Sopowerful | 2022

sopowerful
solar where it matters most

Preface

New challenges and new countries

The start of 2022 was characterized by the completion of several projects we worked on in 2021. This made the first months, despite the rain season, intense and a lot on-site. The Covid-19 pandemic finally seemed behind us, but new challenges emerged: the war that broke out in Ukraine impacted most of the world and this was not different for our projects. Prices for raw materials skyrocketed, and a rough estimation is that this made our projects this year about 10% more expensive than before. Fuel didn't only increase in price, but the availability in landlocked Malawi sometimes became zero. These infamous 'fuel crises', as they are called in Malawi, made our team spend hours and hours in the que for the fuel stations. Sometimes late at night or starting even at 4am in the morning. In the hope of getting a full tank, so that we could travel on-site.

On a more positive note, I like to remember that our operational team grew again, by Sergi joining myself and Myson, bringing our total to three. This intrinsically driven, Catalan engineer got in contact through LinkedIn. One month later I had the pleasure to pick him up from the airport here in Lilongwe. He would join us the whole year, in Malawi, and has already had a great impact on our organization and our work. 2022 has also been the year of our official expansion into new territories: in spring we completed our first project in the Bekaa valley in Lebanon, while in autumn we commissioned our very first project in Tanzania, in the Lindi region. Two achievements we are proud of and hope to further build on in the next year.

Stefano Cruccu, Director

Sopowerful at a glance

Launched in 2019, ANBI foundation registered in the Netherlands

Application of **small-scale solar energy** combined with related technology

18 running projects in 2022, **impacting +103.700 people**

Made possible by **+20 international Partners**

Active in **Malawi, Tanzania** and **Lebanon**.

Sopowerful at a glance

+10 years of solar expertise and local, community development **experience**

Boots on the ground: local presence and deep understanding of context

Selective: no project without thorough assessment and real cooperation

Stimulate local entrepreneurship through close collaboration with **local installers**

Focus on **relevant, tangible, long term impact** rather than financial returns

Content of this report

1. Strategy

770 million

of us live without access to electricity.

1/3rd

Of the world population has no access to safe water.

50%

of the world population has no access to basic health services.

+800 million

Suffer from hunger and food insecurity.

Vision

Our ‘Why’

One of the keys to solving several of the hardest problems we are still facing as humanity, is to provide access to reliable electricity.
Electrification through solar power unlocks opportunities in the most challenges places on our planet.

Mission

Our ‘What’

The above translates into our mission:

‘Solar where it matters most’

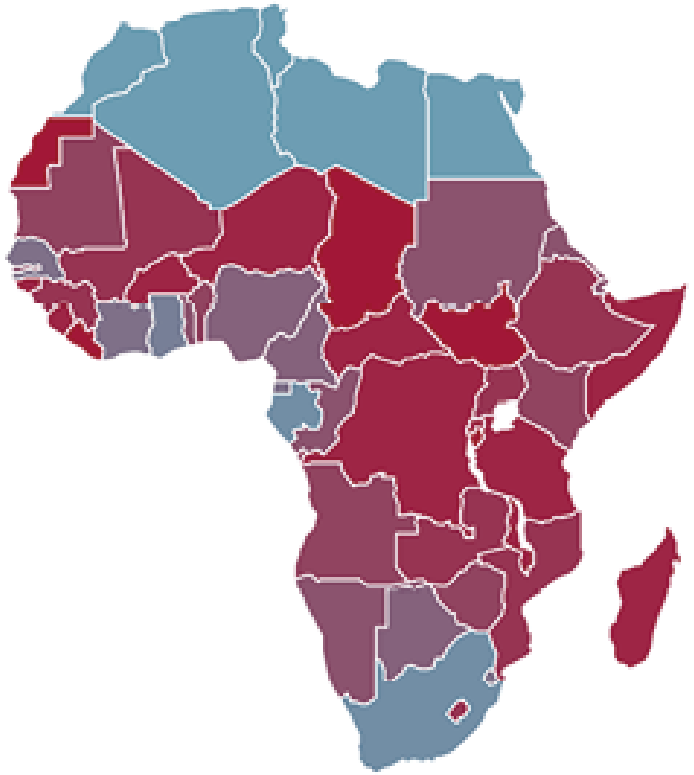
Our aim is to make a real and long-term impact by applying solar energy where this empowers life-changing initiatives with tangible impact.

Malawi as a starting point

The electrification problem

In many places on our planet we are used to constant access to reliable electricity. This is at the core of developed societies and enables all kinds of elements that together create the wealth and wellbeing we so easily get used to. If we grow up with the light that turns on every time we use the switch, it's sincerely hard to imagine the contrary. Unfortunately, nearly 800 million of us have no, or very limited, access to electricty, with all the limitations and challenges this brings.

As can be seen from the maps on this page, the 'electrification problem' is concentrated in the sub-saharan region, with the color-scale indicating the percentage of population with access to electricity. Malawi is one of the poorest countries in the world, and in rural areas only 5% of the population has access to electricity. This, together with the fact the country is fairly stable and safe, has made Malawi a very 'suitable' place to start pursuing our mission: solar where it matters most.



Source: World Bank, Sustainable Energy for All Database

Percentage of popluation with access to Electricity

Tanzania & Lebanon

Applying our young experience to new places

In 2022, after carefull consideration and evaluation, we expanded our activities to two new countries, besides remaining active in Malawi: Tanzania and Lebanon. We successfully implemented one project in both countries, which you can read about further on in this report. Tanzania borders with the North of Malawi and the context in certain areas is very similar to what we are 'used to' in Malawi. When we received the urgent request from Mnero Hospital, located in the South-East region of Lindi, our research proved that our experience obtained in Malawi would enable us to address the challenge and implement a solution. Through a close collaboration with the hospital and the local contractor, we were able to complete this project in autumn.

Lebanon, on the other hand, is a very different context than Tanzania and Malawi. A much further developed country, which however has been thrown back in the last decades due to wars, an extreme financial crisis and, more recently, a strong energy crisis. The country suffers under the limited availability of electricity supplied by the grid (on average two hours per day) and for many this means dependence on expensive and polluting diesel generators – if one can afford this. Together with a trusted partner we assessed a project at a local school, which was close to having to downscale its opening hours due to the energy problem. We decided this project was a suitable opportunity to apply our approach in a very different context and learn valuable lessons through it. In March 2022 we completed the project at Tamkeen school, where since then the lessons for Lebanese and refugee children have continued 'as if there is no energy crisis'.

The solar system at Mnero Hospital, our very first project in Tanzania

On the roof of Tamkeen school, our first project in Lebanon

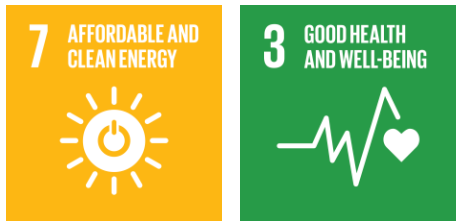
Focus

on four fields of impact.

The options for application of solar power are endless. Based on our research, observations and real-life experiences we have defined four areas where we see that electrification through solar (Photovoltaic) energy makes profound impact: **Healthcare**, **Education** **Safe Water** and **Food security**. The solar systems we implement make a difference in at least one (but often multiple) of these areas.

Healthcare

Electrification of (rural) medical facilities that are limited by the lack of (reliable) electricity supply.

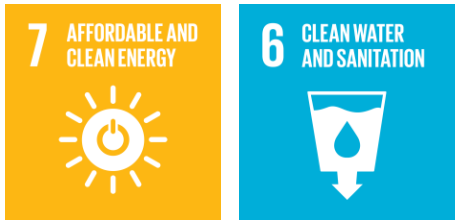


Education

Powering light and appliances at facilities that enable education, training or entrepreneurship.

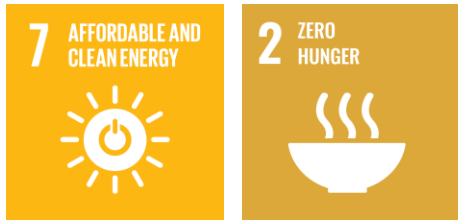
Safe water

Solar powered water pumps that enable running water and better sanitation and hygiene (WASH).



Food security

Solar powered water pumps that enable water supply for agriculture and irrigation of crops.



Our approach
for long term impact

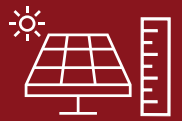
There are many operational risks related to solar installations and through our industry experience we have developed a deep understanding of these. Making a solar system work optimally, for the long term, doesn't come without challenges. It requires an approach that is not only focused on achieving the implementation of a system, but equally on making sure the right conditions are in place for long term, successful functioning and impact.

1. Project selection

We carefully select local projects/beneficiaries based on our criteria, in combination with assessing the urgency for – and impact of – electrification.

2. Research

We further research the needs, the community, conditions and electricity demand, to determine priorities and assess how funds can be allocated in the most effective way.



3. System design

We are involved in the design and engineering of the solar system by the local installers. We agree on the components to be applied and determine costs of the installation as well as maintenance.

6. Monitoring

At commissioning of the system, we make sure a maintenance contract is in place between installer and the local project. Education & training takes place and security measures are adopted. We keep track of the impact of our systems through the ongoing relationship with the local project, as well as through a monitoring system/process .

5. Implementation

When the implementation of the system takes place we are on-site to learn, to oversee the installation process and verify progress as well as quality of the works.

4. Funding

For each project we launch a Crowdfunding campaign which enables individual donors to contribute. 100% of these donations are used for implementation of the system. This source of income is combined with the financial support coming from our Partners..

2. Results 2022

Impact overview 2022

13 new projects implemented in 2022, making us reach **18** running projects by the end of the year.

+85.000 lives impacted through projects implemented in 2022, making us impact **+100.700** people in total.

+241.700 kWh generated in 2022, bringing us to a total **+ 371.000 kWh** generated since our start.

+280.000 kg CO2 avoided through clean electricity generated by our projects in 2022.

+88.000 Qm water supplied in 2022, bringing us to **+174.000 Qm** water supplied since our start.

Project overview

2020-2022

	Project	Location	Start date	Short description
1	Mwanyama clinic	Malawi	February 2020	Electrification enables medicine storage, lighting and use of other appliances for better medical care
2	Streetwise Orphanage	Malawi	October 2020	Solar powered water pump now provides clean, running water and better sanitation for children and the community
3	Kudziwa Center	Malawi	October 2020	Solar system enables after school teaching and PC's/Laptop use for education
4	Luntha Clinic	Malawi	March 2021	Electrification enables medicine storage, lighting and use of other appliances for better medical care
5	Mua School ftD - Hostel	Malawi	November 2021	Solar system at the School hostels enables communication and reading/studying in the evening
6	Mchisa Farming	Malawi	January 2022	Solar powered irrigation system, enabling year-round farming and better food security
7	Tiyende School	Malawi	January 2022	Solar powered water supply for girls' secondary school for better hygiene & easily access to water
8	Wandikweza Health C.	Malawi	January 2022	Electrification of this facility enables better healthcare and the expansion from a clinic to a health Center
9	Mua Hospital	Malawi	January 2022	Solar powered water system providing running water for hospital
10	Tamkeen School	Lebanon	March 2022	Solar system provides clean energy supply and improvement of the quality of the educational services
11	Chagontha farming	Malawi	May 2022	Solar powered irrigation system, enabling year-round farming and better food security
12	Ndege School	Malawi	August 2022	Solar power system enables reading/studying in the evening and water access for irrigation of garden project
13	Demera Cooperative	Malawi	August 2022	Solar powered irrigation system, enabling year-round farming and better food security
14	Likwenu CDSS School	Malawi	August 2022	Electrification enables studying in the evening and the use of modern education technologies
15	Mwanga Health Center	Malawi	September 2022	Electrification enables medicine storage, lighting, use of electrical appliances and pumping of water for general use.
16	Mnero Hospital	Tanzania	September 2022	Electrification enables medicine storage, improved lighting, use of electrical appliances and water for general use.
17	Sparkle Nursery & Clinic	Malawi	October 2022	Solar power enables medicine storage, lighting for clinic and nursery and numerous electrical appliances.
18	Dzenza CDSS	Malawi	December 2022	Electrification of this school, enables the use of modern education technologies which enhance learning experience.

Healthcare - Impact 2022

Healthcare

Electrification of rural medical facilities that are limited by the lack of (reliable) electricity.

7 running projects in 2022, in **Malawi** and **Tanzania**

+ 91.800 lives impacted in this area

Health facilities benefiting from electricity:

- Clinical fridge for medicine storage
- Lighting at night
- Equipment for laboratory, nebulizer & oxygen concentrator, ultrasound, etc.

Mwanga Health Centre

Powering medical care

18kW PV combined with 40kWh Li storage,

Costs of €49.000

Mwanga -15.6460393, 35.5322219

Commissioned September 2022

Background and challenge

Nestled in a remote part of southern Malawi, Mwanga Health Centre in Phalombe district was struggling with unreliable electricity from the national grid. They endured eight months without power, which impacted their maternity services, hindering nighttime treatments and affecting essential medical equipment like nebulizers for asthmatic patients. The pharmacy and water supply were also compromised.

Adopted solution

The impact of our intervention; the installation of a solar power system with 33 PV panels (total 18kWp) and battery capacity of 40 kWh, has been transformative. Mwanga Health Centre is now a beacon of reliability in Phalombe District, offering round-the-clock services with improved water supply for enhanced hygiene. Solar electricity has not just brightened the lights; it's illuminated the future of healthcare at Mwanga Health Centre.

33 solar panels installed at Mwanga Health center

We visit the clinic regularly to monitor progress and to gather data.

Storing medicine in the fridges

Electric medical equipment

Education - Impact 2022

Education

Powering light and appliances at initiatives that enable education, training or entrepreneurship.

6 running projects in 2022, in **Malawi** and **Lebanon**

+ 2.900 lives impacted in this area

Schools benefiting from:

- Lighting to study at night
- Safety lighting for a safer environment
- Educational tooling like projectors and laptops

Likwenu Community Day Secondary School

Electrifying a remote school

8kW PV combined with 10kWh Li battery storage

Costs of €22.000

Likwenu -15.1998428, 35.3460481

Commissioned August 2022

Background and challenge

Sitting along the M3 road in Machinga District, Likwenu Community Day Secondary School faced significant challenges as it lacked access to the national electricity grid. Living without electricity, the school struggled with outdated teaching methods and limited resources. This hindered academic progress, limited study results and made administrative tasks cumbersome for both teachers and staff.

Adopted solution

In a transformative intervention, Likwenu Community Day Secondary School was connected to the new solar power system.
This initiative brought electricity to the classrooms, empowering teachers to use projectors, computers, and other supporting appliances.

The impact was immediate and profound. The electrification not only elevated the quality of education but also led to improved study results and Likwenu being recognized as the best-performing community day secondary school in Machinga District in 2022.

Teachers, like Mr. Chilungamo Kalebe, praised the positive shift, emphasizing how it facilitated engaging lessons and improved overall learning outcomes. This showcases the transformative power of a simple yet crucial intervention. Access to electricity has not only bridged educational gaps but has also empowered the entire community.

Impact assessment visit to monitor the impact of our intervention

Teachers can now use electrical devices such as laptops, projectors and printers.

Likwenu School children

Students learning with use of the projector

Safe water - Impact 2022

Safe water

Solar powered water pumps that enable running water and better hygiene.

9 running projects in 2022, in **Malawi** and **Tanzania**

+ 77.600 lives impacted in this area

Communities benefiting from:

- Easier or new access to water
- Decrease in distance to water access
- Improved hygiene

Mua Hospital

Solar powered water supply

2kW PV, 20.000 liter water storage, infrastructure

Costs of €27.000

MUA -14.283128, 34.509958

Commissioned January 2022

Background and challenge

In the heart of Malawi's central region, Mua Mission Hospital faced critical challenges due to unreliable national grid electricity. The hospital's dependence on this electricity source for its water supply adversely impacted essential areas such as the operating theater, guardian shelter, staff houses, and overall hygiene and sanitation.

Adopted solution

Recognizing the urgent need for a sustainable solution, Sopoweful, partnering with Formidable Joy, stepped in and implemented a solar powered water supply. Two other focus areas of the project have been the increase and refurbishment of the water storage tanks, as well as the partial renewal of the hospital's pipework infrastructure.

This released the hospital from its dependence on the local electricity grid, and from days (sometimes weeks) without water in the tanks. The positive ripple effect was felt across the entire facility, with the operating theater regaining functionality, the guardian shelter restored, and other areas of the hospital vastly improved. The once daunting challenges related to hygiene and sanitation are now distant memories.

A running tap of water at the guardian shelter

Solar power to pump up water to realise a reliable water source

Hospital administrator mr. Mwazambumba

Sopowerful team visiting the theater

Food security- Impact 2022

Food security

Solar powered water pumps that enable running water for irrigation of crops.

3 running projects in 2022, in **Malawi**

+ 8.500 lives impacted in this area

Communities benefitting from:

- Easier or new access to water
- Improved food security
- Increased agriculture yields in the dry season

Mchisa irrigation scheme

Solar powered Irrigation System

4kW PV, two DC pumps and 20.000 liter water storage

Costs of €29.100

Mchisa - 14.523918,35.203664

Commissioned January 2022

Background and challenge

In the heart of Mangochi district, the eastern part of Malawi, lies Mchisa, a community that until recently struggled with the limitations of irrigation based on traditional, hand-dug wells. Farmers dedicated hours to manually watering their crops with cans which was a strong burden and limited them to expand their cultivation as well as to improve the yields. The Food Insecurity Experience Scale (FIES) survey we conducted at Mchisa, revealed that the farmers were trapped in low yielding harvests, hunger and financial instability.

Adopted solution

In 2022, the intervention of Sopowerful, together with its partner Formidable Joy, brought about a transformative change.

The Mchisa irrigation scheme underwent a remarkable evolution, thanks to the implementation of a solar-powered irrigation system. The shift from water cans to the much more efficient solar irrigation system not only liberated farmers from hard and heavy work but also enabled them to cultivate larger plots of land in the same amount of time and with the same effort. Today, the 50 farmers of Mchisa irrigation scheme, practice farming on 2.5 hectares of land.

As an example: one farmer, Esnart Radson, witnessed a life-altering change. Formerly burdened by hardship and low yielding agriculture efforts, she now proudly supports her family by paying for her children's education with the increased yields from the scheme.

Watering the crops is many times easier now

Irrigation scheme secretary keeping records of the organization.

Smiles that make our day.

Maize growing in dry season, a new phenomenon thanks to solar power

3. Sopowerful

About Sopowerful

Our organization in more detail

Sopowerful was founded with the desire to make a difference for the least priviledged among us, through the application of solar power. Our team brings together a relevant mix of skills and experience and consists of young people who share the ambition to apply 'solar where it matters most'.

The board of Sopowerful consists of three members, who share the responsibility for the different roles together. Our **board members** are:

- Mr. P.R.M. van der Linden
- Ms. L.R. van Os
- Mr. T.P. van Dorp

Our board operates on volunteering basis and does not receive any renumeration for their role and responsibilities.

Our **operational team** consists of three members:

- Mr. S. Cruccu, in the role of 'Director'
- Mr. M. Jambo, in the role of 'Project Manager'
- Mr. S. Pedra Blasi, in the role of 'Implementation Manager'.

The operational team is responsible for the daily activities of the foundation and does receive a renumeration for their role. Besides the above mentioned persons, we work with a growing number of volunteers.

Sopowerful is a Dutch foundation, active since 2019 and officially recognized as ANBI*. Our registered name is 'Stichting Sopowerful'.

KvK / Chamber of Commerce: 76714411
RSIN / Tax Identification number: 860769438

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* ANBI stands for 'Algemeen Nut Beogende Instelling'. It is the official recognition of Public Benefit Organization, provided by the Dutch authorities. Read more about ANBI here.

Sopowerful is member of Partin: a Dutch branch organization that promotes the interests of private initiatives involved in development work. Currently Partin has 360 members. Read more about Partin here (Dutch).

Our Partners

Who supports our mission

Besides the support of individuals, through our crowdfunding campaigns, we are proud to have the commitment and support of a growing number of organizations: our Partners.

Our current Partners...

- consist of For Profit and Not for Profit organizations
- are based/headquartered in seven different countries
- represent 'a handful' to hundreds or even thousands of employees
- all have the aim to enable 'solar where it matters most.

We are thankful to our Partners for having joined us on our journey and for making a tanglible and lasting impact with and through us!

4. Financial statement

Income & Expenses

Over 2022

Despite the challenging context, 2022 has been a year of growth for Sopowerful. Our income through support by our Partners increased significantly, by 65%, to well over €300k. On the contrary, our crowdfunding income decreased. Main reason for this is that we stopped crowdfunding for each specific project. The remaining crowdfunding income is mostly related to individuals who have chosen to donate on a monthly basis.

The costs for implementation of the projects (equipment/materials, transport, labor) have quadrupled compared to the year before. This is because we have completed more projects than in 2022 (11 vs 2), however one must keep in mind that 5 of these projects were prepared and worked on in the year before but completed only in the first months of this year. Our employee costs have increased, which is due to Sergi joining our team. The growth in team members and the increase in projects has led to the doubling in travel costs that can be noted. 'Accommodation costs' were previously part of 'Travel costs', and the bank costs have increased as we have sent significantly more money to pay for our projects. The negative result may not seem to demonstrate 'growth', but simply reflects the fact we have spent a higher amount than what came in this year: this was anticipated based on the very positive result we achieved in 2021.

Income & Expenses

	2022		2021	
	€	€	€	€
Income				
Partners		280.042		147.570
Project specific donations		24.975		38.126
Crowdfunding		5.705		10.930
Other income		-		708
		310.722		197.334
Expenses				
Direct projectcosts	259.153		65.666	
Employee costs	55.715		45.041	
Travel costs	11.611		5.549	
Accountancy costs	1.441		1.256	
Accommodation costs	1.242		-	
Representation costs	1.460		362	
Bank costs	1.216		263	
Tools	1.592		1.336	
Depreciation vehicles	569		-	
Sum of Expenses		333.999		119.473
Result		-23.277		77.861

Financial statement

Over 2022

Compared to 2021, our financial statement does not show strong deviations. As can be seen from our Income and Expenses Statement, our revenues increased significantly, but we also spent significantly more, which has preserved a balance in the financial situation.

The car we acquired shows up for the first time under our assets and our liquidity has remained nearly the same. This is an important requirement from our Board, to maintain a buffer that secures we can cover our fixed costs at least several months ahead.

Our 'Capital' reflect the negative 2022 results, which is explained on the previous page.

Financial statement

Balance per 31 December 2022

	31 December 2022		31 December 2021	
	€	€	€	€
ASSETS				
Fixed assets				
Material assets				
Vehicles		2.431		-
Current assets				
Receivables				
Trade receivables	1.770		16.500	
Other receivables	416		10.297	
		2.186		26.797
Liquidity		114.705		111.847
Total assets		119.322		138.644
LIABILITIES				
Foundation capital		109.015		132.293
Current liabilities				
Liabilities to suppliers	8.336		6.335	
Other liabilities	1.971		16	
		10.307		6.351
Total liabilities		119.322		138.644

Sopowerful - 2022

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solar where it matters most