

Building Africa's Largest Online Education Platform

Increasing women's presence in the digital economy through profit-driven energy businesses and the internet.



Executive Summary

PROBLEM

Unprofitable Demographic

Low income families struggle to afford education for their children.

There is a lack of internet and energy infrastructure to help businesses thrive.

In-Person Learning

This type of learning is difficult to scale and inconvenient, especially for women who have to support their families or commute great distances.

OPPORTUNITY

Digital Education

There are three parts to our solution.

1. Start energy businesses; driven by families and businesses.
2. Launch an online learning platform throughout the camp, helping scalability.
3. Women promotion campaigns.

Then, use the combination of these solutions to make education more accessible with a focus the female minority.

RESULTS

Support 200,000 Refugees

Families will earn money from producing content for the learning platform and selling excess energy back to the grid. Education can be scaled to educate every student, and even adults, in the camp. Overall, this solution provides ~100,000 low-income children, ~50% of which are female, with quality digital education.

Households can save up to \$1,226 per year by using solar panels instead of diesel generators.

The Problem



SCHOOLING FEES

68% of refugees in Kakuma live in poverty, which prevents a large majority from being able to pay the required schooling fees, especially for secondary school.



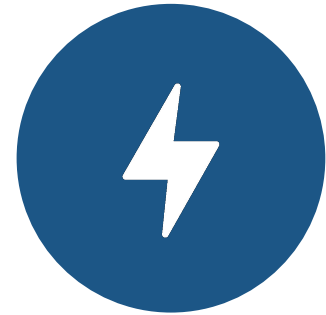
CLASS SIZES

A significant growth in school enrollment has not been matched by a comparable investment in school infrastructure, supplies, and teacher deployment.



INTERNET

Kakuma is located in a remote area far away from major cities in Kenya, causing the Internet to be both expensive and unreliable.



ELECTRICITY

Only 5% of households have reliable access to electricity as the camp relies on an expensive substation electricity grid powered by diesel generators.



The Opportunity



ONLINE EDUCATION

By transitioning to online learning, the UN can provide the needed learning materials for much lower costs. As a result, more refugees will be able to attend secondary school.



EFFICIENT ENERGY

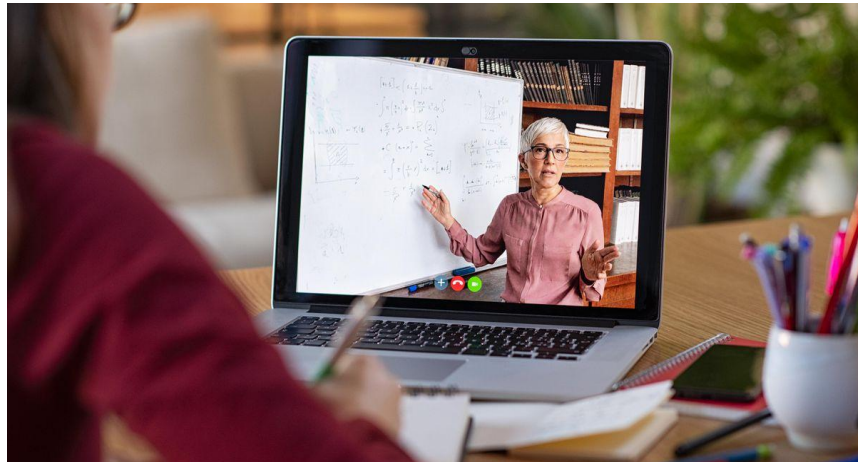
Use solar energy to produce cheap and clean electricity, generate a new source of income, and allow more free time for students living in Kakuma.



SCALABLE EDUCATION

Without the need to invest in additional buildings, teachers, and supplies as school enrollment increases, we can ensure that everyone has access to education.

The Solution



Online Learning Platform

Over the year, use an online learning platform to facilitate learning for primary and secondary levels using standardized curriculum, as well as online resources like YouTube and Khan Academy.



Net Zero Carbon Community

Using solar panels as a sustainable source of income, and to increase the access to clean and affordable electricity. The solution allows households to supply their own demand and sell excess electricity to the Kenyan grid.



Result: Increased Digital Presence of Women

Through supplying a source of income to families, accessible online learning, and a wide support base, females will be inspired to receive education to help them succeed in the digital economy.



Women's Promotion Campaigns

Using video campaigns and collaborating with female leaders, the United Nations will support women's education. Instead of women seeing a future of being housewives, they are inspired and connected to educated women who have impacted the world.

Operational Timeline



2021-23

INSTALL ENERGY INFRASTRUCTURE

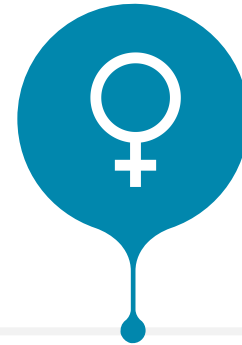
Install at least two 300-Watt operational solar panels per home along with internet hardware.



2023-24

BUILD & PILOT ONLINE PLATFORM

Hire app/web developers to build the online learning program, and host pilot programs with local schools.



2024-25

LAUNCH PLATFORM & PROMOTE GIRLS

Market the online learning platform to the general public, and begin girl's promotional initiatives.



2026

FULL ONLINE LEARNING


Switch all forms of primary and secondary education, including teachers and students, to virtual-learning



Net Zero Carbon Community


The Kakuma refugee camp is not connected to Kenya's grid power supply. Energy is being generated by diesel generators at a high price. This solution provides households with the opportunity to start a solar business and join the Net Zero Carbon Community. This community allows its members to generate inexpensive and clean electricity in their houses. It also allows them to have a stable revenue by using solar panels.

How It Works




Infrastructure
Use 300-Watt solar panels manufactured by Canadian Solar.

01



Distribution
Users can decide whether to use, sell, or store their electricity.

04




Installation
The panels can be installed on both the ground and rooftops.

02




Business Models
The solution is implementable using PAYG and Feed-in Tariff programs.

05



Maintenance
Owners are responsible for the maintenance of their panels.

03



Future Improvements
As a long-term goal, AI can be used to optimize the process.

06

[More Information](#)



01.

Pay As You Go (PAYG)

The assets, including solar equipment and batteries, are owned by a third party organization (the UN or other organizations). The homeowners pay for electricity at a fixed rate. The new rate will be subsidized and lower than the current rate.

The third party that owns the assets, not only supplies the camp's electricity demand, but also exports the excess electricity to Kenya's electrical grid.

02.

Feed-in Tariff

The assets are owned by the homeowners. Assets are subsidized by the UN or have been paid through low/no interest loans provided by the UN to the homeowner.

The assets that are installed on each house's rooftop supplies the home's electrical demand. It also exports the excess amount to the grid that is established locally between the homes within the camp. If there is still excess energy, it is supplied to Kenya's grid with the rate of \$0.1/kWh.





High Impact



Cheap, Clean Energy

Unlike current diesel generators, solar panels will allow for generation of cheaper and cleaner electricity.



Powering Devices

One of the goals of this solution is to supply the electricity demand of the camp. This way, more people can have access to internet and power their electronic devices.



Source of Income

The Net Zero Community allows its members to have a solar business, which provides a stable income.



Saving Time

Increase in students' access to internet and electricity saves students' time by expediting their learning process.

Potential Partners



I-EMS Group

I-EMS helps electricity system operators to plan and operate distribution power networks with minimum cost and maximum reliability.

<http://iems-group.com/contact/>



Morgan Solar

Morgan Solar, a concentrating photovoltaic manufacturer based in Toronto, is working to make solar energy the most widely used and affordable power source in the world.

mail@morgansolar.com



Canadian Solar

Canadian Solar is a publicly traded company that manufactures solar PV modules and runs large scale solar projects.

<https://www.csisolar.com/contactus/>

Advantages

Why an online learning platform?



Scalability

Online platforms can be easily and cheaply expanded to allow more users to join. Through the Internet, expanding resources becomes almost effortless.



Accessibility

Students are able to access a vast hub of learning material from their homes which avoids the trouble of walking long distances to a physical school.





ACCESS

Build online learning platform or purchase a license from existing learning management systems. Standardized curriculum can be used from primary and secondary schools in the area.



RECRUITMENT

The first three months during preparation would be focused on recruiting and training teachers, as well as registering 100 students. Formal teaching with students will continue during these months.



STAFFING

- ★ Hire 1 quality manager (paid \$110 per year - regulatory limit within camp).
- ★ Hire 5 teachers and go through formal training.
- ★ Hire 1 extra person on curriculum team in charge of curriculum material.



SOLIDIFY PRICING

The average cost of education year-by-year is \$30 USD. The United Nations could strike a better deal by having students pay a small \$10 yearly fee to help run the platform.



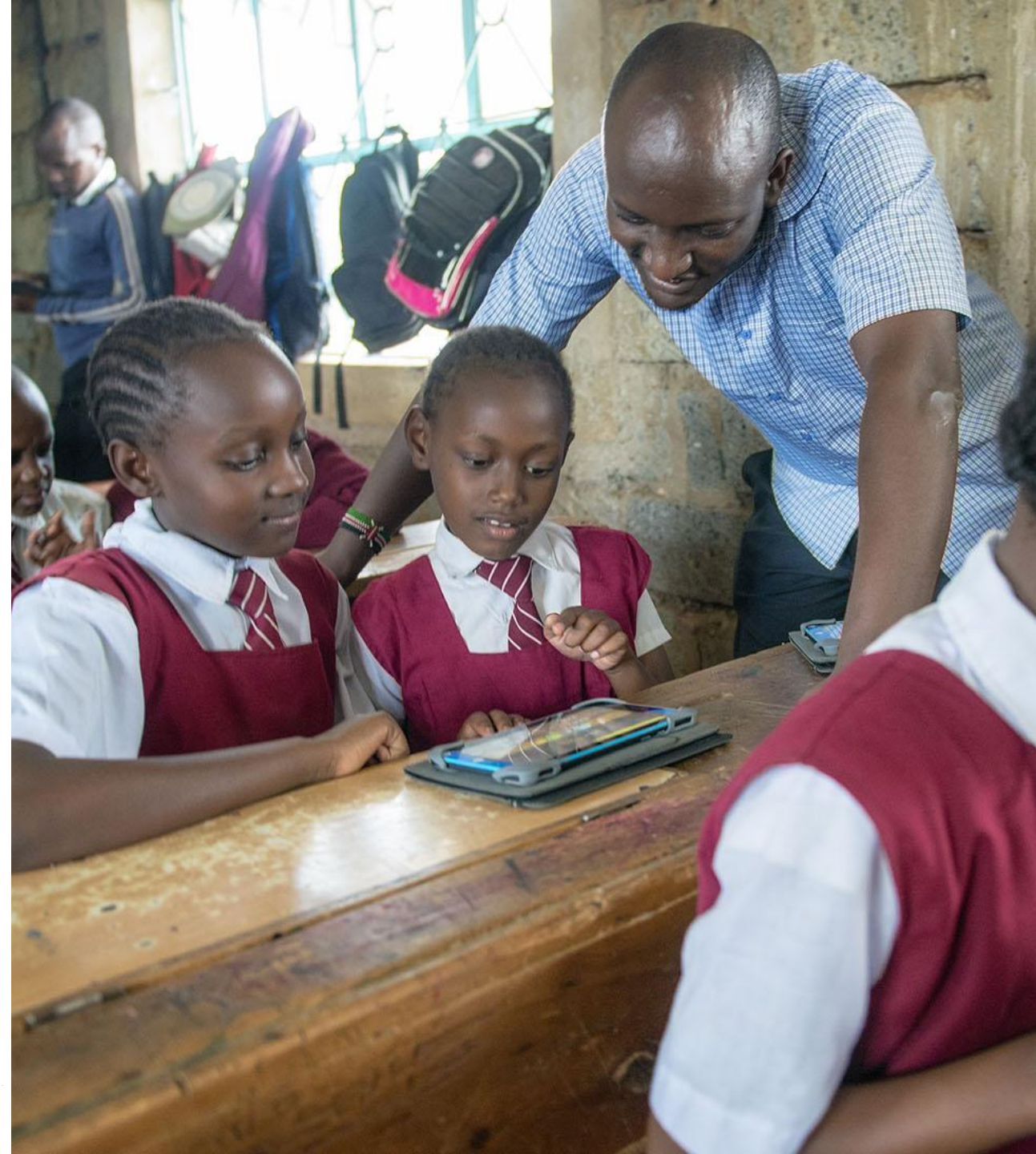
DEPLOY CURRICULUM

Each curriculum team member would be in charge of activity materials for standardized learning. Each team member would be responsible for finding content for one core subject area, such as maths or sciences.



MARKET

Get 100 students enrolled in pilot. Hold community potlucks, sessions and surveys to gain interest. Community events foster word of mouth (trust) which is huge for parents in these areas.





Engaging Community Involvement

Financial Incentives

By imposing a small yearly use fee of \$10 USD per student, we will give back to members of the community (including teachers and students) who contribute by creating their own educational content through commission. This educational content will be checked for quality assurance and other concerns like bias, bullying, and discrimination.

To ensure appropriate use and accurate distribution of funds based on viewership, ad-based revenue, and other factors, we will provide these incentives at the end of each year. The most significant contributors will be given the largest incentives along with scholarship opportunities from institutions locally and abroad.

App Design



LOGIN

Personalized login informations, including usernames and passwords, will allow for greater security within the platform.



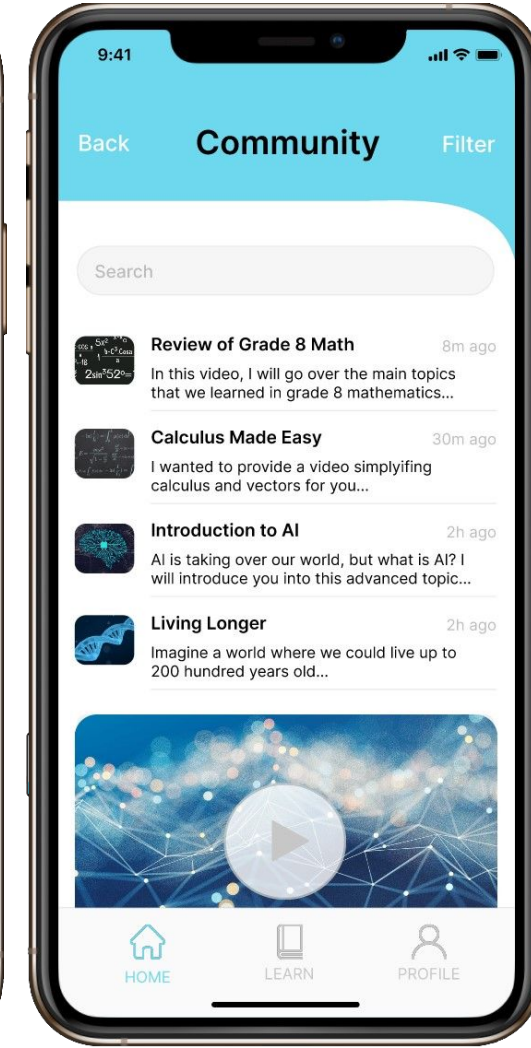
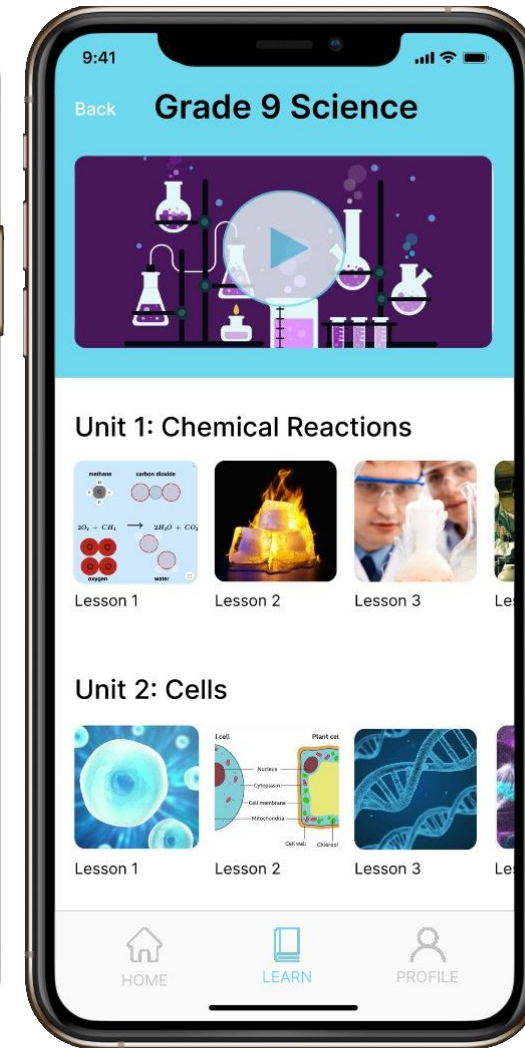
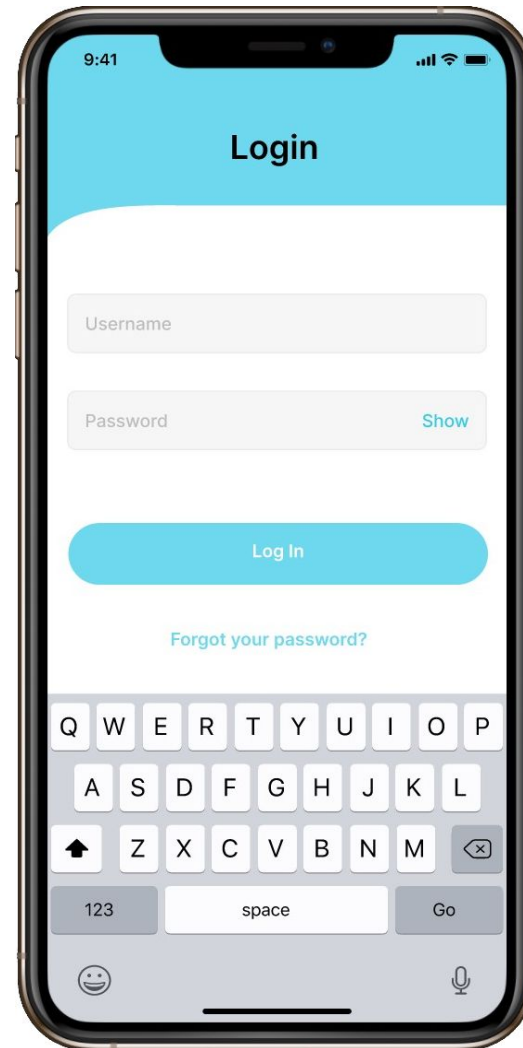
COMMUNITY FEED

Live community feed will show latest content uploaded by students and teachers around the community.



LEARNING MODULES

Primary and secondary learning modules will allow for seamless learning through the use of standardized curriculum and assessments.



Potential Partners

Along with building the online learning platform, these partnerships will help support augmented management systems that can provide analytics for attendance and grades, as well as tools like calendars and appointment scheduling.



TeachAssist

We had the opportunity to speak with Eugene Chun, the founder of TeachAssist, one of the leading augmentative education applications across the GTA. He is interested in supporting the United Nations with his application and would like to continue the conversation.

eugene@teachassist.ca



Moodle

Moodle claims to be one of the world's leading learning management systems that delivers a robust platform. This makes it a feasible school to partner with and roll out an online platform.

<https://moodle.com/contact/>



University of Toronto

The University of Toronto has leading programs in a variety of post-secondary fields. This could be another partnership through which the UN can provide scholarships to promising refugees.

[416-978-2011](tel:416-978-2011)



Ensuring Success

Educating Users

LEARNING PLATFORM

The platform is designed to be as accessible and intuitive as possible for users. Online help will also be available for students through teachers and mentors. Online videos will be available in the platform, so students can learn how to use it. In addition, teachers and students are able to publish tutorial videos to introduce the platform's features to their peers.

HANDLING SOLAR

Experts will assist with the installation of the solar panels, and instruct families on proper care and maintenance. Both online and paper resources and help will also be provided to ensure that the solar panels work properly, reliably, and produce adequate energy. Solar panel owners will be introduced to the business models and electricity export rates.

Promoting Girls' Education



CAMPAIGNS

Launch campaigns to raise awareness and promote digital literacy among young girls. Help setup necessary tools and technology to digital platforms for learning.



STEM OPPORTUNITIES

Our goal is to provide all young girls with real life STEM opportunities to further develop their skills and ensure their ability to succeed in the new age of technology.



OUR VISION

Our vision is for all young girls to prosper in the new digital economy. For them to become leaders of their fields instead of marginalized.

Solution #1

Female Ambassadors

We use strong female ambassadors to lead others and document their unique lives. Experienced young women can contribute, and demonstrate their personal experiences and insights to their community and peers.

The experience young women in their communities can apply to become a female ambassador. Due to the privacy concerns, the girls are explained all risks and information. Informed consent is necessary to ensure everyone's safety and wellbeing.



Mentorship

Younger girls have role models to follow, and other girls they can communicate with about their lives or uncomfortable topics. They can look at others and take insights from their friends and peers.



Inspirational Campaigns

An important role of a mentor is to provide inspiration for others to achieve more. Ambassadors are encouraged to do day-in-a-life and motivational videos for students and families to see. This can combat gender stereotypes against women.

Solution #2

Female Council

We want to create a female led council to represent their peers and community within the camp. Girls are able to have strong representation and stand up for their needs to properly learn and prosper.

Girls have the opportunity to have their voice heard and represent their community to others.



Structure

Run local elections for representatives. Positions can include equity officers, student and wellbeing representatives, vice-presidents, and presidents. The council will be advised by teachers or older community members to overlook function and responsibilities.



Events

The council would lead community events to promote inclusion, wellbeing, and mental health. These events can include community potlucks featuring guest speakers, or giveaways. Working with local partners and organizations, these events help build female presence in the community.



Accessibility

Implementing Girls' Empowerment in the Online Platform



Active Contact With Mentors

Through email and text-messaging, female students can actively contact female mentors for inspiration and advice.




Community Support Hotline

Student-to-student mental health support for communal empowerment.



Exclusive Opportunities

Notifications page for sharing girl-specific opportunities.



Potential Partners

1 Girl Effect | Contact

Across over 20 countries in Africa & Asia, Girl Effect empowers millions of girls to create change in their lives and communities.

2 Theirworld | Contact

Theirworld is a children's charity that helps kids unlock their full potential by ensuring access to education.

3 CGAP | Contact

The CGAP's (Consultative Group to Help the Poor) helps to build resilience among women through financial services.

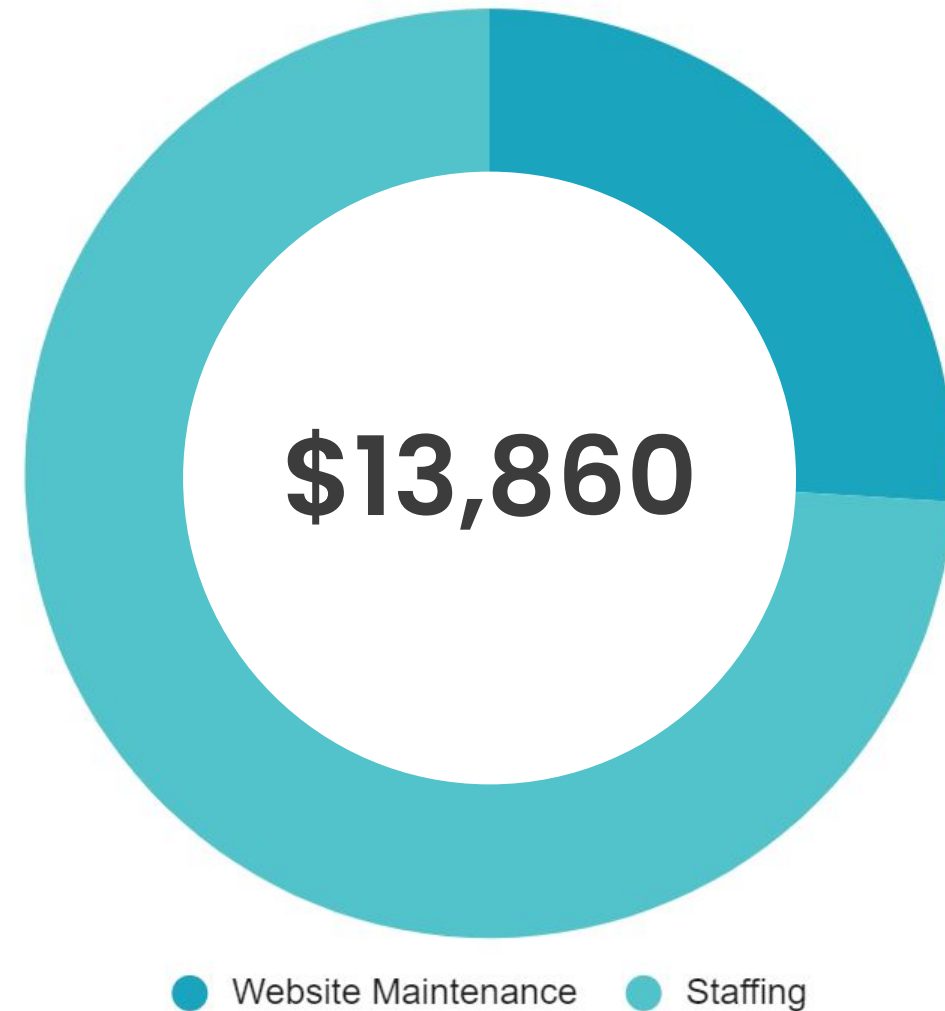
Costs

Yearly Operating Expenses

Website development and maintenance is usually costly but by using [LearnWorlds](#), a school website builder with premade templates, the expenses for website maintenance can be reduced to \$3600 per year through their pricing plans.

The overall staffing costs amount to roughly \$10,260.

For the initial 15 years of the project, a maximum of \$1,245,071 in total must be paid for the installation and maintenance fees of the intended 20,000 solar panels. This expense can be paid for by the UN, NGOs in Kenya, or the Kakuma refugees based on the selected business model.



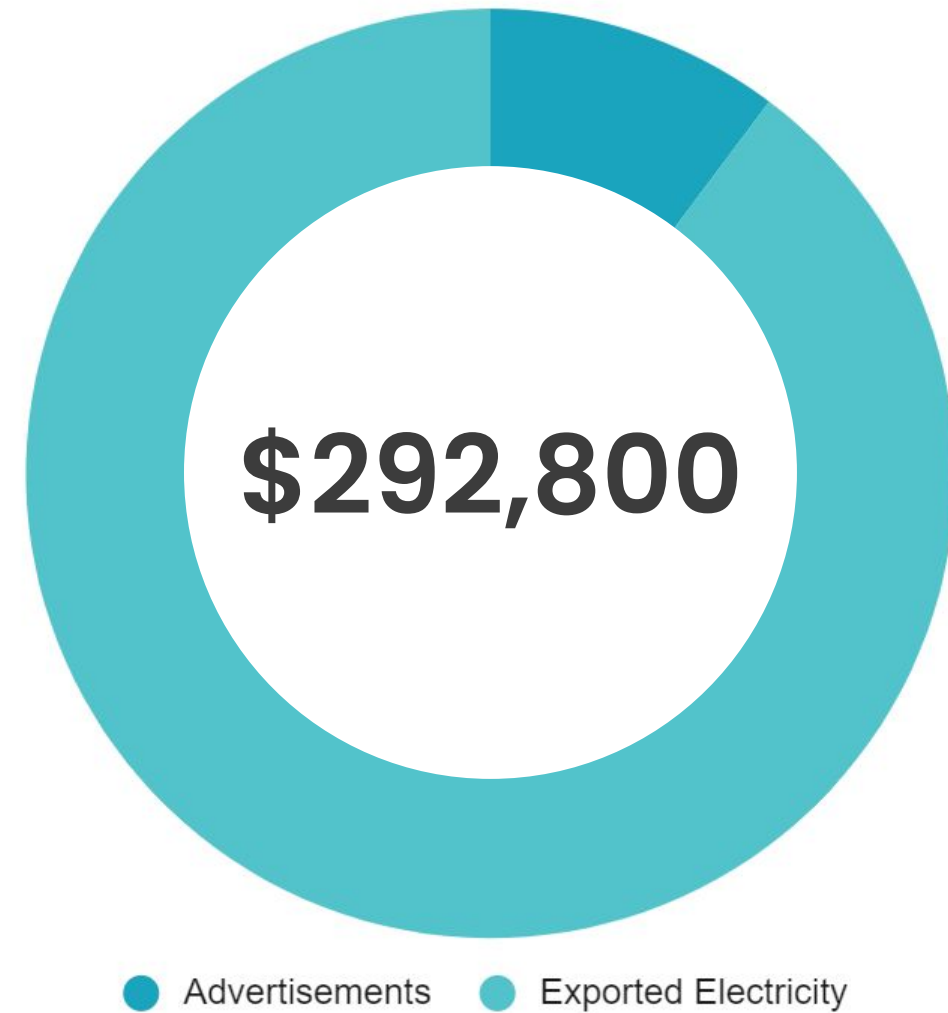
Revenue

Yearly Sources of Revenue

The first source of revenue involves advertisements on the online learning platform. We aim to earn \$3 per user in ad revenue which amounts to \$30,000 with 10,000 users.

Our second source of revenue includes electricity exported to the Kenyan grid where we will sell 25% of the generated electricity from the roughly 20,000 installed solar panels.

With these figures, our project earns a profit, allowing us to reinvest the additional money into expanding the website, increasing the number of installed solar panels, and reinforcing our implemented women campaigns.



The Results



1

Digital Skills

Increase in digital skills and access to digital devices for young refugees and girls. Ready for the new digital economy.

2

Access to Education

Provide a stable expansive hub for high-level education.

3

Stable Income

Provide refugees knowledge and tools to build a basic source of income.

4

Infrastructure

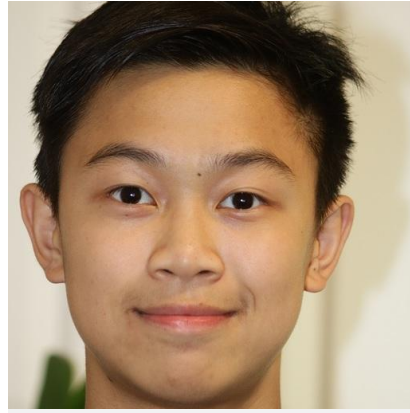
Provide families and students with the required infrastructure to access the electricity and the internet.

Consultants

MEET OUR TEAM



Dev Patel



William Chen



Mohammad Hoss



Jonathan Lin



THANK YOU, UNITED NATIONS!

We're so excited by the work you're pioneering across the world. This has been an eye-opening and exciting learning experience for us. You're tackling unbelievably difficult problems; we're so grateful for the opportunity to take a stab at it too! We hope our recommendation was valuable!