



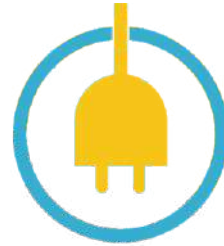
Clean Technology Hub
energy innovation centre



Impact Report

2021





Clean Technology Hub

Energy Innovation Center

Who we are:

Clean Technology Hub is a pioneering hybrid hub for the research, development, demonstration and incubation of clean and green ideas and technologies in Africa, and their validation for commercial stage development. It is also an early start-up incubator for innovations and inventions in clean energy, a consultancy for sustainability and energy efficiency solutions, and a driver of clean energy and climate smart investments into Africa.

The hub is an early start-up incubator for clean energy innovations and inventions, a consultancy for sustainability, energy efficiency, and climate friendly solutions, a hybrid research and data-driven firm, and a driver of clean energy investments into Africa. Clean Technology Hub focused on increasing clean sustainable technologies across Africa and using it to empower citizens and communities towards building a sustainable economy.



The hub was founded in 2016 and is located in Abuja, with Virtual hubs spread across the country.

What we do:

Our work at Clean Technology Hub rests on two pillars; Advancing both Clean Energy Access and Promoting climate action. We achieve this through design thinking and analytics, as well as through policy and strategy advisory, training and advocacy. We also invest in very early stage ideation projects that address the two core issues above.

As a hybrid research hub, we believe that data is key to fostering energy access across Nigeria. Therefore, we are certain that by supporting and tracking of laws, policies and regulations around clean energy, as well as increased community engagement to identify and evaluate barriers to energy access, we can better support the design and deployment of clean energy projects.

Clean Technology Hub is focused on addressing Africa's energy poverty and advancing climate action by providing up-to-date market information across the African renewable energy market. CTH engages in comparative analysis that impacts industry issues like economic development, policies, resources potential and technology developments.



Experience

Clean Technology Hub has extensive experience and knowledge in the African clean energy sector primarily on renewable energy, environment and climate change. We have supported several organizations, including government agencies in implementing clean technology, start-up coffee support, and climate smart programmes in Nigeria. These include the Heinrich Boell Foundation, Reiner Lemoine Institute, Practical Action International, the Renewable Energy Association of Nigeria (REAN), the Open Society Initiative for Africa (OSIWA), All On, Power for All, Global Green Grants Fund (GGF), Nigeria Climate Innovation Center (NCIC), Rocky Mountain Institute, Health of Mother Earth Foundation (HOMEF), Caritas Nigeria, Strategy and Innovation for Development Initiative (SI4DEV), Global Off Grid Lighting Association (GOGLA) and several country embassies.

In implementing programmes and projects in Nigeria especially market development, business support, and data collection, we have developed strong relationships with government agencies in the power sector such as the Nigeria Electricity Regulatory Commission (NERC), the Federal Ministry of Power, Rural Electrification Agency (REA), Energy Commission of Nigeria (ECN), National Power Training Institute of Nigeria (NAPTIN), Electricity Distribution Companies (DISCOs), and Electricity Generation Companies (GENCOs). We have also developed a robust database of over 300 civil society organizations, market associations, community groups, skill centers, faith-based institutions, academia and external experts across the country.



Our key strengths includes





Technical Support and Due Diligence of Renewable Energy Companies in Nigeria

REACT HS R2

To address the climate change challenges faced by developing countries in Africa, The African Enterprise Challenge Fund (AECF) sought to foster the distribution of clean energy solutions by providing financial support to commercially viable Solar Home System (SHS) companies.

Clean Technology Hub (CTH) partnered with AECF to provide technical support and carry out due diligence on the selected SHS companies in Nigeria.



The CTH Team with the team at Smarter Grid International following the Due Diligence visit



The CTH Team with the Consistent Energy team following the Due Diligence visit



8 SHS COMPANIES

analyzed and supported in across three states in Nigeria

Activities

- CTH carried out a preliminary review of the organizations' financial and business plan. Consequently, each of the companies was supported on how to improve their documentation and overall plan.
- CTH presented on the energy situation in Nigeria and the need as well as the potential impact of SHS providers.

Key Impact

- Increased funding for Nigerian SHS companies with a strong business model.
- Increased clean energy supply for rural and peri-urban communities.



Enterprise Development Program (Cohort 2) All On Energy

Clean Tech Hub in partnership with All On is driving programs that create an enabling environment for startups to develop solutions that have the potential to bridge Nigeria's energy access gap. This intervention is an "Enterprise Development Programme" which includes an energy access bootcamp and a 6-month business incubation. In 2021, the second cohort of the program was implemented.

The EDP program identifies and supports the growth of ideation and early-stage clean energy startups. Through this program, these startups receive the support they need to structure and grow their businesses by going through a 16 week intensive incubation period. It is designed to increase the number of clean energy companies in the region by providing training, mentoring, network connections, and other resources to help entrepreneurs upskill significantly. Additionally, the most promising startups received \$10,000 in grants to refine their product concepts, build out prototypes, hire staff, and test solutions.

Program Activities

Organized a two-day renewable energy bootcamp themed "Navigating Career and Business Opportunities in the Renewable Energy Sector", for students in their penultimate year across tertiary Institutions in Nigeria, to teach about the energy sector; how to build a career and start a business in the sector.



300+

Students across Nigeria registered for the bootcamp



3 KEY BUSINESS LEADERS
facilitated and lectured the students

Rolake Rosiji of Jobberman

Olamide Oguntoye of Tony Blair Institute

Helen Watts of Student Energy

Kiru Energy and Greenera Technologies also shared their experiences building their business

Enterprise Development Program(Cohort 2) All On Energy - Cont'd

Program Activities

Organized a one-day off-grid energy ideation challenge themed “call for renewable energy ideas”, where innovative clean energy entrepreneurs pitch their ideas for an opportunity to join the CTH incubation program.



175+ APPLICATIONS

were received from various parts of the Country



40 Businesses

were shortlisted and selected to pitch their business ideas for the first review stage



25 Businesses

were shortlisted and selected to pitch their business ideas for the second review stage



17 Businesses

were selected for the early-stage incubation program. Subsequently, each company pitched their idea to industry experts for a chance to receive the **US\$10,000** grants.

The following industry experts evaluated the 17 startups to ascertain which ones would receive the grant.

- **Chibuikem Agbaegbu**, Country Director of Africa Clean Energy, Technical Assistance Fund
- **Hannah Kabir**, CEO of Creeds Energy
- **David Arine**, Program Officer for Energy Diamond Development Initiatives
- **Terkuma Ivande**, COO of Prado Power Ltd.



7 companies

were selected to receive the **US\$10,000** grant

The selected companies are:





School and Sustainability Program

Clean Technology Hub (CTH) partnered with the University of Ibadan (UI) to set and up manage an energy club that seeks to sensitize the students and drive climate change action across the university community



3 GREEN ENERGY WEBINARS
organized for the energy club in the university of ibadan

The themes for the organized webinars are:

Entrepreneurship Opportunities for Youth in RE
Building a Green Environment: Sustainability and Renewable Energy
Career Prospects in the RE Sector



148+ CONFIRMED ATTENDANTS
of the webinar organized with energy club



3+ ARTICLES
developed and published by the members of the energy club in collaboration with CTH

Clean Energy: More than a necessity “Climate change” is raging on TV, in paper and on Radio
Climate Change is raging on TV, in Papers, and on Radio
Relationship between waste management practices and climate change

EARTH DAY

CTH and the Energy Club UI collaborated to celebrate the Earth Day on 22nd April 2021 through a number of key activities:

- Organized sensitization activities, across the university community, focused on earth preservation methods
- Organized a webinar titled “Earth Day: Taking Action to Restore the Earth.”
- Improved knowledge about green energy and potential that exists, within the University of Ibadan

Additional Impact

- Improved climate action activities within the university community.
- Improved knowledge of climate challenges and possible contributions from students.



“Let Communities Lead” Initiative

Clean Technology Hub partnered with researchers from Arizona State University (ASU), America and Karlsruhe Institute of Technology (KIT) to develop and launch the “Let Communities Lead” report. The initiative focused on the development of short narratives (up to two pages) demonstrating energy systems projects which had active community participation. These narratives sought to demonstrate the relationship of the energy system (electricity and/or clean means of cooking) with the social, economic and environmental outcomes in a particular community. The overall aim of the initiative was a call to action of the global leadership that convened in the COP26 to formulate policy, investment vehicles, supportive technology ecosystems and local governance structures to enable substantive progress on community energy transitions.

Clean Technology Hub (CTH) collaborated with Green Village Electricity (GVE), Solar Sister Nigeria, Cold Hubs and Access to Energy Institute (A2EI) to develop five (5) short stories demonstrating community participation in energy projects.



Key Outputs

- A consolidated document that contained over 15 short stories on collaborative efforts by different communities to drive energy infrastructure projects.
- CTH presented the five developed stories at the report launch on 18th November 2021



Promoting Citizen Access to off the Grid Decentralized Renewable Energy Solutions In Nigeria

Clean Technology Incubation and Acceleration Foundation (CTIAF) in partnership with the Open Society Initiative for West Africa (OSIWA) hosting women between the age ranges of 19-40 years from different business sectors. The session engaged the participants in discussions that enabled them to share their experiences using fossil fuels products and how the use of clean energy products can be beneficial to their businesses and the environment. More than sixty women were in attendance and a demonstrative session was carried out by women led technology businesses Solar Sister and Pet Feb Solar - to further educate the women on how to use clean energy technology products to boost their various businesses. Team members from CTIAF co-anchored the presentations and discussion session of the event.

Program Activities



2 Women-led SAS Companies performed a demonstration to educate women on the use of clean technology goods for their businesses



Solar Sister Nigeria, a social enterprise that focuses on the empowerment of women in rural communities across Nigeria, demonstrated the practical use and importance of clean cookstoves and solar lamps.



Pet-Feb Solar Energy Limited, a renewable energy company focused on providing clean energy technologies to communities across Nigeria, illustrated the use and technicalities of multiple solar systems.



60+

women attended the demonstration exercise organized by CTH and OSIWA to drive the adoption and leverage of green energy technologies to foster business growth.



Clean Technology Hub Volunteer Network

Clean Technology Hub has a volunteering network of about 3,000 across the globe who are enthusiasts seeking out new opportunities in either the Renewable Energy sector or Climate change sector. Her volunteers have grown 24% in numbers over last year. Here are some of the projects our volunteers were engaged in - in the year 2021.

Program Activities



World Environment Day Clean Up Campaign - "Clean Up Durumi"

In commemoration of the World Environment Day which was on the 5th of June, 2021, Clean Technology Hub (CTH) together with her Volunteers Network collaborated with partners to clean up the Durumi environment, with a focus on its market. This activity took the group 5 hours to complete.



55+

People participated to ensure Durumi market and its environment was clean and the residents were sensitized about the need to embrace a clean environment.

3

partners (SI4DEV, Sustyvibes, and Kaizo Sustainable) who from our network were in participation for the clean up.

sustyvibes **kss**



Clean Technology Hub Volunteer Network- Cont'd



Earth Day Digital campaign

To commemorate World Earth Day, the CVN embarked on a Earth Day Digital campaign.

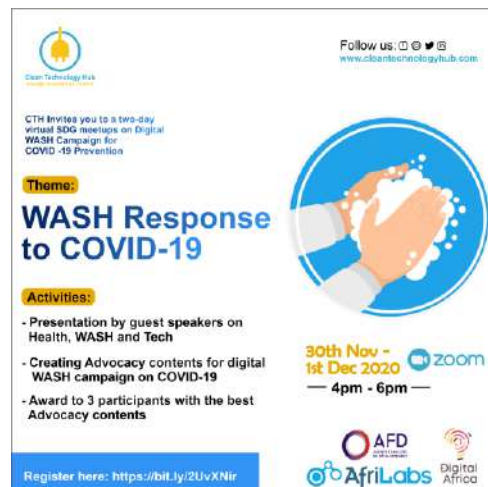
6 visual contents were created on the Earth Day Digital Campaign held by CTH and all were posted on the various CTH social media platforms.

Digital WASH campaign

With the support of AfriLabs, Clean Technology Hub - in collaboration with her network of Clean Energy and Climate Change volunteers and the coalition of the Digital Advocacy for Climate Emergency network, designed a two-days Sustainable Development Goal virtual Meetup.

It kicked off a digital Water, Sanitation and Hygiene (WASH) campaign to drive the adoption of sanitary and hygienic practices among Nigerians in the context of COVID-19.

The campaign ran from November, 2020 and ended in February, 2021.



The virtual meetup had a total of **62** in attendance



6 contents were developed by the CVN to drive the campaign.



3 volunteers were awarded **100** euros each.



African Mini-Grid Developer Association Nigeria

In August 2020, Clean Technology Hub (CTH) became the official representative of the African Mini-grid Development Association (AMDA) to foster the development of the mini-grid sector in Nigeria and provide support to Nigeria Mini-Grid Developers. In 2021, Clean Technology Hub executed activities in support of the mini-grid developers in Nigeria.

Key Activities

In September 2020, Nigeria Electricity Management Services Agency (NEMSA) launched solar mini-grid guidelines. Following consultation with the AMDA members, CTH developed a position paper titled “NEMSA inspection guidelines review” that reviewed the mini-grid guidelines, identified gaps, and highlighted recommendations to foster compliance by the developers.

CTH (representing AMDA) collaborated with Camco and the Renewable Energy Association of Nigeria (REAN) to review the overarching Nigeria Electricity Regulation Commission (NERC) mini-grid regulations and identify areas that could affect investment into the Nigerian mini-grid sector. This led to the development of a position paper on the gaps and recommendations for the mini-grid regulations.

CTH carried out a comprehensive study and survey analysis of the impact of insecurity on mini-grid development in Nigeria. Consequently, a research based paper titled “Impact of insecurity on the Development Of Nigeria’s Sector” was developed. This paper focused on identifying ways of overcoming the challenge of insecurity to Nigeria’s mini-grid.

CTH signed an agreement with the Renewable Energy Association of Nigeria (REAN) to address the existing barriers hindering the development of the mini-grid sector in Nigeria and foster the advance of the sector.

CTH reviewed and streamlined the application process for the World Bank and AfDB Nigeria Electrification Project (NEP). This led to the development of a report that identified the challenges faced by mini-grid developers during the application process and detailed recommendations for addressing the identified challenges.



Clean Cooking

In Collaboration with innovators and manufacturers of clean cooking technologies, Clean Tech Hub partnered with Nenu engineering and Methano green Energy to advocate for and sensitize the public about Clean Cooking solutions and technology. The project enlightened people about the benefits of clean cooking technologies, such as cleaner and less harmful cooking techniques, shorter cooking methods, fewer trees chopped down for firewood and better health outcomes. The Hub has served as an intermediary for companies to reach over 1700 women across three (3) states in Nigeria, with the latest community outreach being low-income women and petty traders located at Apo-Duste community in Abuja and in Kwalika Park, Area 1 Abuja. The outreach consisted of campaigns, demonstrations, and sales events. The hub thought leadership on clean cooking access and community advocacy and demonstration and access initiatives (including street business schools) for clean cooking. The Hub has also held webinars to enlighten the public about the need to transition to a cleaner method of cooking.



1700+ Women were reached
across 3 states in Nigeria



2 communities in Abuja
hosted the events where
demonstration, campaigns
sales of stoves



A group of the community women in
Apo-dutse Abuja



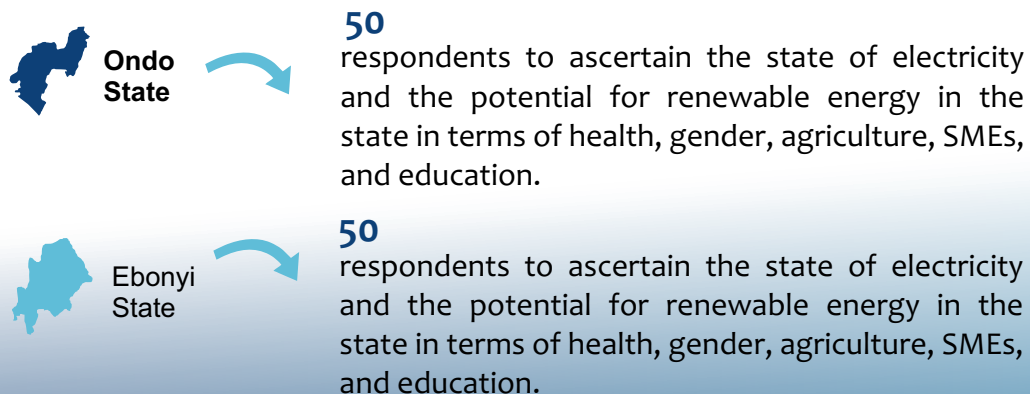
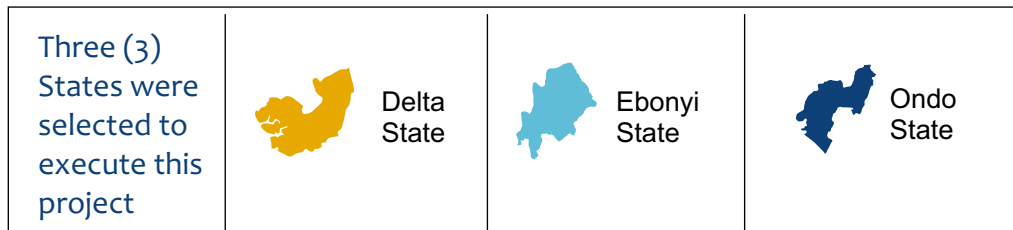
The CTH team along with the Headteacher of the
community school and the community chief as
represented in the photo above



Localizing Renewable Energy Policies at the State Level in Nigeria

CTH in partnership with Heinrich Boll Stiftung, developed a renewable energy roadmap for three States in Nigeria, focused on five key sectors for the mainstreaming of renewables that would deliver a particular impact for women and youth. As part of this project, CTH hosted a two-day consolidation and validation workshop for these states where members of the workshop groups, private sector stakeholders, state government officials and CSOs were present.

CTH commissioned two experts to work with working groups to develop a roadmap that will provide a 3-5 year roll out plan for extensive development of renewables in the state and held a series of meeting with the REA Nigeria Electrification Programme CTH partnered with HBS to explored the potentials of renewable energy as a catalyst for developing in these states, also to survey the potentials of renewable energy to catalyze development in the states and lastly, to proffer recommendations for driving renewable energy in these states.



Delta State

50

respondents to ascertain the state of electricity and the potential for renewable energy in the state



Validation workshop

CTH hosted a 2-day consolidation and validation workshop where members of the working groups, private sector stakeholders, state government officials and CSOs were present.



5 Key Sector mainstreaming of renewables

The project has a roadmap for Delta State focused on 5 key sectors for the mainstreaming of renewables that would deliver a particular impact for women and youth

Public Speaking

We presented in various webinars and meetings where we were able to sensitize and provide our opinions on some of the pressing issues in the energy sector. A list of these engagements is described below:

Powering the Future: Leveraging on Digital Transformation in the Power Sector (organized by Women in Energy Network).

The Business Case for Anambra State: Incubating a Digital Revolution (organized by Anambra Innovation Stakeholders Forum)

Gender Equity and Energy Access in Nigeria (organized by Pan Atlantic University, Angla Ruskin University, Global Sustainability Institute and Clean Technology Hub)

Launch of the New Nigerian Industrial Standards for Solar Photovoltaic (PV) System Components (organized by Standard Operation of Nigeria)

Challenging Stereotypes (organized by IgHub)

Women in Leadership: Achieving an Equal Future in the World of Work (organized by Arnegy)

Adopting Clean Technology for Environmental Sustainability (organized by The CANS)

2-Day Maiden Meeting of Directors of Entrepreneurship Centers in Nigerian Universities (organized by National Universities Commission)

Green, Clean or Renewable Energy: Is Nigeria Ready to Take the Big Step Forward (organized by The Bulb Africa)



Ms. Ifeoma Malo CEO Clean Technology Hub presenting at the launch event of the SON standards for solar PV



The CTH Team

We have a young, passionate and skilled team with experience and knowledge in Environment and Climate Action, sustainability, technology, policy development, business development, government relations, advocacy, and market development, with over 20 years of combined experience in the power and clean technology sector within and outside Nigeria. Most of our team members are also international and national consultants for several global development organizations that focus on the advancement of universal Environment and Climate advocacy, clean technologies, sustainability, gender, and entrepreneurship.





New Partnerships

In 2021, we established numerous new partnerships and strengthened already existing partnerships with the aim of increasing our impact across communities in sub-Saharan Africa.



Africa Clean Energy
Catalysing Africa's Solar Markets

Deloitte.

sofies
leading sustainability

KIT
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giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

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Arizona State
University

IFC
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