GHANA SEforALL NEWS

GHANA SEforALL SECRETARIAT

GHANA'S SEforALL ACTION AGENDA SEEKS TO:

- Ensure Universal Access to Modern Energy Services
- Increase the Share of Renewable Energy in the National Energy Mix
- Increase the National Rate of Improvement in Energy Efficiency

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PROGRESS ON HIGH IMPACT PRIORITY AREAS

ENSURE UNIVERSAL ACCESS TO MODERN ENERGY SERVICES

* **Decentralised Renewable Electricity**

Improved Medical Services for Rural Clinics Through Solar Power

The beautiful districts of Afram Plains have a lot of farming villages and communities with hardworking inhabitants. Aunty Ama is one of these people. She farms tomatos together with her husband in the village of Praprabadida. They have one child and are expecting another. However both are worried about the pregnancy as the birth of their first child, Kojo, came with complications.

In the late hours of the night, in September 2019, Aunty Ama had severe contractions and needed to be rushed to a clinic. The rural clinic in Praprabadida which is officially called the Community-based Healthcare Planning and Services (CHPS) compounds was not operating at that time, since it is not connected to the national electricity grid. The closest operating health centre at that time is in Donkorkrom, over 10km away.

The only means of transportation for the people of Praprabadida to Donkorkrom is by foot, motorbikes or tricycles. The roads are unfortunately untarred and not in very good conditions. This makes it very dangerous to travel on them especially at night, as there is no lighting along the roads nor in communities close to the roads due to lack of electricity.

Aunty Ama had to be transported via a motorbike on these same road whiles having severe contractions. On arriving at the clinic, she was in a critical condition. Doctors mentioned that there were complications with the pregnancy and that her life and that of the baby's were hanging by a thread. Fortunately, they managed to handle the situation and saved their lives. It was a very traumatising experience for her. Therefore, when she found out she was pregnant again from the "In-charge" (health personnel) of Praprabadida CHPS, she was unhappy.

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This is often the story of most pregnant women, living in rural areas especially in the unelectrified island communities of Afram Plains. Pregnant women must travel via boats or canoes, then by motorbikes or tricycles before accessing health centers during critical conditions at night or odd hours. Although the travel via water and by motorbike at night is unsafe and dangerous, they have no other option, this has always been their story sadly.

In-charges of Praprabadida CHPS from an outreach (Photo credit: GIZ Ghana)

Belinda is the "In-Charge" of CHPS in Praprabadida. It is one of more than 500 rural clinics in Ghana that were created to help reduce health inequalities, promote basic health care as well as remove geographical barriers to healthcare for rural communities. As many of the CHPS are unelectrified, she is however unable to provide her services at night.

When she tried to be available overnight at her clinic, it was unsafe and uncomfortable for her as sometimes there were scorpions and snakes hiding in the dark. Without electricity she is unable to work well, since there is no light, no ultrasound scanner nor cold stored medicine. Therefore, Belinda lives in towns close by and travels the CHPS each day. Due to all this, unelectrified CHPS hardly operate 24/7.

The Ghana Health Service (GHS) took this into consideration, jointly with the German Development Cooperation (GIZ), and decided to focus on Afram Plains North and South district to improve the existing health services.

Last year, they received *funds from the German Federal Ministry of Economic Cooperation and Development (BMZ) to install Solar Power Systems and Vaccine Refrigerators in thirty (30) Rural Clinics in Ghana.*

As a first step, they selected 10 unelectrified clinics with no access to the electricity grid in Afram Plains districts of the Eastern Region. In April the installations of the solar power systems, of lighting appliances and vaccine fridges were successfully completed by a local solar company. Now, lighting, cooling, ventilation and sterilization at the rural clinics run on solar power. Medical services like obstetrics and vaccine campaigns have been uplifted to a modern standard.

Furthermore, health workers from Ghana Health Services and selected local persons, especially females, from the nearby communities have been trained to operate and manage the system. Maintenance response is also provided by the installation company. The communities were advised to partly monetize the solar system through phone and torch charging. This allows to generate funds for replacements and repairs of the installed material.

In the next months to come, 20 more rural sites will be electrified, and medical infrastructure will be improved. All locations are marked on the map with a total outreach of some 65,000 persons.

Photo above and below: Installation of solar PV panels at a CHPS; and people in community watching installation work (Photo credit: GIZ Ghana)

Effects of solar power on the quality of medical service in rural Ghana

After the installation of the PV systems, health workers like Belinda will now be available at and live in the CHPS, 24 hours daily to provide their services. Also, these health workers will now be able to use the necessary equipment like ultrasound scanners, sterilisers, at their facilities. This will reduce child and maternal mortality, raise life expectancy, improve health services as well as improve working and living conditions of people in these rural areas.

Pregnant Aunty Ama can now visit Praprabadida CHPS at any time of the day especially at night. The fear and anxiety about her second pregnancy have reduced due to the knowledge that the in-charge will be available 24/7. She is anxiously looking forward to the clinic having and using the necessary equipment for her and other pregnant women. She is glad she would not have to travel long distances for health services especially in the case of a pregnancy complication.

Ghana Health Service has stated that COVID-19 vaccine campaigns need to reach out to rural areas. With the availability of electricity from solar power, the needed cooling facilities in rural areas store vaccines properly and ensure their adequate distribution and application in the light of the pandemic.

Report by: Marina Dede K. Agortimevor, Technical Advisor for Renewable Energy, GIZ Ghana. For more information about the project, contact her via marina.agortimevor@giz.de.

Solar Lantern Promotion Programme (SLAPP)

The Solar Lantern Promotion Programme (SLAPP) being implemented by the Ministry of Energy as a pre-electrification intervention in off-grid communities is still ongoing. In the

year 2020, a total of 28,827 solar lanterns were disseminated to rural households. For this year, as at June, 2,068 solar lanterns have been disseminated. The beneficiary districts, for 2020/2021, include: Afigya Sekyere East, Gwira Axim, Abuakwa North, Ellembelle, Assin South, Kpandai, Manhyia South, Bole Bamboi, Jomoro, Krachi Nchumuru, Adoagyiri, Lambussie, Tano North, Salaga North, Biakoya, Bunkpurugu, etc.

* **Increase Access to Improved Biomass Cookstove**

Capacity Building of Cookstove Testing Centers to Administer the ISO Laboratory Test Protocols

The Aprovecho Research Centre (ARC) in Oregon, United States of America (USA), collaborated with the Clean Cooking Alliance (CCA) to train fifteen (15) personnel of the Council for Scientific and Industrial Research (CSIR) - Institute for Industrial Research (IIR) - Regional Testing and Knowledge Centre (RTKC), and the Kwame Nkrumah University of Science and Technology (KNUST) - Technology Consultancy Centre (TCC) - Cookstove Testing and Expertise Centre. The two-week training, held from 17-28 May, 2021, was on the ISO 19867-1:2018 "Clean Cookstoves and Clean Cooking Solutions—Harmonised Laboratory Test Protocols Standard Test Sequence for Emissions and Performance, Safety and Durability", adopted as national standards for Ghana.

Specifically, the training covered theory and practice on:

* Stove design and testing methods to minimise testing variation.
* Data processing and reporting.
* Laboratory Emissions Measuring System (LEMS) and Portable Emissions Monitoring System (PEMS) gas sensor calibration and bias checks.
* Reference calibrations of LEMS temperature and flow sensors.
* $PM_{2.5}$ filter weighing at 0.01 mg resolution.
* LEMS leak checks and dilution tunnel maintenance.
* Black carbon measurement using the Nexleaf reference card.
* Controlled Cooking Tests with LEMS to inform ISO test.

Photo above and below: Installation of sensor box calibration system; and installation of LEMS (Photo credit: CSIR-IIR)

CSIR-IIR also received new sets of equipment (LEMS and PEMS) from ARC and were trained in its installation and maintenance. The laboratory equipment, installations, and training is part of the technical assistance, being received from the African Development Bank (AfDB) through the CCA, towards the development of regulations and technical capacity of stakeholders in the improved biomass cookstove sector. CSIR-IIR RTKC is also receiving support to get accreditation for ISO/IEC 17025:2017—General requirements for the competence of testing and calibration laboratories.

The training was conducted by Mr. Samuel Bentson, General Manager, ARC. The event was graced by representatives from the Ministry of Energy, Energy Commission, and the Ghana Alliance for Clean Cookstoves and Fuels (GHACCO).

A few reactions from the trainees

KNUST-TCC

"The performance of calibration of the sensor box onsite as part of the training is a huge relief. We can now perform our calibration before every test is done. The cost of sending the sensor box (about GHS 8,000.00) previously to Aprovecho every year for calibration has been saved."

CSIR-IIR

"Knowing how to test according to the ISO 19867-1(2018), an international standard, will give clients the assurance of the quality of services we offer."

"Being able to perform the quality checks before every test gives us confidence in the results we report to clients who bring their stoves for testing."

"With this training, the laboratory is ready to prepare its procedures and apply for accreditation to ISO 17025."

Some of the training participants (Photo credit: CSIR-IIR)

For more information about the stove and fuel testing facility at CSIR-IIR, contact

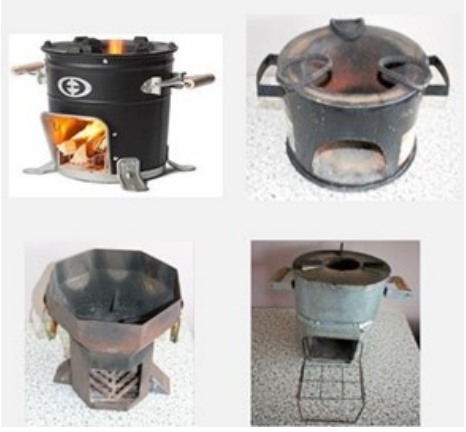
Gloria Boafo-Mensah, Research Scientist, via gboafomensah@csir-iir.com.

Rural Clean Cooking Project

The Rural Clean Cooking Project, is a project launched by ENI Ghana Exploration and Production Limited, in partnership with the World Bank in March 2020. The project is part of ENI's corporate social responsibility to ten (10) host communities, in the Ellembelle District of the Western Region, in its operational area.

Under the pilot phase of the project, implemented from November 2020 to March 2021, ENI collaborated with the Ghana Alliance for Clean Cookstoves and Fuels (GHACCO), to:

* Identify, test the technical performance and consumer acceptance of available wood stoves on the market; and
* Establish a private sector led business model to ensure the availability and affordability of the stoves after the project implementation.



From top right: Envirofit SuperSaver M5000, CookMate, Ecofire and Obaahemaa woodstoves selected for the pilot project (Photo credit: GHACCO)

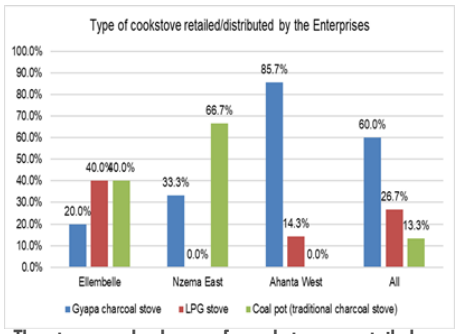
Specifically, GHACCO: (1) organised awareness raising campaigns on clean cooking in the 10 project communities; (2) identified 10 existing and newly designed models of domestic wood stoves; (3) conducted laboratory and field performance tests for the models; (4) selected four (4) of the models based on their performance and consumer feedback; (5) modified some of the stove designs based on consumer feedback received; (6) assessed the local supply chain; and (7) identified market potentials for improved wood stoves.

Engagement of beneficiary community (Photo credit: GHACCO)

Findings from assessment conducted on the cookstove market in the Ellembelle district

Below is a summary of the findings:

* The key actors in the market were cookstove retailers and distributors, metal fabricators or welders, artisans and micro-finance institutions.
* Four main types of stoves were being sold—traditional "coal pot" charcoal stoves, traditional tire rim wood stoves, Gyapa improved charcoal stoves, and locally manufactured and imported LPG stoves.



The type and share of cookstoves retailed or distributed by enterprises across three districts (GHACCO, 2021)

* There are 14 cookstove retail and one (1) distribution businesses in the Ellembelle, Nzema East and Ahanta West districts of the region. Five (5) are located in Ellembelle.
* More than half of the businesses have been operating for over seven (7) years.
* Almost all (14) the businesses do not have year-round supply.
* Demand for improved cookstove is, generally, very low.
* The prices of the Gyapa and LPG stoves are within regional and national price ranges.

Project outputs and outcomes

Field testing of selected cookstove models (Phot credit: GHACCO)

After the laboratory and field tests, and consumer use and evaluation of the cookstoves:

* The Obaahemaa and SuperSaver M5000 emerged as most efficient and safe models.
* Obaahemaa and CookMate emerged as most preferred by households.
* The modification made to the CookMate model based on feedback received from users doing the community trials resulted in improved technical performance and acceptability of the model.

* The acceptability of SuperSaver M5000 could be enhanced by increased user education and sensitisation.
* In all, 616 woodstoves were disseminated across the 10 beneficiary communities in the Ellembelle district, namely, Bakanta, Sanzule, Krisan, Eikwe, Ngalekye, Ngalepole, Baku, Anokyi, Asem-Nda and Atuabo.
* Beneficiary households were sensitised and educated on the proper use of specific stove models.
* 28 local artisans were trained in—concepts of improved cookstove design, manufacturing, repair and maintenance; material selection and development; and basic testing and certification.

Recommendations

Based on the market assessment study conducted by GHACCO, the following recommendations were made:

* The implementation of a subsidy scheme, up to 50% subsidy per household, to facilitate market development.
* The hire-purchase business model was proposed.
* Establishment of micro franchise for local artisans to expand production outlets.
* The micro-savings-based business model is proposed for financing the uptake of clean cooking solutions.
* Promotion of business to business deals in the value chain.

Phase two of the project is being considered by ENI and partners.

For more information about the project, contact: Mohammed Aminu Lukumanu, CEO, GHACCO via lukumanu74@yahoo.com.

PARTNER SPOTLIGHT

Ghana Improved Cookstoves Distribution Project (GICDP)

The Ghana Improved Cookstoves Distribution Project (GICDP), being implemented by the Government of Ghana, represented by the Ministry of Energy; and the Climate Change Centre of South Korea with funding from East-West Power Cooperation of South Korea has seen great progress, since the implementation begun in October 2020. Below is a story on the project activities and potential impacts shared by Rebecca Anaafo, Team Lead for the distribution activity.

The saying that "nothing succeed like success" has been proven true in the annals of our project. The string of successes chalked has given our project a proud past. The thought of crossing the lake with these heavy stoves using the small boat seemed impossible. But here we are chalking success and very proud of the risk taken.

The distribution exercise covered four metropolitan, municipal and district assemblies (MMDAs) in the Greater Accra Region, namely: Shai Osudoku, Okaikwei North, Weija and Tema. The remaining 5,311 stoves out of 84,500 allocated for the region was distributed by a team of four officers, from the Ministry of Energy: Rebecca Annafo (team lead), Felix Atuahene, Portia Mosses and Hamdan Kobzie.

The journey to the river side

On Monday the 19th of April 2021, we set off for Chokome Faana in the Weija Municipality, after packing some stoves from the project warehouse. We arrived at river Sakumo (lower Densu) and to our surprise, Chokome could only be accessed by a boat.

We were surprised because we didn't know Chokome is an island. We were faced with the decision of taking a bold step to cross with 300 stoves or throw in the towel and go back to Accra. The thought of denying these people who lack access to improved stoves propelled us to make the journey across the river.

Crossing the river with the stoves

Photo credit: Ministry of Energy

We had to organise boats to convey the stoves to the island. Our journey was adventurous and scary, because, we were not provided with life jackets. The waves hitting the boat were strong making it difficult for paddling, and at a point in time, the boat got flooded, so I had to use my shoe to fetch the water out. We spent an hour and 15 minutes to get to the Island.

The island – Chokome

We finally arrived at Chokome in Bortianor, a small fishing community, where we were greeted with a white sand beach. All the houses are constructed and roofed with thatch. The island has a history of high tides which has destroyed most of the houses, dividing the community into two. The result—most of the inhabitants have been forced to move to the river bank to settle there leaving a smaller population of less than 300 on the island.

Chokome (Photo credit: Ministry of Energy)

The inhabitants of Chokome and its environs had their share of the improved charcoal stoves. The inhabitants, having heard of such

distribution by the government since 2020, never thought they would be included in the project beneficiaries, considering the fact that their location is assumed to be urban. Hence, they met the team with great joy amidst dancing and drumming.

Distribution and inhabitants request

Both the island and river bank communities of Chokome were given 150 stoves each. They were full of praises for this government initiative.

A beneficiary (Photo credit: Ministry of Energy)

I entreat the government to supply the people of Chokome with life jackets to save lives in the event of any boat disaster.

The socio-economic impacts of the improved cookstove to the Chokome community.

When asked how they usually get their cooking fuel, a beneficiary responded:

"We cross the river to the other side to buy charcoal for cooking, sometimes we go twice in a day, if you don't have enough money to buy more the first time."

Obtaining GHS 1.00 worth of charcoal for cooking requires crossing to the other side of the river. The indirect cost of the GHS 1.00 charcoal includes 20 minutes round trip which cost about GHS 4.00, and the risk of crossing the river on an outboard motor propelled boat which rans on fossil fuel, hence, emitting Greenhouse gases (GHGs) into the atmosphere.

Using this improve cookstove will reduce the amount of charcoal that is consumed in a day by up to 35%, thereby, reducing the number of trips to the main land, time wasted and the risks associated with the process, and the emissions from the boat.

Report by: Rebecca Nyaaba Anaafo, Project Officer, GICDP PIU, Ministry of Energy.

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Link to the Ghana SEforALL Action Plan: http://energycom.gov.gh/renewables/se4all

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