

2021 ANNUAL REPORT

Local Leaders Power Sustainable Change



green empowerment



We envision an equitable and sustainable world where everyone has clean water, renewable energy and a healthy environment in which to grow and thrive.

Dear Friends,

As I look back on 2021, with its many challenges and successes, I write this letter filled with hope for the future. While global travel was disrupted and the supply chain fractured, our investment in authentic partnership proved, once again, to be the fulcrum that propelled our projects forward. In Myanmar, it was local leaders who remained on the ground during political upheaval, and enabled us to power a newly-built COVID-19 Response Center. In Ecuador, an investment in continuing education meant that local people were able to maintain their own water systems - even though past interventions by other organizations had failed. New team members in Uganda guided what our new program will look like by listening and identifying how our model could be adapted locally.

2021 not only saw the continuation and expansion of our projects, but also the validation of our model. In a sweeping survey of 27 sites, we found that 97% of our projects were still in operation.

Cover: Doctor Julio Cesar Roque at the community clinic in Pueblo Amado, Nicaragua. Water system installed in 2015 and still running strong. Photo by: Javier Gutierrez

We have always known - through our values and our stories - that our approach would be the most sustainable path to increasing global access to renewable energy and clean water, but now we have data to prove it.

Success is evident in the stories from community members and partners that you will find in this annual report. We at Green Empowerment are proud to be collaborators, facilitators and advisors to these local leaders, but they are the true heroes. Your support has allowed these leaders to thrive, and for Green Empowerment to expand our work during challenging times, effecting change on an ever-increasing scale.

Thank you for being a part of this.

Sincerely,

Andrea Johnson, Executive Director



How We Get There

AUTHENTIC PARTNERSHIP

We collaborate with in-country organizations and follow their lead to ensure the long-term economic and environmental sustainability of our projects.

COMMUNITY-DRIVEN ENGAGEMENT

Infrastructure projects are built and maintained by the community's citizens themselves, ensuring local investment.

INCLUSIVE TRAINING

We provide technical, administrative, and program specific training for community members, supporting local maintenance and management of projects for decades to come.

MAXIMIZED IMPACT

We amplify our global impact through ground-up innovation, coalition building and both local and regional training programs.

2021: Your Impact Numbers



9,250

People gained access to clean water or sanitation in their homes



36,398

People with improved access to health care service from energy, water, or sanitation infrastructure at local clinics



514

People gained access to renewable energy in their homes



45

Communities completed projects



11,219

Community members participated in training programs



706

People trained as community technicians

 **9,250** People gained access to clean water or sanitation in their homes

 **36,398** People with improved access to health care service from energy, water, and sanitation infrastructure at local clinics

Progress in the Río Cayapas

ECUADOR

This past year we continued our work in Río Cayapas, Ecuador to install 3 new water systems and upgrade 3 existing water systems, bringing clean water to 1600 people. The Afro-Ecuadorian and Chachi indigenous communities scattered along the Río Cayapas depend on this vast waterway for transportation, livelihoods, and water supply, but logging, mining, and cattle ranching in the area threaten the health and livelihoods of the population. Over the last two decades, many Río Cayapas communities have received inadequate NGO or government interventions to implement potable water systems; most of which quickly failed due to poor design, a lack of administrative/technical training, and minimal follow-up by project implementers.

Green Empowerment works with local partner ALTROPICO on both sides of the Colombia - Ecuador border. Together in the Río Cayapas, we design systems with parts that are available in-country and easy to transport by canoe (as these communities are only accessible by river) and invest in training locals to build, manage and maintain the systems. In 2021, in addition to new water systems and upgrades, we also launched a continuing education program that provides training for new operators and expands the expertise of veteran operators. Observing success with their neighbors has convinced communities to invest their own money, time, and labor in water system construction. From our first install in 2018, our work has spread to a total of 12 communities in this region, and counting.



Community members in Playa de Oro, Río Cayapas, Ecuador show off their new water tank platform mid-build. Photo by Gustavo Huera Cuases.

RELX Prize

We are honored to receive the 1st place prize for the 2021 RELX Environmental Challenge! We continually seek to address the challenge of reliable water treatment in low-resource communities. This prize will support ongoing development of a Chlorine Management System (CMS), a water quality monitoring device that is weatherproof, affordable, and low maintenance. The prototype will continue to be tested at Oregon State University facilities and deployed in Ecuador in 2022.



BELSI CAICEDO

— LOCAL LEADER —

“The way we built the water system was really beautiful, we all worked as a group here in the community. Everyone knows the work they put in.”

Belsi Caicedo, Back-up Technician and Water Committee member in Majua, Río Cayapas, Ecuador. Photo by Gustavo Huera Cuases



Family in Aguas Calientes, Nicaragua, in front of their new compost toilet, one of 550 latrines that we installed in Nicaragua with partner ATDER-BL. Photo by Javier Gutierrez.



Solar panel mounting for COVID-19 Emergency Response Center in Myanmar



“We are more comfortable now because the water we needed has arrived. The most beautiful thing about all this is that they took us into account. Now, it is up to us to take care of and maintain this change.”

Martha, health care professional at the Monte Grande clinic in northern Peru, one of 9 remote clinics where we worked with Water for People to upgrade water and sanitation infrastructure and support training in hygiene and COVID-19 prevention.

COVID-19 Emergency Response Center

MYANMAR

In light of the violent military coup of February 2021, Myanmar suffered the loss of many international NGOs due to safety concerns. Thanks to our regional partnership strategy, and reliance on long-established trade routes through Thailand, we were able to continue our important work there. In 2021, we successfully installed a 5.5 kW solar system at a newly built 40-bed hospital and COVID-19 response center in Karen State. The facility serves 30,000 people across 69 villages and supports a network of 9 clinics.

Several decades of unrest in Myanmar have left countless internal refugees displaced from already sparse healthcare facilities. The COVID-19 pandemic exacerbated challenges in this strained healthcare infrastructure, such as how to plan for vaccine distribution when clinics do not have reliable electricity to power cold storage. We prioritized this project at the request of our partner, the Karen Department of Health & Welfare (KDHW), a nongovernmental community-based healthcare provider run by and serving people of the Karen ethnic minority. Our long-time in-country partner Border Green Energy Team (BGET) led the project, installing the clinic’s energy system, and training local staff in system maintenance. The new response center is now equipped with the critical energy infrastructure needed for emergency pandemic response and overall health of the community.



OLIVIA NANFUKA

— LOCAL LEADER —

“With the DREAM tool, we analyze and provide customized data to our partners based on their operations. The conversation and support then transitions to an all round understanding of what quality health care means based on the intersection between reliable access to energy and health care delivery. Personally, it is a great opportunity to understand that my work, though small, is a contribution towards the continent’s long term vision of a prosperous Africa.”

Olivia Nanfuka, Energy Analyst, Green Empowerment. As lead implementer of our DREAM tool, Olivia completed energy needs assessment with remote data collection for 14 health clinics in Sierra Leone and Liberia.



In 2021 we secured catalytic funding to support installation of 24 hour solar PV + storage systems at three Medical Teams International clinics in Uganda, prioritized for their maternal healthcare services.

SHIFTING THE ENERGY LANDSCAPE

Development projects often fail because local residents and leaders are left out of the innovation, design and implementation process. In 2021 we made big strides on energy projects that transfer power back to local stakeholders to help community-driven solutions thrive.

Ground Up Innovaton

MALAYSIAN BORNEO & THE PHILIPPINES

Our Smart Grids for Small Grids project builds on two decades of collaboration with regional partners SIBAT and TONIBUNG implementing micro-hydroelectric power grids with remote indigenous communities in Southeast Asia. Now we are innovating together to make these systems more reliable and even more accessible to local engineers and technicians. Using components that are affordable and can be locally produced and repaired, we are designing new open-source technology that will decrease power outages during peak-use hours and allow excess energy (generated in off-peak hours) to be put to productive use. In 2021 we conducted in-depth community surveys to understand real world challenges, and built our first prototype of the new technology.

Coalition Building

MALAYSIAN BORNEO

The Sabah Energy Roadmap is a revolutionary approach to rural electrification planning led by a consortium of organizations who have been working together for nearly twenty years to advance renewable energy and climate change resiliency. The project is integrating indigenous knowledge and deep understanding of the local context with sophisticated energy modeling and policy recommendations. In 2021 alone the consortium was able to complete spatial mapping of micro hydro, solar and hydro/solar hybrid potentials for over 400 remote communities living in energy poverty, and conducted 200 community surveys and 40 technical feasibility studies.



CYNTHIA ONG
— LOCAL LEADER —

“There is an opening for renewables in the gaps where communities cannot viably connect to the grid. We as Sabah are small enough to pivot, yet large enough to be relevant [for the global shift to renewables].”

Cynthia Ong, Chief Executive Facilitator, Forever Sabah and leader of SabahRE2

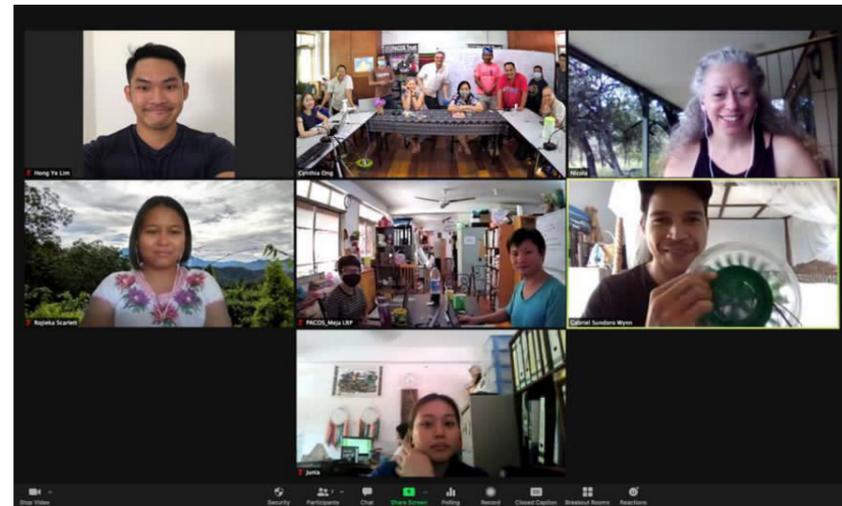
Inclusive Training

INDONESIA

In partnership with AMAN and TONIBUNG, we delivered a series of virtual micro-hydro training sessions to Indonesia’s indigenous populations. We developed training tools in the Indonesian language, provided virtual training, and supported feasibility studies for pilot projects in three Indonesian provinces. As participants began to put their learning into action, our local staff traveled to North Kalimantan Province to conduct site assessments in four communities and provide follow-up training for community organizers and local technicians.



Our Electrical Project Engineer explaining how our new technology will improve electrical load management of micro-hydro systems



Sabah Renewable Energy Rural Electrification Roadmap (SabahRE2) Zoom Meeting



Kampong Tinanom, Ranau, one of the 57 villages & sub-villages in Malaysian Borneo where SabahRE2 has completed feasibility studies

CHANGE THAT LASTS



97% of projects sustained over time

Impact Evaluation

In summer 2021 we conducted an in-depth 27-site program evaluation collecting data and stories from energy and water projects that we installed with partners between 2009 and 2019. These micro-utilities are community-owned and operated, delivering critical resources to all community households and often to health clinics and schools.

Our study overwhelmingly illuminated the efficacy of community-led infrastructure solutions. We were thrilled to find that 97% of the 27 sites are still fully operational. In addition 22 communities reported that service interruptions were very infrequent or infrequent. And 16 communities shared that since initial project installation they had connected more homes to the micro-utility, showing that the community is continuing to invest in and build on the system.

The goal of the evaluation was both to assess the effectiveness of our model and to identify opportunities for improvement. It gave us crucial insight that we have already started to act on through projects like continuing education for community technicians and piloting remote monitoring technology.



“It is something wonderful, which brought [electricity] to our community and to families. We all have this service and it depends on each one of us to choose how to use the energy. For example, we previously couldn’t weld, we had to go to the city, but now we are improving [our business] with this service.”

Vilmer Valdés Becerra, Community Member and small business owner, Chaupirume, Peru, community-scale micro-utility completed in 2013



OUR PARTNERS

PROJECT IMPLEMENTATION

- Bolivia:** Soluciones Prácticas Bolivia
- Colombia:** ALTROPICO, EI COMUN, (TerraViva, Terrazonet, Corambiente via RedBioCol)
- Ecuador:** ALTROPICO, ENGIM
- Nicaragua:** ATDER-BL, ADDAC, CACACONICA, FEDICAMP
- Peru:** Energía, Ambiente & Sostenibilidad, Water for People Peru
- Malaysian Borneo:** PACOS Trust, TONIBUNG, Forever Sabah
- Myanmar:** Border Green Energy Team, Karen Department of Health & Welfare
- The Philippines:** SIBAT
- Uganda:** Medical Teams International, Mandulis Energy

TRAINING PARTNERS

- Colombia:** UTA
- Indonesia:** AMAN
- Liberia:** Global Ministries
- Malaysian Borneo:** KOPEL
- The Philippines:** Yamog
- Sierra Leone:** Global Ministries
- Sri Lanka:** Janathakshan

TRAINING & REMOTE SUPPORT

- Biodigester Network of Latin America and the Caribbean
- Colombian Biomass Energy Network
- Ecuadorian Biodigester Network
- Global PDX
- Hydro Empowerment Network
- The Power Partnership

Our Team

STAFF

- Alejandra Camacho: Program Manager
- Andrea Johnson: Executive Director
- Ashley Bonn: Communications Coordinator
- Benaville Nagudi: Uganda Program Coordinator
- Dan Frydman: Project Engineer
- Gabriel Sundoro Wynn: Energy Access Lead
- Joaquin Viquez: Program Innovation Director
- Karen Wilson: Finance and Admin Director
- Katya Díaz Salcedo: Peru and Bolivia Program Coordinator
- Maria Espinoza: Nicaragua Program Coordinator
- Mica Miro: Engagement Manager
- Nida Jafri: Energy Projects Coordinator
- Olivia Nanfuka: Energy Analyst
- Paola Moreno Bermudez: Colombia Program Coordinator
- Sam Liebich: Admin Coordinator
- Sam Schlesinger: WaSH Technical & Ecuador Program Lead

BOARD

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VOLUNTEERS

- John Paul Ste Marie, OSU PhD Student Supporting CMS
- Abhimanyu Kumar, Engineering Intern
- Drew Lundsten, CMS Development Engineer
- Emma Browne, Videographer
- Ernie Brooner, IT Manager
- Francisco Perozo, Watershed Toolkit Development
- Gabriella Narvaez, Lead Creative Consultant
- Javier Gutierrez, Photographer, Projects Advisor
- Lee Hunt, Administrative Volunteer
- Claire Joseph, Charlotte Smith, Dylan Velez, Lee Deutsch, Lewis and Clark Student GIS Mapping Team
- David Greene, Eduardo Miranda, Ian Riley, Javier Cobian, OIT Student Engineering Team
- Mavis Clapp, Administrative Volunteer
- Wes Parker, Patent Attorney

Support the Work

BARBARA DUDLEY



How to Give

Mail checks to “Green Empowerment” at:
PO Box 8802, Portland, OR 97207

Visit our secure website or call us:
www.greenempowerment.org/donate
503-284-5774

Join the Reuss Legacy Circle

Add Green Empowerment to your estate plan, retirement plan or life insurance plan and connect with other supporters who have made this profound commitment to our organization. Circle members make a lasting impact and receive exclusive benefits, including an invitation to our annual project tour, an annual Executive Director call and more.

Give through your workplace

Connect to Green Empowerment through workplace giving, event sponsorship or employee matching.

Green Empowerment is a U.S. 501(c)(3) nonprofit organization founded in Portland, Oregon in 1997.

LOCAL SUPPORT

“What attracts me most about the work Green Empowerment does is the fact that it is hands-on and literally empowers people to take care of their own needs. It gives them the tools to do an environmentally sound economic development project in their village and also gives them the tools to maintain [that system] on their own. To me this combination is enormous.”

As a lifelong activist Barbara Dudley has dedicated her career to instrumental environmental and political issues at the national and international level as Executive Director of Greenpeace USA (1992-1997) and former president of the National Lawyers Guild (to name just two of her impressive credits). She was a founding member of Green Empowerment’s Board of Directors and has continued to champion Green Empowerment for over 24 years because of the work we do at the local level.



Financials

We are incredibly grateful for your continued investment which makes this work possible. Thanks to you, we end the year in a strong financial position, ready to meet the opportunities of 2022. Our financial audit is conducted by Richard Winkel, CPA, Partner at Dougall Conradie LLC and is available on our website.

