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**African Biodigester
Component Project
UGANDA**

NEWSLETTER – Q3 & Q4, 2023

Greetings and welcome to the latest publication of the African Biodigester Component newsletter! In this edition, we bring you the key project updates and milestones achieved throughout quarters 3 and 4 of 2023.

Our focus in this issue is on the strides taken to integrate gender mainstreaming across the entire biodigester value chain. We delve into the profound impact of President Museveni's directive regarding charcoal trade on the energy needs and resources of communities in Uganda, shedding light on the implications for the project.

We are excited about the optimistic outlook on the prospects of bio slurry certification and its potential to contribute to the sustainability of the biodigester sector in Uganda.

Thank you for joining us in exploring these developments. We trust that you will find this newsletter enlightening and engaging. Wishing you a Happy New Year filled with prosperity and positive change!

PROJECT UPDATES

ABC Embarks on Bio slurry Certification to bolster local agriculture, improve livelihoods.

In November, the ABC project in Uganda achieved a significant milestone in its pursuit to certify bio-slurry as an organic fertiliser. In collaboration with the Ministry of Agriculture, Animal Industry, and Fisheries, the project is facilitating the undertaking of efficacy studies to evaluate the impact of varying rates of bio-slurry Enriched Compost (BEC) on the maize crop.

The ongoing efficacy studies on the long-five maize variety span four agroecological zones across the country: Kabanyoro, Serere, Arua, and Ngetta. The studies aim to assess nutrient composition, crop yields, disease and pest resistance, and climate resilience resulting from BEC application, utilizing three different sample sizes: 150 grams, 188 grams, and 112 grams.

The efficacy studies will be carried out for at least 2-3 seasons in 3-4 locations. The gathered data will then undergo thorough analysis before publication, making it accessible to a wider audience.

The certification of BEC as an organic fertiliser is pivotal to the ABC project's overarching goal of valorising/enriching the value of bio-slurry to enhance agricultural productivity and improve farmer livelihoods.

The backdrop for this initiative is the pressing issue of climate change's sustained impact on soil fertility, necessitating increased reliance on fertilizers for sustainable agriculture. Despite the 2006 African Union Summit Abuja Declaration recommending the application of at least 50 kilograms of nutrients per hectare by 2015, Uganda, on average, applies less than



A farmer in Eastern Uganda extracts bio slurry from a bio-slurry collection pit to apply on his plantation.

2 kg/ha, primarily relying on imports. This reliance poses a substantial risk to the country's food security and farmers' livelihoods, as evidenced at the peak of the Russia-Ukraine war when Uganda faced scarcity and inflated prices of chemical fertilizers due to global supply disruptions.

Addressing this challenge, the Agricultural Finance Year Book in September 2023, published by the Economic Policy Research Centre, underscored the urgency of local fertilizer production and widespread adoption by farmers. This aligns with the objectives of the African Biodigester Component project in Uganda, advocating for increased application and trade of bio-slurry organic fertilizer. Bio slurry, a by-product of the anaerobic digestion that takes place in a biodigester to produce biogas for clean cooking energy, is an organic fertiliser that could be locally produced for local consumption.

To promote the use of bio-slurry, the ABC project has trained over 2,000 farmers on its benefits. The combination of training and certification is expected to significantly boost the application of the fertilizer and the subsequent positive ripple effects related to improved agricultural productivity.

The ABC project takes pride in aligning its efforts with government ambitions outlined in Uganda Vision 2040 and the Agricultural Sector Strategic Plan (ASSP) 2020/21-2024/25, both emphasizing the critical role of fertilizer in the country's agricultural sector.

ABC project hosts government in Eastern Uganda



ABC team training SEFFA's farmers in Luweero. Photo by GIZ

On 25th September, the African Biodigester Component project hosted representatives from the Ministry of Energy and Mineral Development (MEMD) and Ministry of Agriculture Animal Industries and Fisheries (MAAIF) in Busoga subregion for a 5-day field visit. The visit was conducted closely with the Sustainable Energy for Small-holder Farmers (SEFFA) Uganda project.

One of the goals of the field trip was to showcase the project progress to the government officials and provide insights into the impact of bio-digester technology on households, opportunities and challenges that exist in the sub-sector.

It also further operationalized the collaboration between the ABC Uganda Project and the SEFFA Uganda Programme through the awareness raising of farmers mobilized by the latter. 15 farmers were sensitised in the promotion of bio-digester technology.



MEMD and MAAIF ABC focal persons interacting with a biodigester household. Photo by GIZ

The trip also involved visits to farmers who had transformational stories of change from the adoption of biodigesters. Peter, a chicken farmer in Mayuge, recently adopted a 20 m³ digester to manage chicken waste and has now eliminated the unpleasant odour that had put him at loggerheads with his neighbours. In Iganga, a

farmer reported a significant reduction in firewood use owing to his 9 m³ digester primarily used for cooking.

During the meeting, the government officials acknowledged ABC's intervention towards empowering the community highlighting that the project aligns with existing government interventions

geared towards improving household livelihood.

Overall, the field visit enabled the government to gain firsthand insights into the various bio-digester initiatives undertaken by the project, facilitating crucial knowledge exchange regarding awareness, user feedback and supply-side experiences in the biodigester sector.

ABC Project, Industry Experts Tackle Biodigester Market Sustainability at Renewable Energy Conference



A group photo of the ABC representatives, MEMD and sector experts as they discuss the sustainability of the biodigester market in Uganda.

“If individuals cannot afford the technology, perhaps because they have different priorities for their money unless we help them to buy down the price, it will not work. This can contribute to the realisation of a successful biodigester program that

leads to a sustainable market which continues perpetually serving the people. It is not about producing 20,000 biodigesters, it is about developing a sustainable market.” Rai Saroj, the SNV Global Technical Advisor, Biodigester market

development in the African Biodigester Component in Uganda explained during a sideline event held during the Renewable Energy Conference on 18th November.



Gideon Muhindo, Quality Control and Client Services Officer at Biogas Solutions Uganda Limited explains the role of the ABC project in ensuring quality control in the biodigester market.

Organised by the Ministry of Energy and Mineral Development and the National Renewable Energy Platform (NREP), the REC hosted at Munyonyo Commonwealth Resort under the theme: “A Clean Energy Future for All” convened key stakeholders from academia, industry, government, development partners, financing institutions, etc to share experiences, lessons learnt and best practices/approaches aimed at addressing energy sector challenges and fostering renewable energy adoption.

The Renewable Energy Conference featured several sideline events, one of which focused on biodigester technology in a circular bioeconomy. According to

Saroj, who was part of a six-person panel, it is important to shield customers from the perceived high upfront cost of biodigesters, which average \$500. To that effect, access to finance stands out as a key intervention under the ABC Project, aiming to commercialize and develop the biodigester market through a combination of demand-side, supply-side, and enabling environment interventions.

On the other hand, Abasi Kigozi, a Research and development scientist, at NARO, asserts that research into alternative feedstocks could contribute to the efficiency and sustainability of the technology. NARO is currently assessing various

feedstocks and quantities to optimize biogas production. Gideon Muhindo, Quality Control and Client Services Officer at Biogas Solutions Uganda Limited, the implementation partner in the ABC-Uganda project, emphasized the critical role of quality control in the construction of biodigesters for the sector's sustainability.

“The ABC project has 21 companies registered to construct biodigesters. These companies benefit from regular training in biodigester construction, maintenance and operation. We have a directory of all companies that are enlisted under the project accessible on the BSUL website to ensure quality service provision to farmers,” he said.

Lessons from the German Biogas Association

Sharing insights from Germany, a representative from the German Biogas Association highlighted the importance of regulation, monitoring, safety standards and storage processes in the biogas sub-sector of Germany.

"We should concentrate on regulating technicians to ensure quality construction. In Germany, we have a register of all biogas plants in the country, and it is easily accessible. These people meet occasionally and discuss any challenges/developments in the sector." She noted, explaining that education on waste separation is crucial to

mitigate contamination of the biodigester with non-organic materials.

The REC, which formed part of the 19th Energy and Minerals Week in 2023, also featured an Expo showcasing various biodigester technologies, with two ABC UG project Biodigester Enterprises exhibiting their technology.

Running for Energy Access: ABC Champions Clean Energy Access in 5th SDG Run



As part of its Corporate Social Responsibility, ABC through BSUL sponsored and participated in the 5th Sustainable Development Goals (SDGs) Run, organized by the Youth Go Green in partnership with the Ministry of Energy and Mineral Development at Kololo Airstrip. The run, themed 'Running for Energy Access', aimed at raising awareness and rallying support and action towards the achievement of SDG7 which is in line with ABC's objective of scaling affordable and sustainable clean energy. Proceeds from the run were dedicated to installing a Solar Power supply system at Bulisa Health Centre IV and supporting a tree-planting initiative in the district.

Biogas Solutions Uganda Limited receives an award from the Minister of State for Minerals in the Ministry of Energy and Mineral Development Uganda in appreciation for its contribution towards the 5th SDG Run in Kampala.

GESI: ABC Project paves the way for Gender Equality in biodigester Market



ABC Project in Uganda trains biodigester enterprises from the central and Eastern Region on Gender mainstreaming.

During August and September, the ABC project took a significant step toward promoting gender equality in the biodigester market. The project conducted gender mainstreaming training sessions targeted at representatives of biodigester enterprises in Uganda. The workshops, held in Central and Western Uganda, aimed to instil a foundational understanding of gender mainstreaming measures within the companies.

The training sessions demystified Gender and Social Inclusion (GESI) concepts specifically in the biodigester business and bio-slurry valorization. The businesses learned about practical gender mainstreaming tools applicable to their company operations and activities. The project's gender expert emphasized the importance of comprehending GESI concepts, highlighting their potential impact on business demand and supply dynamics.

A crucial takeaway from the

training was the significance of gender mainstreaming in private-sector businesses in the achievement of a sector where men and women have equitable opportunities to own biodigester systems and enterprises, providing equal access to benefits.

This initiative follows a gender assessment conducted by the ABC Project in Uganda, which revealed existing gender gaps in access to resources and roles and responsibilities within the biodigester value chain.

RESOURCES

Organic Fertiliser Valorisation Implementer (OFVI) in Uganda: Attributing value to bio-slurry as organic fertiliser.

The Organic Fertiliser Valorisation Implementer (OFVI) has the objective to attribute and enhance the price, value, and status of bio-slurry and BEC. To achieve this objective, OFVI will deepen the understanding of the application of bio-slurry and BEC and of its effects on crops and soil health and will share this knowledge amongst the stakeholders involved.



Attributing value to bio-slurry as organic fertiliser.

A publication by the Organic Fertiliser Valorisation Implementer under the ABC project in Uganda provides in-depth knowledge on the application of bio-slurry and Bio-slurry Enriched Compost (BEC) and its effects on crops and soil health. Access the full publication here: <https://bit.ly/3vNuXQN>

VIDEOS



SNV Country Director visits ABC farmers, private sector

In October, the ABC Project in Uganda had the privilege of hosting the SNV Country Director in the communities within which the project works in the central region. The purpose of the visit was to offer insights into the project's progress, highlight its achievements, discuss challenges faced, and share valuable lessons learned thus far. You can watch her visit in this video: <https://bit.ly/495wkZ8>



Eco-Friendly Allies: Mugisha and Neighbor Thrive in Shared Benefits of Biodigester Innovation

In a mutually beneficial arrangement, Mugisha exchanges Napier grass for cow dung from her neighbour, fuelling her biodigester to produce biogas for cooking and bio-slurry for urban farming. In an urban setting, waste management is a common challenge that animal farmers grapple with. For Mugisha, the biodigester not only enables timely cooking for Mugisha's diabetic mother but also plays a role in maintaining her urban farm, where she generates revenue by training fellow farmers. Experience Mugisha's inspiring journey by watching our featured video. <https://bit.ly/429dwWG>

INTERVIEW

Equity Bank in Uganda Allocates 4.7 Billion Shillings to the Renewable Energy Sector

In our exclusive interview with Virginia Ssemakula, Manager of Energy, Environment, and Climate Change at Equity Bank, she sheds light on the bank's recent initiative—the Equi-Green Loan—in collaboration with the Uganda Energy Credit Capitalization Company (UECCC), the growing demand for financing in the renewable energy sector and the role of development partners in achieving sustained credit access for businesses and end-users.

1. Equity Bank recently launched the Equi-Green Loan product to enhance access to renewable energy solutions in Uganda.

a) Would you say there is a substantial demand for financing in the renewable energy sector? Absolutely. The emerging global trends and the impact of climate change have contributed significantly to the increasing need to embrace renewable energy solutions. The Clean Cooking Alliance notes that the current levels of investment in clean cooking – estimated at around US \$130 million each year – fall far short of the US \$10 billion needed to reach universal access. Financing is needed and most especially to facilitate the last-mile connection to ensure the inclusion of everyone, especially people in rural areas ie farmers.



b) What is the Equi-Green Loan under Equity Bank?

The Equi-Green Loan is a clean energy financing product that aims to facilitate access to solar technologies for cooking, solar for lighting, solar for productive use of energy, Climate-smart agriculture, water, sanitation and hygiene. The fund amounts to 4.75 billion UGX.

c) What should businesses or end-users know about this opportunity to access credit, including interest rates, eligibility criteria, and accessibility options?

The equi-green loan under Equity Bank provides affordable financing whose interest rate ranges between 15% - 22% . Applicants need to demonstrate their cash flows for repayment ability. The Equi-Green Loan is available across all Equity Bank branches nationwide.

2. Financial institutions often show reluctance to introduce unique products for renewable energy technologies like biogas. Do you agree, and if so, why is this the case?

Yes, there is a degree of reluctance. This stems from

perceived risks, ambiguity in borrowers' ability to demonstrate repayment, and limited expertise in assessing and financing renewable energy projects.

3. How can development partners through initiatives like the ABC project encourage financial institutions to offer sustainable credit products for businesses and end-users?

Initiatives like ABC can attract Financial Institutions' interest by introducing risk-sharing facilities to diversify financing options and incorporating blended financing with a grant component.

4. In your experience, what are the inhibitors to accessing funding options like the Equi-Green Loan, and how can they be addressed?

There are several limitations to accessing finance. They include limited awareness of the available financing options, perceived high upfront costs of renewable energy technologies, a complex and lengthy application process which discourages the borrower, and the absence of a track record for implementing green initiatives.

5. In addition to the highlighted inhibitors, affordability of credit is a significant challenge. What innovative solutions do you see from a financier's perspective to mitigate this problem?

I believe that patient capital from Development Finance Institutions can enable Financial Institutions to on-lend to renewable energy initiatives, Implementing Credit Guarantee Schemes to reduce perceived risk and conducting financial literacy Training for customers can improve funding to this sector. Additionally, capacity building for bank staff and exploring alternative collateral options beyond traditional assets is also critical for successful credit financing to this sector.

6. What do you think is the future of green financing for renewable energy access in Uganda?

Equity Bank envisions leading the green finance agenda in the country's banking sector. We are actively building and strengthening partnerships with development partners to promote renewable energy and climate-smart technologies.

ABC IMPACT

Achieving Uganda's Green Future, One Biodigester at a Time

In May 2023, President Museveni issued an executive order banning the production and trade of charcoal in Northern Uganda in an effort to conserve the environment. This followed a distress call from leaders in Acholi sub-region over the rampant cutting of Shea butter trees for charcoal in the area.

Northern Uganda, according to the National Charcoal Survey of 2015 stands as the country's second-largest supplier of charcoal, contributing to 39.5% of the nation's biomass fuel supply, while the central region takes the lead, providing 40.9% of the overall supply. The ban has led to a substantial increase in the price of a small bag of charcoal on the market from UGX75,000 to UGX90,000 according to media reports.

In a country where biomass accounts for 90% of the population's primary energy source for cooking and heating, the directive prompted a public outcry, but not from Kaudha Fatuma.

Amid charcoal scarcity and rising prices, Fatuma's decision to embrace biogas has kept her on the right side of the law. She no longer shares the plight of those clinging to traditional methods of cooking.



Kaudha Fatuma, a teacher in Iganga district remains lawful with biogas amid a charcoal ban instituted by President Museveni in May 2023

Fatuma, a teacher in Iganga district in Eastern Uganda was introduced to a biodigester through a mason from Kamuli Sustainable Energy Company (KASECO), one of the biodigester enterprises in the African Biodigester Component project in Uganda. Fatuma and her husband acquired the technology in 2022. A biodigester is a technology through which animal/organic waste is decomposed in an anaerobic environment to produce biogas and bio-slurry organic fertiliser.

"I do not regret leaving behind charcoal stoves. Charcoal is now scarce. People are suffering with charcoal but for me, it is just a matter of mixing cow dung and then I have my food ready. A bag of charcoal now goes for UGX80,000 and getting it is a tug of war because police are hunting those people who are selling charcoal. My friends who visit now look at me with admiration," she said.

Wood extraction for energy fuel, in the form of charcoal

production, stands as the second leading factor behind deforestation in Uganda. The country is ranked among the top two globally with the most accelerated rates of forest loss, making a substantial contribution to its carbon emissions.

In pursuit of the ambitious goal set by the Paris Agreement to decrease carbon emissions by 45% by 2030 and achieve net-zero emissions by 2050, the President's ban assumes a crucial role in fulfilling this commitment. Similarly, SNV in Uganda is actively contributing to these efforts by implementing the African Biodigester Component project with objectives aligned with climate change mitigation and adaptation.

The ABC Project provides a results-based incentive to biodigester enterprises to facilitate the reduction of carbon emissions through the promotion of biodigester technology. To date, the project has contributed to the reduction

of 2,890 tons of CO₂ emissions through the construction of 602 biodigesters in Uganda.

Building on its success in reducing carbon emissions, the ABC Project has not only made a significant environmental impact but has also played a vital role in the economic transformation of individuals, exemplified by stories like Fatuma's.

With biogas now at her disposal, Fatuma marvels at the newfound efficiency in her kitchen. Cooking for her family of eight has now become a joyous activity.

"In the past, I would not bother preparing breakfast for my children and husband, because it was very cumbersome and time-consuming to light up a charcoal stove. Now, because cooking takes a very short time, my family goes to school very happy with a hearty meal in the morning," she narrates.

The impact of biogas has extended beyond the kitchen, strengthening Fatuma's family bonds and financial stability. Two acres of land became a reality and education became a priority, with three of their children now attending boarding schools, their fees paid in full.

"These days we have money that we can save. Recently we bought two acres of land and before that, our children were commuting from home but now three of them are in boarding school. I know that these savings have contributed to it," Fatuma says.

Fatuma's story exemplifies the multi-faceted impact that the African Biodigester Component project in Uganda aims to achieve by facilitating the installation of 8,000 biodigesters by 2025.

Nabulya navigates through dangerous waters to find solace in Biogas



Gertrude Nabulya, a farmer in Wakiso district has transformed from traditional cooking methods to using biogas to prepare meals

Across the road from her home in Serinya Village tucked away in Wakiso district in Uganda, Gertrude Nabulya's daily journey from forest to kitchen tells a tale of resilience and transformation.

A woodland whose pathway during the rainy season is submerged in waist-high water creates an expedition not for the faint of heart. Nabulya recalls the distress she felt moving through the water in pursuit of firewood for cooking.

"In the beginning, we would fetch our firewood from the woodland, but if you weren't strong, you wouldn't manage to secure even a piece. I navigated through the water

with a stick in hand, gauging the depth with each step. If it was too deep, I would remove the stick and place it elsewhere and if it was okay, I would carefully move forward," She recounts.

Additionally, Nabulya and the community's women, primarily tasked with gathering firewood for their homes, faced an alarming risk – the constant threat of snake attacks lurking in the forest. This dangerous journey offered no assurances of success but served as a means to secure cooking energy without financial cost.

"At times even after spending the entire day in the woodland, you would fail to get anything. When you got lucky, you would

get just enough to make tea and cook for the next day."

Not long after, Nabulya's woodland was replaced with eucalyptus for commercial farming, prompting her to turn to firewood and charcoal sold on the street-side. However, the cost proved unbearable.

"They would sell 3 pieces of firewood at UGX2,000 and 4 pieces for smaller ones. I used to spend UGX4,000 whenever I prepared meals that excluded beans and UGX6,000 when the legumes were on the menu. We struggled a lot because sometimes the charcoal or firewood was wet and funds were not readily available, yet we needed to eat daily," she says.

With 90% of households relying on biomass in Uganda, the struggle to secure firewood extends beyond inconvenience for females, who are primarily responsible for cooking in homes. Prolonged hours searching for firewood divert women's productive time from family, and income-generating activities perpetuating environmental challenges and limiting economic independence.

Nabulya oversees multiple enterprises on her 5-acre farm including cultivating an array of crops, catering to both subsistence and commercial needs. Additionally, she manages a small poultry project from which she sells poultry products.

"Whenever I spent the day

looking for firewood, I would not tend to my plantation and for poultry it was very difficult because of how much attention they need so it was really hard to manage,” she said explaining why she explored alternative energy solutions when they were presented.

Nabulya is one of the farmers who attended a biodigester awareness training organised by the African Biodigester Component project in Kakiri, Central Uganda. The training aimed at sensitising the farmers about the benefits of biodigester technology with an emphasis on biogas and bio-slurry organic fertiliser.

“They taught us about the benefits of biodigesters and I took a keen interest in biogas because of its cost-

effectiveness. I had always thought it was only for the rich, but I later understood that even I could afford it,” she said, explaining why she later acquired the biodigester.

Nabulya owns 5 cows from which she collects cow dung for mixing in the biodigester to generate biogas. “I mix the cow dung every day for less than one hour and generate enough biogas to prepare most of my meals. It is convenient because both the cowshed from which I collect the dung and the water are close to the biodigester. I now have time to take care of my farm and my family,” she says.

Nabulya’s shift to biogas not only transformed her daily life but also holds promise for a broader shift in the community

With 90% of households relying on biomass in Uganda, the struggle to secure firewood extends beyond inconvenience for females, who are primarily responsible for cooking in homes.

through her active involvement in the 15-member Kaliiti Farmer’s group in Wakiso.

Today, as Gertrude tends to her thriving family and agricultural enterprises, she looks forward to leveraging the additional benefits of the biodigester in her farm for a healthy and cleaner future.”

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