

TACKLING SOLAR E-WASTE

JUNE 2021



ABOUT SOLARAID



A LITTLE BIT ABOUT OUR ORGANISATION

SolarAid is an international charity set up to fight poverty and climate change. Our vision is of a world where everyone has access to clean, renewable, energy.

548 million people across Africa live without access to electricity. Without electricity, families, communities and businesses are limited.

Millions rely on expensive and dangerous alternatives, such as candles and kerosene for basic lighting each night.

Solar lights and systems can transform rural communities overnight, providing much needed safe, clean and reliable light and power in homes, schools and health facilities.

Through its social enterprise, SunnyMoney, and partner organisations, SolarAid helps create access to solar power and lighting by catalysing solar markets and continually innovating to help ensure that no one is left in the dark.

2020, we set a mission to light up every home, school and clinic in Africa by the end of the decade - using safe, clean solar power.

OVERVIEW

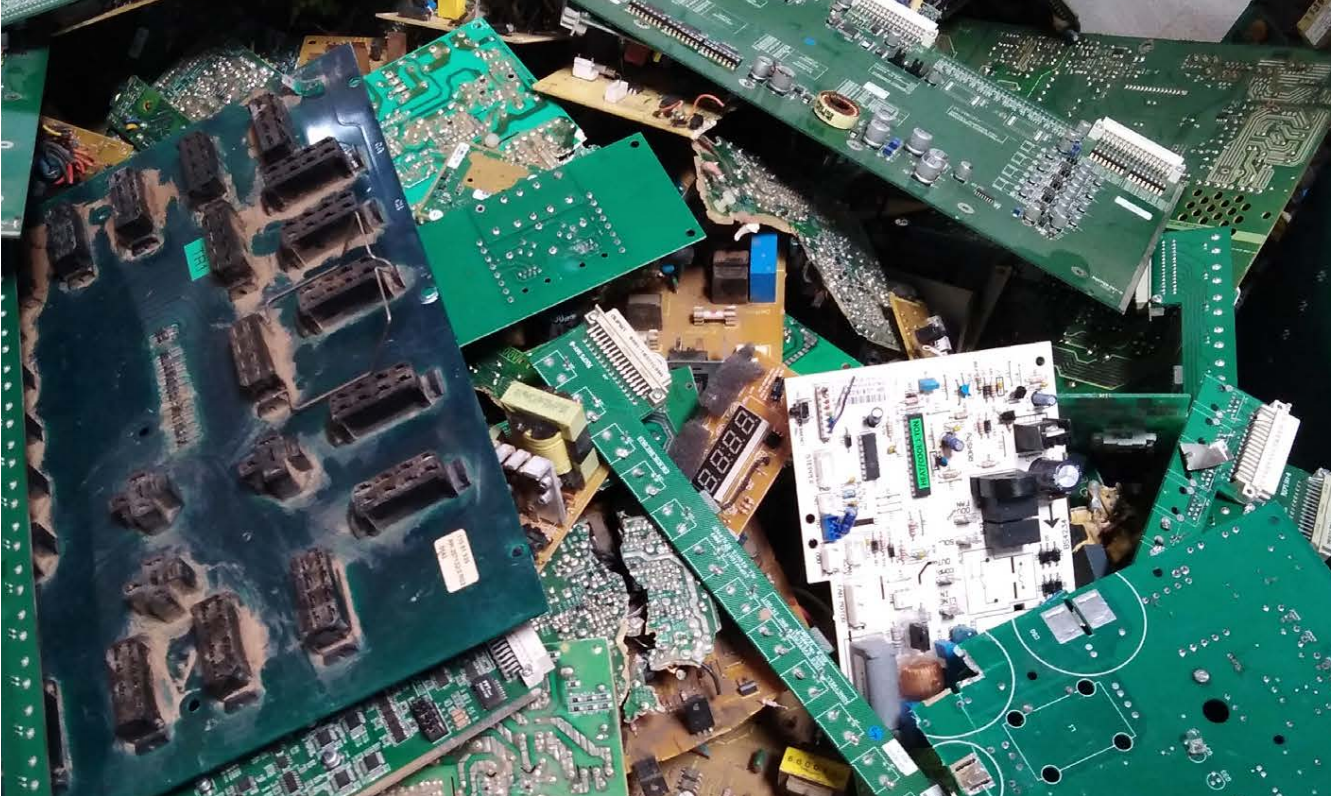
Millions of small solar lanterns are lighting up homes across rural Africa, as a clean, safe and renewable alternative to dangerous, polluting candles and kerosene lights.

While today's solar lights are lasting longer than ever before, however, once they reach the end of their useful life, they risk contributing to the growing problem of e-waste.

To combat this problem, SolarAid has been working to extend the life of these products by making it easier for them to be repaired. Repairs help reduce e-waste and ensure that people continue to benefit from access to safe, clean and renewable light. We believe that everyone deserves the opportunity to have their solar lanterns repaired.



THE PROBLEM



A solar lantern can dramatically improve the livelihood of rural households. But like all electronics, solar lanterns do not last forever, and once they stop working, customers are no longer benefitting.

When we asked our customers who had non-working lanterns, all of them said that they wanted to repair them but do not have the necessary skills and knowledge nor know of a skilled repair technician who could do so.

Electronic repair shops are popular in rural Zambia, but when it comes to solar lanterns, repair technicians often turn customers away.

WHEN WE ASKED OUR CUSTOMERS WHO HAD NON WORKING LANTERNS, ALL OF THEM SAID THAT THEY WANTED TO REPAIR THEM.



Good quality spare parts are almost non-existent and product specific repair information is rarely provided by manufacturers. As a result, repairs that do happen tend to be short-lived fixes. Some solar lanterns, intended for the world's poorest people, were designed to never be repaired. They use custom parts, require special tools to open and provide little to no repair information, making them incredibly challenging to repair (see more about Solar Score Cards here).

Without access to repair, rural customers are left with few options but to discard their lights, contributing to the growing problem of e-waste.

E-waste is the world's fastest-growing domestic waste stream, and Africa is no exception. Growing e-waste is fuelled by higher consumption rates of electric and electronic equipment, short life-cycles, and few options for repair.

A record 53.6 million metric tonnes (Mt) of electronic waste was generated worldwide in 2019, up 21 percent in just five years.

At SolarAid, we see the need to supply rural customers with information to conduct simple repairs on their own products. We need to develop a network of trained repair technicians who can undertake more advanced repairs in a quickly changing solar market.

Repair technicians require regular access to high quality spare components such as batteries, but which must also remain affordable enough for rural customers. Finally, we need products that are designed with repair in mind. They should open easily, using regular tools and common parts that are easy to source.

Our resources are finite. We need to extend the life of pico solar lanterns for our customers and for the environment.

E-WASTE STATISTICS

53,6

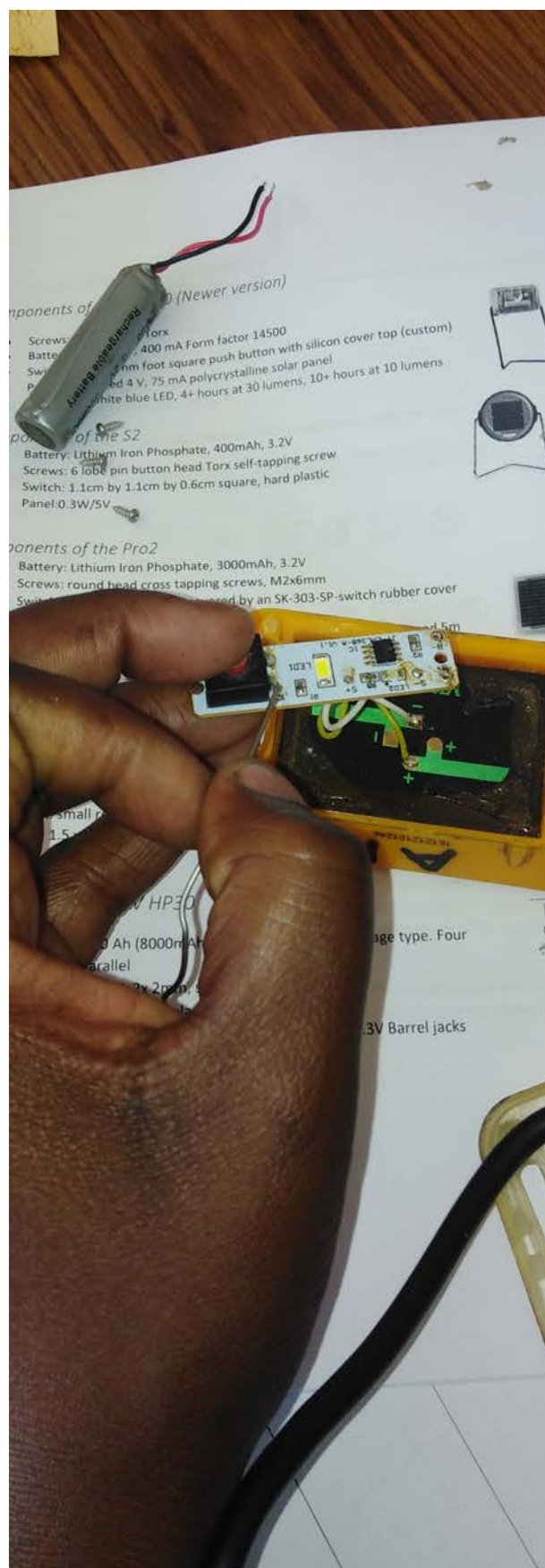
MILLION METRIC TONNES (MT)

of electronic waste was generated worldwide in 2019, up 21 percent in just five years.

43%

OF THE CUSTOMERS WE SPOKE TO

had tried to repair their solar light.



THE OPPORTUNITY



The 'Right to Repair' movement, which is growing globally, advocates that products should not only last longer, but that repair should be accessible, affordable and mainstream. Improving solar lantern repair offers a solution and gives rural communities the ability to repair their lights and extend their use.

The good news is that there is a high demand and a positive attitude for repair among our customers. Many are willing to undertake their own repair, given the knowledge and guidance. Of the people we spoke to, 43% had tried to repair their solar lanterns once they had stopped working.

But customers cannot do it alone. 60% of those repairs did not work and of those that did, few lasted longer than 6 months.

THE GOOD NEWS IS THAT THERE IS A HIGH DEMAND AND A POSITIVE ATTITUDE AMONG OUR CUSTOMERS.



While solar lantern repair requires some specialised knowledge, we found that local repair technicians have many of the foundational skills required to conduct repair, requiring only regular solar focused training. Trained repair technicians can provide the additional skills required for more complicated repairs.

The repair of products can dramatically reduce the amount of e-waste produced and is far more effective than recycling which reuses only a portion of components, at a high energy cost. The most common faults are battery related, and in many cases simply replacing the battery could extend the life of the light by several years.

If people are exposed to good repair and the extension of a light's life, we can begin to shift consumer consciousness to increased demand for repairable lights.

OUR PLANS



SolarAid has been collecting old, non-functional, lights from rural areas and assessing their faults in order to develop repair guidance. In collaboration with social anthropologists and designers from the University of Edinburgh, we have developed a mobile repair app and repair manual to allow people in rural communities to troubleshoot problems and help more people undertake simple repairs on their solar lanterns.

Where repair is more technical, we have begun developing SunnyMoney approved repair shops with technicians who receive regular training and who we supply with high quality spare components.

In order to help extend the life of products and reduce the growing problem of e-waste, we are sourcing good quality spare parts:

Identifying and facilitating good quality spare parts for import into countries where we work: Encouraging the design of repairable products. This is an ongoing challenge and requires support from solar manufacturers and government agencies.



Expanding repair guidance

We are building awareness of the mobile repair app and disseminating repair manuals within rural communities.

We also want to expand the app with new products, new contexts, new languages and additional technical repair information. This tool should be available to everyone who owns a solar lantern.

Design for repair

We need repair integrated at the design stage of solar lantern development. The Global Off Grid Lighting Association has identified pathways for the design of repairable solar lighting products do exist. We want all actors in the solar sector to explore better repair and ensure that manufacturers and donors set and follow a high standard for the products they work with. But the solution requires much more than we can do alone.

NEXT STEPS



Customers living in rural Africa have the right to expect that their solar lanterns can be repaired, thereby extending the lifespan of products and reducing the problem of e-waste.

That is why SolarAid is continuing to support solutions which make it easier for lanterns to be repaired and calling on other actors in the sector to be part of the solution and not part of the problem.

Whether customers conduct repairs themselves or bring them to a local technician, people must have the option to extend the life of their solar lanterns. Our goal is to help make solar lantern repair the norm, such that people see it as a viable option and ultimately choose products they know can be repaired.

For more information, visit www.solar-aid.org