The Appropriate Technology Collaborative

2022 Annual Report

During 2022, with your help:

A new Solar School	153 people with Solar lighting	350 people drink safe water	Support of 75 Micro Businesses	571 Young people trained in technologies

2022 HIGHLIGHTS

At The Appropriate Technology Collaborative, we are committed to continue providing smart and sustainable solutions for communities of the western highlands of Guatemala.

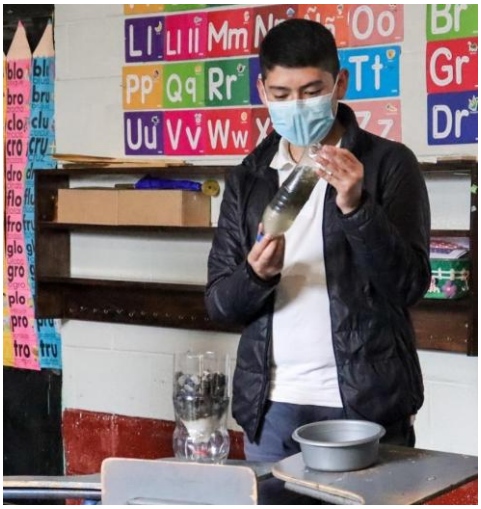
Solar Centers

During February 2022, we successfully brought about a transformative impact on the Unillá Pacalá community, one of the most economically disadvantaged in the Quiché department. This initiative positively affected over 150 families who, up until that point, lacked access to electricity services in both the primary level establishment and basic institute.

We installed a 1,380-Watt Photovoltaic Energy System Installation a public school in la Unilla Pacalá, San Miguel Uspantán, Enhancing Educational Quality and Inspiring 155 students and 5 teachers.

In addition to providing solar power we provided a high capacity water filter for the school and surrounding community.

We taught the school staff and community members how to maintain their solar power system and we provided WASH (water, sanitation and hygiene) training to school staff.



Appropriate Technology

In the current year, 571 students successfully earned the "Appropriate Technology for Entrepreneurship" diploma, gaining valuable knowledge enabling them to create homemade prototypes such as rainwater recycling filters, vehicles powered by recycled water, and more. This initiative encourages the practical application of mathematics and science, fostering opportunities for new entrepreneurial ventures to enhance personal and family income. The goal is to address issues such as gender inequality, school dropout rates, and migration resulting from economic limitations and lack of knowledge. The comprehensive training program involved a total investment of 522.5 hours in the diploma coursework.

Mayan Power and Light reported Professor Luis Enriquez of Quetzaltenango, noted. "*It's good to know that these new technologies exist and even better that students learn and experience the benefits of appropriate technology and how this can change their lives, their work or their personal finances; Taking care of the environment is a responsibility of every citizen.*"

Addressing climate change requires understanding environmentally friendly technologies..

2022 HIGHLIGHTS OF THE PROJECT

High Capacity Water Filters

In the current year, we have identified additional communities in the western highlands of the country lacking access to water services, resulting in recurring health issues such as parasites, infections, diarrhea, and malnutrition in infants under one year old. Through the implementation of the high capacity water filters, we have positively impacted over 355 individuals in the western highlands of Guatemala, providing them with access to clean and safe drinking water. This technological intervention contributes significantly to enhancing the health of families, including children, adults, and the elderly, by increasing nutrient intake from food, fostering new water consumption habits, preventing excessive deforestation for water boiling, and improving family finances through the avoidance of expenses on bottled water, firewood, and medical visits.

Solar Power Kits

We successfully brought light to the homes of 25 families living without electricity in the municipalities of Patzún, Chimaltenango, and in San Marcos la Laguna and Quixayá San Lucas Tolimán in the department of Sololá. The provision of solar kits proves instrumental in overcoming the challenges of energy poverty, addressing the absence of electricity access. Each solar kit enables the illumination of three rooms, facilitates the use of an AM/FM radio, and allows for the charging of cell phones.

In collaboration with ASODENE and Utz Corazón, we have positively impacted 25 households, benefitting 42 women, 37 young people, and 54 children. This intervention has eliminated the need for candles, ocote, and other smoke generators, leading to cleaner air for these families. By avoiding fires and gaining improved access to information, these households are now better positioned to enhance their economic prospects, health, and overall well-being.

Green Entrepreneurship

Amid the COVID-19 economic crisis (COVID-15), we addressed the plight of vulnerable families in Guatemala. Our Micro-entrepreneurs diploma trained 57 resource-challenged indigenous women in Olintepeque, La Esperanza, and San Juan Ixcoy. Empowering them with skills in finance, sales, and marketing, we improved their income, reinvigorated local economies, and transitioned them from anonymity to formal economic participation.

Technology Development

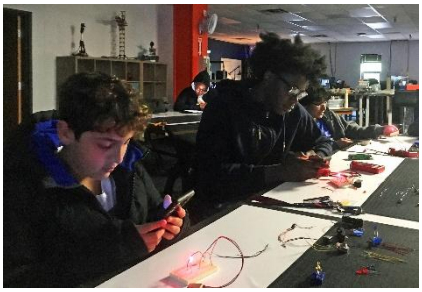
In 2022, the Appropriate Technology Collaborative innovatively crafted an enhanced, more efficient, and durable solar food dehydrator. This marks the fourth iteration of our design since the initial development and testing of a food dehydrator by our Michigan State University team in 2012.

In western Guatemala, 48% of children face chronic malnutrition, impacting growth, brain development, and immune strength in early childhood. Generational poverty, driven by factors like high unemployment, limited education, and low income, poses challenges in acquiring food. ATC collaborates with small farm family cooperatives to introduce sustainable technologies, like dehydrators, enhancing both income and nutrition year-round. We are also designing a new solar stove that uses only energy from the sun and allows families to cook even when the sun isn't shining!

Michigan State University Engineering Students

Our first year back from Covid teaching solar with our Solar STARS team in Southeast Michigan

We continue to teach solar classes in SE Michigan. Our goal is to reach kids who don't usually have enrichment classes. Our Circuits and Solar class is a STEM rich class that focuses on solar power. We have worked with schools, after school programs and with local solar installers to develop critical thinking skills through investigating solar power. We're looking for volunteer teachers for 2023 if you are interested.



Detroit Solar STARS

Community Programs

In March 2020, Mayan Power and Light initiated a technical and social assessment for the Solar Center project in Unillá Pacalá. However, amid the COVID-19 health crisis, our activities, and funding for the "last mile" solar school project were halted. Despite these challenges, Unillá community leaders persisted. The newly established solar committee collaborated closely with MPL staff to organize the solar installation project, demonstrating high participation from women and community-wide commitment. Local volunteers, including leaders, parents, students, and teachers, played crucial roles in receiving equipment, arranging 4x4 transportation, providing local materials, and accommodating the MPL installation team. Together, we joyfully celebrated the inauguration of the solar project with dance and speeches.

In 2022, we launched a new program in collaboration with traditional midwives to identify families lacking access to electricity and anticipating the arrival of newborns. We initiated a pilot program aimed at providing solar power to these families, who previously spent approximately $2.50 - $5.40 USD on candles and kerosene for lamps. Drawing from our 15 years of experience in delivering solar power to rural families, we understand that these families allocate their savings primarily towards enhancing nutrition for their children, purchasing books for school, acquiring clothing, and maintaining their homes. Importantly, we respect the autonomy of families to make their own decisions regarding how to use their savings. This program is partially funded through a voluntary humanitarian carbon credit initiative.

Join us to achieve a prosperous, inclusive and sustainable world.
www.apptechcollaborative.org

Our Partners

Looking Forward

In 2022, we initiated a *groundbreaking* program in collaboration with traditional Guatemalan Midwives, specifically focusing on identifying families without access to electricity and expecting new members. This strategic endeavor aligns with the World Health Organization's acknowledgment that ensuring proper nutrition during the first 1,000 days of life is paramount for the lifelong health and prosperity of children.

Our pilot program, designed to bring solar power to these underserved families, addresses the challenges they face in allocating resources. Historically, these families have spent their limited funds on candles and kerosene for lamps, amounting to approximately $2.50 - $5.40 USD per week.

Drawing on our 15-year experience in providing solar power to rural communities, we know these families prioritize their savings towards the well-being of their children. This includes investments in improved nutrition, educational materials such as books, clothing, and home maintenance. Importantly, we respect the agency of these families, allowing them to make their own decisions regarding the allocation of their savings.

Donate at www.apptechcollaborative.org

Finance

Staff

John Barrie Executive Director

Ruben Mata
Guatemala Director

Keila Mata
Guatemala Project Manager

George Albercook PhD
Innovation and Design

Board Ot Dirɛctors

Angelo Fluker
President

Hemdeep Dulthmon
Vice President

Ching-Ling Teng
Secretary

Ethelia Brown
Treasurer

Pam Kay
Member

Christine Watson
Member

Diana Wong PhD
Member

Michelle Cobb
Member

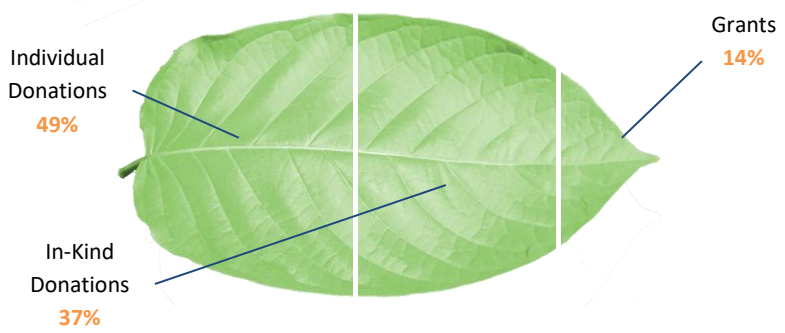
Income	
Balance in Bank 2021	$25,872.78
Grants	$20,000
Individual and Trust Contributions	$69,942.65
Total	**$89,942.65**

Expenses	
Overhead	$18,300
Guatemala Program	$44,697.83
Technology Development	$413.89
Balance in Bank 2022	$27,057.93
Total	**$90,469.65**

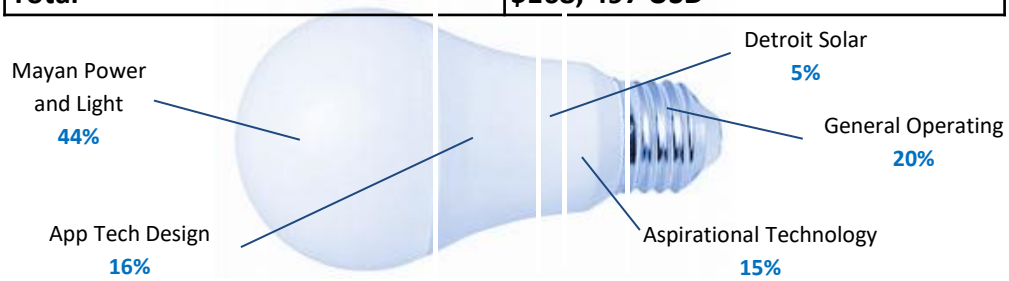
Help increase our impact in 2023, contact us at info@apptechcollaborative.org

Details

Income	
Individual Donations	$69,942.65 USD
In-Kind Donations	$52,277 USD
Grants	$20,000 USD
Sales and Services	$0.00
Total	**$142,219.65 USD**



Expenses	
Mayan Power and Light Program	$44,697.83 USD
App Tech Design Program	$413.89 USD
Donated Development Hardware	$40,000 USD
Solar-20 In-Kind Development	$12,277 USD
General Operating	$18,300 USD
Total	**$168, 497 USD**



Join us in our efforts to build a sustainable world. Learn more at https://apptechcollaborative.org/