



# Little Sun

2023 | A Year in Pictures

A child uses his new solar lamp as part of Little Sun's lamp distribution with Help e.V. in the Congo. Photo: UGEAFI



## Dear Little Sun community,

This past year has been marked by pivotal moments for Little Sun, and it is with deep appreciation that we acknowledge your support, enthusiasm, and active participation. Your contributions have allowed us to extend the reach of solar energy around the world, and the entire Little Sun team is grateful to our supporters, partners, and friends.

In 2023, we reached out to students, teachers, and community health workers in Tanzania, Ethiopia, Senegal, and various other locations—delivering solar lamps and phone chargers. Collaborating with IKEA, we created a globally resonant solar message through the design and distribution of unique solar lamps. Additionally, our focus on the development of solar productivity applications for rural smallholder farmers took center stage, with a special emphasis on activities in Zambia.

Generous contributions from individuals and institutions, both longstanding and newfound, fueled our initiatives. As we concentrated on advancing our productive use applications, the journey that began with pilot programs in 2022 continued with their evaluation in 2023. This momentum has led us to the final stages of installing our inaugural Little Sun Community Energy Hub in Chibombo, Zambia.

This milestone signifies a shift in Little Sun's work, placing emphasis on the scalability of productivity initiatives over the distribution of lamps and chargers. While our commitment to the iconic Little Sun Original and Little Sun Charge remains important, we are excited about the potential solar impact that the Community Energy Hub represents.

The reinforcement of our team in Zambia is a significant development, marked by the introduction of solar-powered cooling technology from Indian collaborators—the first of its kind imported to Africa. The completion of our first Community Energy Hub building signals our readiness to begin operations.

This transition also means a restructuring of roles, bidding farewell to long standing team members in Berlin while welcoming new faces in Zambia. Regrettably, Little Sun's activities in Senegal concluded this autumn, with a strategic move of all productivity work to Zambia to ensure optimal resourcing.

As we navigate this juncture, we extend our gratitude to departing team members. Your contributions will be cherished, and your spirit will guide us forward.

The 2023 'Year in Pictures' serves as a celebration of our collective achievements. Special thanks to the teams in Senegal and Berlin for their commitment and energy. To you, our supporters, thank you for being an integral part of the Little Sun journey.

Solar regards from Berlin,  
**Felix Hallwachs, Managing Director**

“  
Your contributions have allowed us to extend the reach of solar energy around the world, and the entire Little Sun team is grateful to our supporters, partners, and friends.”

**Olafur Eliasson,**  
Artist and Founder of Little Sun

# Little Sun, Global Impact.

2012 to 2023

1,653,367

Little Sun products distributed worldwide

1,016,048

Little Sun products distributed in regions without electricity

4,879,314

People with improved access to energy\*

2,378,277,860

Extra light hours for households living without electricity\*

\$203,476,496

Savings on energy expenditure, cumulatively, over lifetime of products\*

984,382

Kerosene lanterns replaced\*

1,272,806

Metric tons of CO<sub>2</sub>eq emissions avoided, over lifetime of products\*

205,795,408

Extra study hours for school children living without electricity\*\*

257

Solar systems installed in institutions\*\*\*

\*Based on GOGLA, the Standardized Impact Calculator for the Off-grid Energy Sector. The calculations are based on the product lifespan.

\*\*from Little Sun Foundation's distributions to school children since 2018. Based on SolarAid's Impact Calculator.

\*\*\*Health facilities and schools.

For more information, visit: [littlesun.org/impact](https://littlesun.org/impact)

# Little Sun

## Our programs at a glance.

### We Meet Urgent Needs

Little Sun meets urgent energy needs with solar power for students, teachers, refugees, community health workers, and families. This helps students study after dark, equips teachers with the right tools, provides refugees with a sense of security, and ensures healthcare workers can treat patients.

[Take me to Urgent Needs →](#)

### We Power Productivity

Little Sun powers productivity to improve agricultural efficiency, increase food security, broaden economic opportunities, and reduce poverty. To do this, Little Sun builds community energy hubs that power agricultural needs, such as milk cooling.

[Take me to Productivity →](#)

### We Equip Communities with sustainable and scalable systems

Little Sun equips communities with scalable systems that provide long-term solar energy access. We provide schools and homes with solar systems, create pay-as-you-go initiatives, electrify health centers, and support solar entrepreneurs.

[Take me to Scalable Solutions →](#)

### We Galvanize Citizens around the beauty and power of the sun

Little Sun galvanizes citizens around the beauty and power of the sun to inspire communities to take action around climate justice. This means investing in programs that create spaces for climate dialogue, partnering with artists who help imagine a climate-just future, and lending a voice to untold or underrepresented stories.

[Take me to Citizen Engagement →](#)



# Urgent Needs

Portable solar lamps present a straightforward and cost-effective solution to expand energy access and shed light on renewable energy initiatives.

Distributing solar lights and chargers also proves to be a highly efficient way to assist individuals in pressing circumstances, whether they are refugees, healthcare workers, or schoolchildren in areas without access to energy.

Little Sun has partnered with major humanitarian organizations, including UNHCR, IOM, Oxfam, and Save the Children, to deliver solar lamps and phone chargers to those living without access to electricity. We are determined to continue this impact in the future.

**50% of the sub-Saharan population still lacks access to electricity.**

According to the International Energy Agency.

A woman received a solar charger as part of a distribution that took place in Northwest Tanzania. Photo: REDESO

## Tanzania

Together with our partner AAIDRO, Little Sun provided a total of **12,000 Little Sun lamps** to primary and secondary school children in the Arusha Region—along **with 400 solar chargers** for teachers.

Solar energy training sessions for both teachers and students accompanied the distributions to further the impact of the solar equipment. Additionally, more than 7,000 Little Sun lamps were distributed to refugees and their host communities with help from our partner REDESO—with 560 solar chargers for community services.

To assess the impact, we have initiated monitoring efforts for schools where students received Little Sun lamps and teachers who received Little Sun chargers. This allows us to better understand the impact on long-term academic performance.



Thank you so much for this noble support, it really motivates us to work hard especially during the nights for planning of teaching sessions and even doing our family cores at our houses. ”

said the Headmaster of Ngereyani Tingatinga Secondary school.



Children at a primary school in Longido, Tanzania with their new Little Sun solar lamps in July 2023. Headmaster of Ngereyani Tingatinga Secondary school (left). Photos: AAIDRO



A young boy in Northwest Tanzania with his new lamp at his home. Photo: REDESO



(Top left) School children use a Little Sun lamp to read. (Top right) Secondary school children in the Arusha Region with their new solar lamps. Photo: AAIDRO. (Bottom left) A woman in Northwest Tanzania with her new solar lamp. Photo: REDESO. (Middle) A primary school in Longido, Tanzania. Photo: AAIDRO. (Bottom right): School children watching a video about renewable energy. Photo: AAIDRO.





## South Africa

In South Africa, the pressing energy crisis has made it so **millions live in darkness** on a daily basis.

Little Sun continued its long-term partnership with the National Association of Child Care Workers (NACCW) and One to One Africa (OTOA) to distribute more than 3,000 solar lamps in the Eastern Cape, which grapples with significant infrastructural challenges—including inadequate water and electricity supply. Even in areas where electricity is available, financial constraints prevent families from purchasing electricity units, compelling them to rely on paraffin lamps for illumination and gas stoves or open fires for cooking.

By providing solar lamps we aim to empower beneficiaries with a source of light during the night and early morning hours. The light is indispensable for a myriad of tasks, including household chores, caring for infants, bathing children, administering medication, preparing for school, completing homework, navigating nighttime trips to outdoor facilities, and commuting to schools.

In an effort to broaden the impact of the initiative, the 2023 distribution not only targeted mothers but also extended its reach to adolescents dealing with chronic diseases, mobile clinic patients, orphaned and at-risk children and youth, and more.



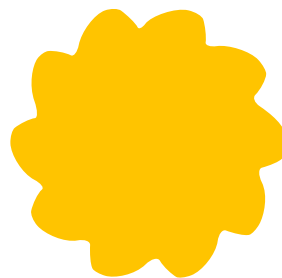
Zola is 11 years old and one of five siblings living in Siteview informal settlement with his caregiver. The family is connected to the grid, but cannot always afford to buy electricity as the caregiver is unemployed. For Zola, it can be unsettling to walk alone in the dark to buy essentials at the local tuck shop. But with a solar lamp, Zola can feel safe and secure walking to and from the tuck shop. Moreover, the solar lamp provides invaluable light for their home in the evenings.



Zola with his new Little Sun solar lamp. Photo: NACCW

## Case Study South Africa

# Comparison: Little Sun Original Solar Lamp vs Regular Battery Powered Torch Impact



In numerous communities where Little Sun operates, households are transitioning from the use of paraffin lanterns and candles to adopting single battery-powered torches.

That's why we created a comprehensive analysis to assess the environmental and economic impact of using a Little Sun Original solar-powered lamp compared to a conventional battery-powered torch over a 4-year period for end-consumers, based on South African battery costs as of June 2023.

For every Little Sun Original delivered to a community household currently using a common battery-powered torch, the household stands to save ZAR 10,000 over the 4-year period and significantly reduce pollution by a factor of 1000.

Improperly disposed batteries contribute to ground, water, and air pollution. When batteries are discarded or left in the environment, they corrode and leak, releasing hazardous materials such as mercury, cadmium, lithium, and lead into the soil and water.

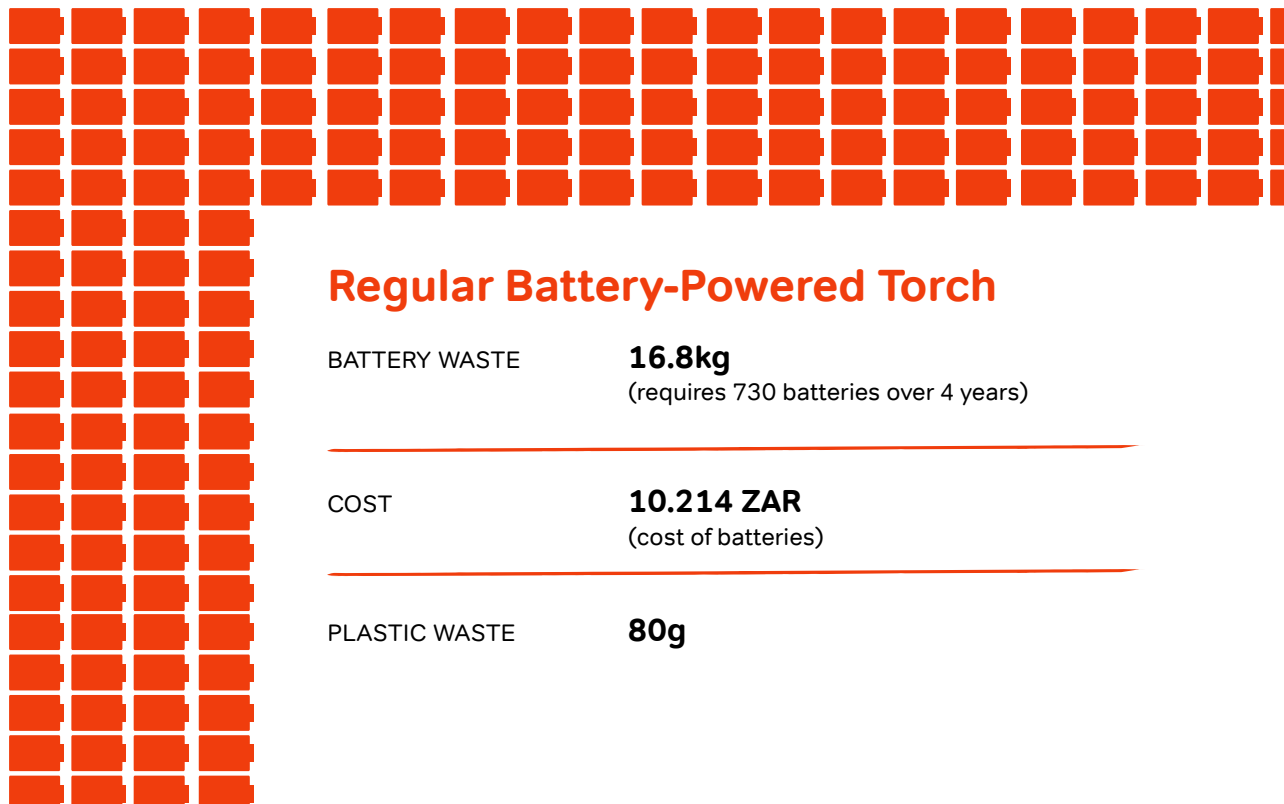
1 ZAR = 0.048638 EUR

## Little Sun Solar Lamp

BATTERY WASTE **16g**  
(1 battery over 4 years)

COST **0 ZAR**  
(no need to buy batteries)

PLASTIC WASTE **80g**



## Regular Battery-Powered Torch

BATTERY WASTE **16.8kg**  
(requires 730 batteries over 4 years)

COST **10.214 ZAR**  
(cost of batteries)

PLASTIC WASTE **80g**

# Congo

In the Democratic Republic of the Congo, where access to **electricity is extremely limited**, rural areas depend on environmentally harmful and expensive **lighting solutions**.

Little Sun aims to address this issue by providing solar lamps to support greater access to energy solutions.

Little Sun provided our partners UGEAFI and Help e.V. 3,450 Little Sun solar lamps to 3,100 students and 350 teachers at 14 schools in North and South Kivu, 1,401 in Idjwi, 1,244 in Nyiragongo, and 805 in Minembwe.

This support is expected to improve students' ability to study while ensuring teachers have adequate light for lesson preparation. This support is expected to improve students' ability to study while ensuring teachers have adequate light for lessons.

**80%** of DRC's inhabitants lack access to electricity

According to the World Bank.





Students with their new solar lamps in the Democratic Republic of the Congo. Photo: UGEAFI

## Morocco

The **2023 Morocco earthquake** struck with significant force, causing widespread damage and triggering **urgent humanitarian efforts.**

The seismic event, its epicenter located in a region prone to tectonic activity, resulted in the need for immediate relief measures. Communities were impacted, structures were damaged, and the impending threat of heavy rainfalls heightened the urgency for shelter and essential supplies.

In order to lend a helping hand, Little Sun worked with local organizations to provide solar lamps to those who had been impacted. In partnership with MLBA, Little Sun distributed more than 100 solar lamps to individuals who found themselves without a light source after the earthquake.

Through a general donation drop-off point in Marrakech, Little Sun partnered with on-the-ground organizations to ensure that lamps were distributed in the most effective way possible. The intention was to support relief efforts and provide assistance to those affected by the earthquake.



More than **500,000** people were displaced as a result of the earthquake that struck Morocco in September 2023

According to the Center for Disaster Philanthropy.

## Burkina Faso

In 2023, **9,000 Little Sun lamps** were shipped to our partner ISAEDD in Burkina Faso and distributed to **internally displaced students** in the second half of the year.

The distribution was a collaborative effort involving various organizations, such as Plan International, OCADES, Compassion Internationale, and the Regional Directorates of Education of Zundweogo and Kourittenga.

This initiative, conducted in cooperation with the Ministry of Education and several NGOs, aimed to address the rapidly deteriorating security and humanitarian situation in Burkina Faso. At the official lamp distribution ceremony, many parts of the community participated with musical performances, dances, theatrical presentations, and poetry. This event served as a platform for these young talents to showcase their skills to the broader public, while also providing an opportunity to learn about solar energy.

**As of June 2023, the crisis had led to over 2 million internally displaced people and the closure of more than 6,000 schools, leaving a significant number of displaced children unable to attend school.**

According to the UNHCR.



Community musical and dance groups performed at the solar lamp distribution in Burkina Faso. Photos: Brothers Group



# Productivity

More than half of the population of sub-Saharan Africa are smallholder farmers, but agricultural productivity across the region remains low.

There are many reasons for the challenges these farmers face, but solar energy remains an important solution that can help communities power tools that allow them to increase their yields, sales, and more.

Little Sun is committed to supporting farmers, particularly those who lack market and grid access. To accomplish this, we are leveraging solar technology for agricultural productivity and post-harvest processing. This ensures more crops are available, farmers can increase household incomes, and communities meet their nutritional needs.



## Zambia Community Energy Hub

In 2022, we initiated the construction of our **inaugural Community Energy Hub** in Chibombo, Zambia, aimed at **delivering solar-powered services to rural smallholder farmers.**

As of now, the hub's construction is nearly complete, and our team in Zambia is gearing up to commence operations.

Months of effort have gone into importing solar cooling technology, constructing buildings, and collaborating with local entities and experts to refine our model. The hub, along with two solar counterparts, will launch in the next two months, equipped with technology, a skilled team, market access, and farmer partnerships.

Our first offering focuses on a solar-powered milk cooling system, providing market access for cooperative farmers and meeting local dairy demand. With the generous support of SELCO India, we partnered with Prompt Dairytech, an Indian supplier of cold chain technology. They crafted a system tailored for the rural Zambian context. This milestone is a significant achievement for Little Sun, and we eagerly anticipate sharing more progress in 2024.





Images from Little Sun's inaugural Community Energy Hub in Chibombo, Zambia. Photos: Chona Mwemba and Albert Ottesen



Little Sun employees pose in the Community Energy Hub in Zambia. Photo: Chona Mwemba



# Scalable Systems

Access to dependable and clean energy can profoundly transform lives. In Africa, where children often live without electricity, solar energy emerges as a catalyst for a brighter educational and future outlook.

This holds true for community health workers as well, who rely on light and power to administer essential treatments to patients. Little Sun, in collaboration with local partners, has been instrumental in providing solar systems to households and institutions. This encompasses the installation of solar home systems to power lights, refrigeration, and television, as well as the implementation of solar systems in schools to support the success of both students and teachers.

**\$30 billion USD investment each year would be required to reach universal access to energy by 2023.**

Source: IEA.

A girls boarding school dormitory in Longido, Tanzania that previously had no access to electricity. It is now equipped with lights powered by solar energy. Photo: AAIDRO



## Improving patient care with We Care Solar

Access to power is **crucial in healthcare**, enabling safe practices and life-saving interventions.

In sub-Saharan Africa, one in four health facilities lacks electricity, and in Ethiopia 72% of health facilities, especially in rural areas, lack access.

Little Sun was thrilled to partner with We Care Solar in 2022 to provide solar electricity to five off-grid health facilities in rural Ethiopia, aiming to demonstrate the feasibility of affordable, reliable, and independent solar systems. This year, we measured the impact and learned that access to light increases the safety and feasibility of births, increases the number of patients health clinics are able to see, and more.

“ I am able to give the quality health care I always dreamed of because there is a reliable light source and a vaccine fridge. ”

**Mesfin, healthcare worker**



Health facilities in Ethiopia gain access to solar energy for medical purposes. Photos: Yonatan Taddese and Samson Tsegaye

## Health center electrification in Zambia

This project was established to provide solar lighting, refrigeration, and assorted health equipment to off-grid health facilities in Mumbwa district, central Zambia.

With help from the District Health Office (DHO), we distributed lighting and refrigeration systems to eight facilities, offering additional health gadgets. We also supported 11 solar-powered health hubs with additional medical equipment.

The impact of the project was evident in the positive reception from health workers at the facilities. Not only did the solar-powered refrigerators solve the longstanding issue of preserving vaccines, but the lighting systems also enabled facilities to extend their operational hours.

“  
Now, we are able to work better in maternity wards when it's dark.”

Jasper, a healthcare worker in Zambia



A healthcare worker removes vaccines from a refrigerator before administering to a patient. Photo: Chona Mwemba



Photo: Chona Mwemba



## School electrification in Tanzania

This year, Little Sun **electrified a boarding school** in the Longido District of Tanzania.

The purpose of this project was to help increase study hours, safety, and overall well-being by providing solar energy to power lighting and educational equipment.

This resulted in the installation of a 4.86kW solar power system with a 10kWh battery capacity, benefiting 600 students and 23 teachers.

The electrification initiative significantly impacted the school, providing lighting in dormitories, classrooms, laboratories, and administrative areas. Access to the internet for research, extended study hours after dark, and increased teacher retention were notable outcomes.

One of the primary challenges when electrifying schools in remote off-grid communities is managing energy usage, as it can sometimes be challenging for first-time users to understand their energy budget. To address this, Little Sun established comprehensive monitoring, including tracking the battery's state of charge, power consumption, and solar power generation.







Secondary students join the school principal in inaugurating the school's new solar system. Photo: AAIDRO



# Citizen Engagement

Art and culture play a crucial role in both inspiring and educating communities about energy access and climate justice.

They serve as powerful tools in challenging antiquated belief systems and amplifying the voices of underrepresented stories. Without the medium of creative storytelling, our understanding of what is achievable may be limited.

Art also has the ability to transform conversations rooted in fear into beacons of hope, inspiring communities to actively engage and take meaningful action. Through creative endeavors and partnerships, we aim to foster engagement and spark genuine transformation around climate action and solar energy.



The collaboration with IKEA supports our mission to raise awareness for energy access and reminds us that we have the potential to co-shape our world. ””

**Olafur Eliasson,**  
Artist & founder, Little Sun

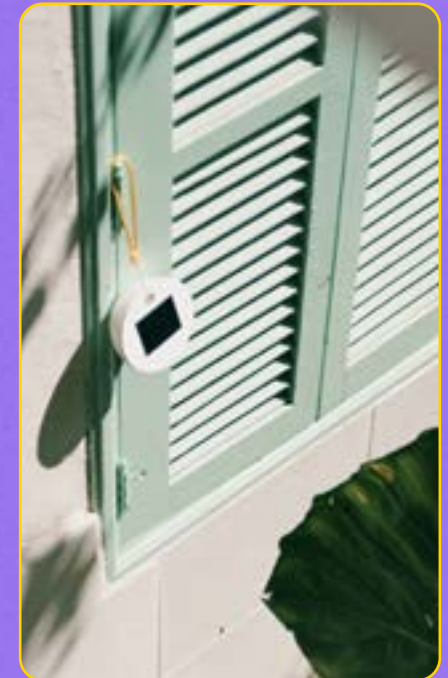
## IKEA x Little Sun

**SAMMANLÄNKAD**, a collaborative venture between IKEA and Little Sun, pioneers the exploration of **solar-powered lighting solutions** in response to the limitations, costs, and environmental toll associated with traditional energy resources.

Rooted in the belief that thoughtful design can drive meaningful change, the project aimed to democratize access to solar energy. SAMMANLÄNKAD, which means 'connected' in Swedish, features solar-powered LED lamps designed to not only illuminate spaces, but also ignite curiosity about solar energy and advocate for equitable energy access.

This innovative collection, now available at IKEA stores, lies at the intersection of design, technology, and impact. The collaboration features two distinct solar-powered LED products—one multifunctional lamp that combines lighting and charging, adaptable as a pendant or table lamp, and a smaller portable lamp with a yellow strap for outdoor use. Both lamps, equipped with solar panels and rechargeable batteries, enable the power of solar to be felt in one's own home.





SAMMANLÄNKAD includes solar-powered LED products that are perfect for indoor or outdoor use, and a great entry point into the world of solar energy. Photos: © Inter IKEA Systems B.V 2023

## Ravensburger x Little Sun

Little Sun partnered with Europe's leading puzzle manufacturer Ravensburger on a trio of puzzles centered around solar energy.

Each puzzle features original illustrations by Nigerian-Italian artist Diana Ejaita. Crafted with care and creativity, this exclusive collection features three 500-piece puzzle motifs inspired by our very own 'Reach for the Sun' campaign—a digital, artist-illustrated initiative that aims to mobilize individuals and organizations toward a solar future.

Each puzzle bears the hallmark of Diana Ejaita's visionary artwork, which pays homage to her Nigerian heritage and traditions. As a child of migration, her other work addresses issues regarding the effects of colonialism/postcolonialism, racial and gender discrimination, and identity research. She has illustrated cover artwork for The New York Times, The New Yorker, The Economist, and The Financial Times.

From the evocative 'Feel' to the transformative 'Change' and the captivating 'Engage,' each puzzle design is a vibrant reflection of our shared journey towards a brighter, more inclusive tomorrow.



# Little Sun Glossary

## off-grid or off-the-grid

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Off-grid or off-the-grid traditionally refers to being disconnected to the electrical grid, but can also include other utilities like water, gas, and sewer systems. This can refer to both residential homes or entire communities.

## community energy hub

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A solar-powered space that can power various types of productivity work within a community including milling, husking, or milk cooling. These productivity services can be added or changed, based on community needs.

## renewable energy

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Renewable energy is any type of energy that is collected from a naturally replenished source. It includes sources such as sunlight, wind, the movement of water, and geothermal heat.

## post-harvest processing

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Post-harvest processing refers to the series of activities and treatments applied to agricultural products after they are harvested, with the aim of preserving, enhancing quality, and preparing them for consumption, storage, or further distribution.

## solar cooling technology

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Solar cooling technology utilizes solar energy to power cooling systems, enabling the generation of cold air or refrigeration for various applications such as refrigeration without relying solely on conventional electrical power sources.

## solar-powered milk cooling system

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A solar-powered milk cooling system is a technology that uses solar energy to cool and preserve milk in dairy farming operations. It typically involves the integration of solar panels to capture sunlight and convert it into electricity, which is then used to power refrigeration systems for cooling milk.

## solar home systems

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Solar home systems are stand-alone photovoltaic systems that offer a cost-effective mode of supplying amenity power for lighting and appliances to remote off-grid households. In rural areas, that are not connected to the grid, these systems be used to meet a household's energy demand fulfilling basic electric needs.

## school or health center electrification

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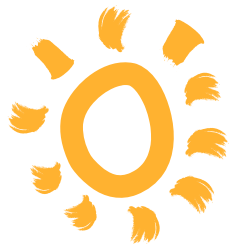
For Little Sun, school or hospital electrification refers to the process of providing solar power infrastructure and services to schools and hospitals, ensuring that these facilities have a reliable and sustainable source of power. Electrification plays a crucial role in enhancing the overall functionality, safety, and efficiency of schools and health centers.

Thank you to everyone, near and far, who has helped in furthering **Little Sun's** solar mission to bring energy access to all.



# About Little Sun

Established in 2012 by artist Olafur Eliasson and engineer Frederik Ottesen, **Little Sun** is an organization working to deliver affordable clean energy and inspire people to take climate action.



Little Sun distributes energy tools, implements renewable energy programs, and leads citizen engagement campaigns globally; partnering with solar experts, artists, companies, governments, communities, and nonprofit organizations.

Little Sun works primarily in Ethiopia and Zambia, drawing on the expertise of in-country staff. Through close partnerships with local organizations, Little Sun also operates in Rwanda, Tanzania, and South Africa. Little Sun has offices in Addis Ababa, Berlin, Lusaka, and New York.

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# Little Sun



## CLEAN ENERGY FOR ALL

We are all **#ConnectedByTheSun**

[www.littlesun.org](http://www.littlesun.org)



Photo: Little Sun Mumbwa regional office and team