



Appropriate Technology Collaborative



ATC Annual Report 2019

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Chief Executive Officer

Monika Goforth

CEO and Guatemala Programs Director



The collective hard-work of our Board of Directors, coordinators, field staff and volunteers in 2019 has resulted in new levels of organizational effectiveness, impact reach and sustainability. From strategic planning sessions and board development to field research and updating solar power and social business curriculums, our services to address root causes of poverty with sustainable technologies and programs is more relevant than ever.

Designated a year of capacity building, we strengthened our programs in a structured Listen & Learn tour with 46 municipal officials and a market study on solar power, water purification and clean cookstoves, surveying over 300 rural people in the Western Highlands of Guatemala - where an average 76% of the population lives in poverty. This research informed our curriculum upgrade to address misinformation about these health-saving, environmental technologies and to strategically overcome barriers to women's participation in rural economies. Our 2020 cohort of women social entrepreneurs are on ever better footing to serve their communities.

We look forward to this new decade as a strategic, partnership-oriented organization dedicated to market-based solutions in a time of climate change.



Founder and Chief Innovation Officer

John Stanton Barrie

The Appropriate Technology Collaborative continued and accelerated our growth in 2019. The Ann Arbor office focused on three areas, Detroit Solar, Solar.20 and support for our Guatemala office.

In January 2019 I promoted our Mayan Power and Light program at the Rotary International Project Fair in Belize. We received commitments from two Rotary Clubs to fund MPL at the fair and in 2020 we received commitments for the balance of funds from several Rotary Clubs from Calgary Canada.

We continue the pilot phase of Detroit Solar. We met with several high functioning and ethically compatible non-profits. We re-established a relationship with Detroit Blight Busters, a non-profit that has been serving the Detroit community of Old Redford for 31 years. Blight Busters has agreed to host Detroit Solar classes and help us recruit students. We also started work with Detroit Veterans Village, a

non-profit that helps Vets with job training and qualifying for green jobs. We continue to work with Parker Village in Highland Park and the Boys and Girls Club of Highland Park. Detroit Solar has identified eight foundations that have compatible missions and are actively soliciting grant applications.

In June we identified the American-Made Solar Prize as a good match for our technology development program. I had previously identified several technologies that we can develop for low income people. I “shovel ready” technology is a way to extend battery life for solar applications such that the batteries last 20 years, or four times longer than typical solar batteries. I submitted a grant application to the American-Made prize and won funding for preliminary development of the Solar 20 long lasting solar power system. The funds from the Solar 20 prize covered substantial overhead for ATC in 2019 and 2020.



Mayan Power and Light Program Director

Marilena Choguaj

We are living within a changing society, where many organizations work to address poverty through palliative solutions. Our program seeks to address root causes of poverty to guide society towards sustainable, inclusive economic development. Our work opens doors and demolishes paradigms about the capacity of women in the area of technologies and entrepreneurship to set the stage for this vision.

Focusing on women, our program transforms generations. Income generating programs like social enterprise training seeks the economic independence of women as a model for their childrens' development– their children receive better education and have better health; they also absorb their mothers' attitudes. Supporting women's leadership and economic participation transforms the reality of entire communities for generations to come.

As leaders in MPL, we have built a comprehensive program with greater organization and attention on efficiency and effectiveness. As part of our growth, 2019 saw the renewal of our operations and strategic plan that guides our work to achieve ambitious objectives. We strengthened our educational programs and defined effective processes for selecting beneficiaries and project sites to ensure effective monitoring of long-term results.

The Mayan Power and Light team has created a friendly, respectful, and reliable working environment with our community collaborators, ATC leadership, technical assistants, interns, and volunteers - resulting in a strong sense of teamwork and dedication to our mission.

OUR MISSION

A photograph showing two men working on a large array of solar panels. One man is standing and holding a tool, while the other is crouching and looking at a device. They are in a rural area with a forested hillside and small houses in the background.

WE COLLABORATE WITH LOCAL COMMUNITIES TO
DESIGN TECHNOLOGIES AND PROGRAMS TO
ALLEVIATE POVERTY.

OUR VISION

Grow self-sufficient economies using appropriate technologies
that improve the quality of life





Emergency Solar Lighting The Street School Children's Home

OUR PURPOSE

Raise awareness and access to sustainable technologies that improve quality of life.

ATC BOARD OF DIRECTORS

Board Of Directors



Carl Patrick
Chair

Carl is an author, business consultant, and sustainable food enthusiast. Carl provides business guidance to ATC and access to community resources.



James Herbin
Vice Chair

James has a BSE Degree from the University of Michigan. He is a Software Developer MSCI Inc. James' background and work experience help guide ATC technology development.



Ethelia Brown
Treasurer

Ethelia has an MBA from Lawrence Technical University. She recently retired from GE where she was lead for Network Access Control.



Hemdeep Dulthummon
Secretary

Senior Project Manager, Robotics Systems for Encore Automation. Pursuing MBA at Yale University.

ATC BOARD OF DIRECTORS

Board Committees



Appropriate Technology Collaborative



Diana Wong Ph.D

Advisor

Diana is an Associate Professor of Entrepreneurship at Eastern Michigan University as well as CEO & President of Sensei Change Associates, LLC



Christina Watson

Advisor

Director, Computer Service, GE Healthcare, Infrastructure management supporting 120 applications, 8000 servers globally, directing staff in 8 international locations.



Mallory Young

Fundraising Committee

Mallory oversees audience growth and analytics at IFundWomen, a startup for women entrepreneurs in New York City.



David Dupee

Strategy Committee

Pursuing MBA at Yale University.

ATC BOARD OF DIRECTORS

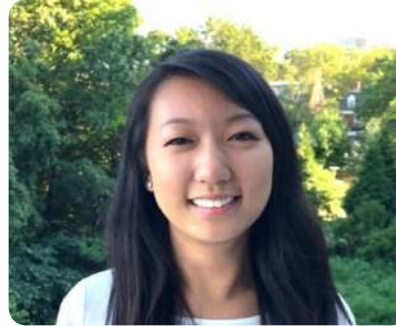
Board Committees



Bhavya Tummala

Member

Bhavya is a senior consultant at a HR and Talent Management consulting firm, Amy Cell Talent.



Grace Chen

Finance Committee

Pursuing MBA at Yale University.



Jake Fuchs

Strategy Committee

Pursuing an MBA at Yale University.

ATC STAFF

Board Of Staff



The Appropriate Technology Collaborative

Opportunity by Design



Rosy Ordonez

Solar Sales Mentor

Co-owner of MPL's first Solar Business, Soluciones Energeticas Apropriadas, Rosy advises others on client relationships and sales of solar power.



Jose Ordonez

Solar Design and Educator

Solar Energy International Certified, Jose coaches on solar design and oversees installations. B.A. Industrial Technology; MIT Development Summit, Ghana, 2009



Ricardo Ordonez

Solar Design and Educator

Certified electrician, Ricardo apprenticed under Jose Ordonez for over 3 years, he has installed over 25 large and medium solar power units.



Saul Canastuj

Business Consultant & Trainer

Specializing in financial analysis, business strategy and sales, Saul has accelerated over 18 small and large businesses over 6 years. Master of Financial Administration.



Appropriate Technology Collaborative

2019 Awards



Exemplary Project Award

Recognized ATC for community-led work in sustainability with Tiritibol Primary School whose solar powered computer lab purposed to teach typing to primary school students, opened online high school courses for the first time in this isolated, unelectrified community.



Solutions to Climate Change

Mayan Power and Light awarded as the top sustainable solution to climate change in Guatemala for our program leveraging women's entrepreneurship to create access to solar power *beyond the last mile.*



Energy Globe is today's most prestigious environmental prize worldwide, honoring projects presenting sustainable solutions to climate change.

Solar Technology Development

The American-Made Solar Challenge 2019 selected Solar20 to develop our 20-year solar kit to provide low-income people with long-lasting energy solutions.



U.S. DEPARTMENT OF ENERGY



Appropriate Technology Collaborative

2019 HIGHLIGHTS

Collaboration for Growth



HIGHLIGHTS 2019

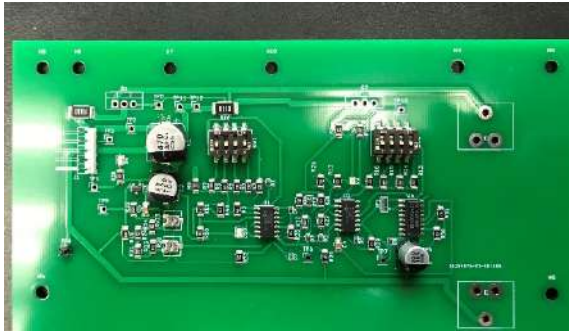
The Year At A Glance

01

Ann Arbor- USA

Design of Solar Kits that last 20 years

We have rapidly iterated through several proof of concept technical designs and we are now working on the functional and aesthetic design for a market-ready solution to extend the life of solar power batteries in 10W – 200W kits.



02

Quetzaltenango, Guatemala

Solar Power for Power Failures

The Street School Children's Home shelters 22 at-risk children in a safe, vibrant home. Solar Power keeps the lights and computers running during frequent blackouts to keep kids safe and stable.



03

Highland Park, USA

Teaching Solar in Detroit

As we continue to develop our STEM rich solar power educational program, we underwent project planning with Veterans Village and Boys & Girls Club of Highland Park.



**Design of
Solar.20 Solar
Power Kits that
extend battery life**



HIGHLIGHTS 2019

The Year At A Glance

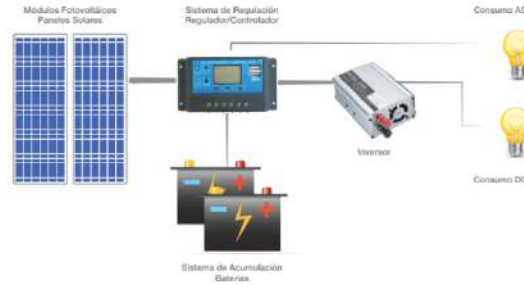


04

Western Highlands, Guatemala

Listen & Learn Tour

Constantly iterating to improve our programs, we interviewed over 46 government officials and community leaders in 6 departments about their needs, resources, and major concerns. Subsequent conversations led to 12 new partnerships with Municipal Governments in rural areas of Guatemala.



05

Quetzaltenango, Guatemala

New Solar Curriculum for Youth

Basic skills in essential, green technologies prepare the next generation for sustainable living in a world struck by climate change. Increasing awareness about climate change, solar power clean cookstoves and water filtration helps the next workforce to make cost-effective choices that preserve the environment.



06

Quetzaltenango, Guatemala

Solar Power Workshop for 6th Graders

In partnership with LEDSafari, we piloted our new curriculum with 19 students with our hands-on STEM rich workshop about electrical connections, solar power, calculating energy consumption and building their own solar lights.

HIGHLIGHTS 2019

The Year At A Glance

07

Quetzaltenango, Guatemala

Social Business Training for Rural Women

Saul Canastuj, business consultant and coach with 20 years experience, joined our team to strengthen our training program. We iterated the MPL Business model and created dynamic educational activities for rural social entrepreneurs.



08

Nahuala, Guatemala

Women's Social Business Workshops

We piloted our new curriculum with 10 women starting a Cooperative Bakery with our partners, ASODI. They learned best practices of financial management, sales and marketing.



09

Quixaya, Guatemala

Women's Social Business Coaching

2018's Solar Dehydrator provided Cooperativa K'uxya' a tool for value-added organic products. 2019 followed through with coaching to access local markets, grow sales and quality control for organic herbal teas and turmeric powder.





**Testing our Solar
Dehydrator with users in
the field informs our
second prototype to be
built in 2020.**

HIGHLIGHTS 2019

The Year At A Glance



10

Ann Arbor, Michigan Strategic Planning

ATC Board of Directors renewed our Mission and Vision, Objectives and Plan for Growth. They developed committees overseeing the areas of Finance, Fundraising, and Governance, to further our effectiveness and transparency.



11

Quetzaltenango, Guatemala Organizational Sustainability

ATC and community allies engaged in an extensive planning process, establishing the Mayan Power and Light program as a Guatemalan non profit organization spreading awareness and access to appropriate technologies by empowering local leaders.



12

Western Highlands, Guatemala Humanitarian Carbon Credits

Funds from climate conscious individuals' self-imposed carbon taxes enabled us to convert 25 households living in extreme poverty from candles to solar power – with better light, cleaner air and cell-phone charging capability, these families have more money, health and time to dedicate to other urgent needs.

HIGHLIGHTS 2019

The Year At A Glance



13

Tulancingo, Mexico

University of Technology

ATC and UTec formalized an alliance for humanitarian engineering projects for sustainable community development in Guatemala and Mexico.



14

Quetzaltenango, Guatemala

Solar Dehydrator Prototype 2

ATC and UTec designed a new prototype that increases efficiency and standardizes the drying process with a humidity and temperature monitor that automates solar power fans to keep air circulation consistent. Prototype 2 will be built in April 2020.



Appropriate Technology Collaborative

Project Locations

Solar Power, Social Ventures, Design Innovation



Mayan Power and Light Impact Map



Since 2011, Mayan Power and Light (MPL) has improved the lives of thousands of rural Guatemalan people by providing solar energy. From 2020 MPL is expanding to also provide water filters, solar food dehydrators, and clean cookstoves.

Through our successful solar education program we have enabled intelligent and ambitious rural Guatemalan women create local businesses using solar energy.

MPL IMPACT MAP LEGEND

- Listen-and-Learn Tour
- Existing MPL Projects
- Future MPL Projects by 2025



Appropriate Technology Collaborative

ATC IMPACT

Solar Power, Social Ventures, Design Innovation



18

Appropriate Technologies designed, built and tested





19

Solar powered schools and community buildings in rural Guatemala provide better services to their constituents.

208

People living in Extreme Poverty converted from candles and kerosene to solar power lighting and cellphone charging with Humanitarian Carbon Credits in 2019.





405

Children in isolated rural villages learn computer skills
on solar powered laptops.





715

Local and International Volunteers

8,225

Community members have better services from a solar
school or community building





35,934

People have benefited from our programs and technologies world-wide since 2008.





4,000,000

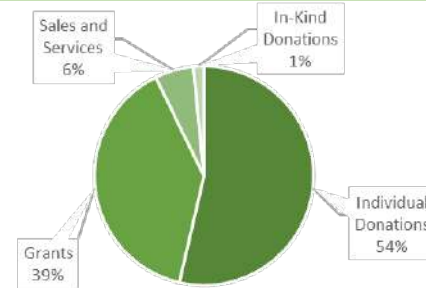
Pounds of Carbon Dioxide Abated Every Year By ATC Technologies and Programs.

ATC INCOME & EXPENSE 2019

Figures in US dollars

Income

Individual Donations	USD 75,272.00
Grants	USD 55,000.00
Sales and Services	USD 8,040.00
In-Kind Donations	USD 2,149.00
Total	USD 140,461.00



Expenses

Mayan Power and Light Program	USD 44,509.00
Appropriate Technology Program	USD 10,820.00
Detroit Solar Program	USD 4,122.00
General Operating	USD 28,468.00
Other	USD 2,324.00
Total	USD 90,243.00

