rwandan government, community members, distributors, and Christ Presbyterian Church, Madison. The Rwandan government and local leaders are very interested in supporting this initiative by subsidizing part of the cost of buying the lamps, removing import barriers such as taxes, promoting the benefits of solar-powered light to families, and assisting with security and protection against theft.

Additionally, they support the idea of scaling up the solar lamp project to other schools in the district, the region, and the rest of the country.

### **Project awareness and promotion**

World Vision is using a variety of methods to demonstrate to families the educational, economic, and health and safety benefits of the solar lamps. Literature is sent home with schoolchildren to describe the lamps, the purchase and distribution program, and how to use the lamps. Demonstrations for interested families are held at the schools in the evening. Families are encouraged to take home a fully charged lamp for one night, to help them decide whether or not to buy it and participate in the project.

## **Project progress in the first two years**

In fiscal 2011, the Solar Lamp Project was launched in Nyamagabe, a community where World Vision was uniquely positioned to build on its existing good relationship with the school system to implement this successful solar light distribution program through local schools.

We are happy to report to you that during fiscal years 2011 and 2012, the Solar Lamp Project distributed 6,894 solar lamps and accomplished the following in Nyamagabe in an effort to improve learning environments and school performance.

The use of solar lighting lamps at the household level has significantly improved the performance of children in primary and lower secondary school.

### ***Highlights:***

- Based on the data from Mulico School, 77 percent of students successfully passed the Lower Secondary National Examination 2011/2012, whereas 67 percent passed in 2010/2011. (District Report, 2012).
- Bwama Primary School shows that school performance has shifted from 64 percent for academic year 2011 to 88 percent for academic year 2012. (School Management Report, 2012).

***Plan:*** Improve the household learning environment for 20 percent of Nyamagabe families.

***Accomplishment:*** As a result of project activities, 22 percent of Nyamagabe households have an improved home learning environment.

***Plan:*** Mobilize 400 community members (parents, teachers, solar lamp accountability group members) to be actively involved in the distribution, monitoring, and maintenance of solar lamps to improve school performance for students.

***Accomplishment:*** 400 community members (parents, teachers, solar lamp accountability group members) are actively involved in the distribution, monitoring, and maintenance of solar lamps to improve school performance for students.

***Plan:*** Equip 5,000 families with solar lamps.

***Accomplishment:*** Equipped 6,894 families with solar lamps.

***Plan:*** Ensure the sustainability and maintenance capacities of solar lamps for 2,500 Nyamagabe families.

***Accomplishment:*** 2,500 families in Nyamagabe are using solar lamps with maintenance capacities.

## NYAMAGABE SOLAR LAMP PROJECT

### *Integration of cross-cutting themes*

#### *Gender*

In Nyamagabe, as in other parts of the country, both boys and girls have equal opportunities to access education. In the same way, schoolchildren were subsidized with solar lanterns, regardless of gender.

#### *Environment*

Together with schools, 6,894 families were subsidized with solar lanterns to improve school grades, reduce indoor air pollution, and promote renewable energy.

#### *Child Protection*

There is a significant association between school performance and a reduction of the dropout rate as a result of the solar lanterns, which helps to protect young people from exploitation and child labor.

### The new solar lamp



### Progress and learnings

We continue to improve efficiencies. Originally, World Vision bought the solar lamps for \$15 each, and households purchased the lamp for \$7, the balance of the lamp costs subsidized by private donations. Eventually we found an even better price for another quality lamp from a business in Uganda. Saving \$5 per lamp, at a cost of \$10 each, families now pay \$5 per lamp instead of \$7.

As with the earlier lamps, these compact lamps come with small solar panels and rechargeable batteries. They typically provide four to six hours of bright light on a full day's charge. Some highly rated solar lamps can also charge mobile phones, a practical and economic benefit to families.

### Ensuring lasting gains

In a further effort toward sustainability, World Vision is encouraging discussions between solar committee members and an appropriate finance company, so families can better access loans. In addition, local investors will be identified and invited to make this project a business opportunity to help develop the local economy.

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## Thank you

Christ Presbyterian Church, Madison has demonstrated vision and generosity in responding to the needs of children and families in Nyamagabe. World Vision is grateful for your past support of our work, and we look forward to deepening our partnership with you.