



RAPID ASSESSMENT OF BRIQUETTE PRODUCTION READINESS FOR SELECT ORGANIZATIONS IN UGANDA'S REFUGEE SETTLEMENTS

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EXECUTIVE SUMMARY

This rapid assessment, conducted by the National Renewable Energy Platform (NREP) for the FCD0 and Uganda's Ministry of Energy and Mineral Development, evaluated the operational readiness of seven (7) refugee-led briquette production enterprises across four settlements: Kiryandongo, Nakivale, Rwamwanja, and Kyaka II.

Briquette production is a vital, women-led livelihood activity that provides a sustainable cooking fuel alternative, reducing environmental pressure and household costs. However, these enterprises operate at a subsistence level, with their significant potential for impact and scale constrained by foundational capacity gaps.

A rapid assessment of seven refugee-led briquette enterprises in Uganda found that while they provide a vital, women-led livelihood and sustainable cooking fuel, their growth is constrained by five major challenges: technical limitations from manual, weather-dependent production; critical skills gaps in business and marketing; underdeveloped markets due to low community awareness; weak financial management from poor record-keeping; and a fragile operating environment with limited formal registration and partnerships.

Strategic Recommendations: Support must move beyond one-off equipment donation to an integrated capacity-building package:

- **Priority 1:** Provide motorized stick briquette presses (aligned with market preference) and sheltered production/drying facilities to key groups.
- **Priority 2:** Implement targeted skills training in business management, advanced production, marketing, and safety.
- **Priority 3:** Launch sustained community awareness campaigns to drive demand.
- **Priority 4:** Facilitate access to product standardization (UNBS certification) and broader market linkages.

With coordinated investment in technical, human, and market capacities, these refugee-led briquette enterprises can evolve from vulnerable initiatives into sustainable, scalable businesses that contribute meaningfully to energy access, livelihoods, and environmental protection.

1.1 INTRODUCTION

Access to affordable, safe, and sustainable cooking energy remains a persistent challenge in refugee settlements across Uganda. The majority of refugee and host community households continue to rely on traditional biomass fuels, particularly firewood and charcoal, which are associated with environmental degradation, health risks, and rising household expenditure. In response, alternative cooking fuels such as biomass briquettes have increasingly been promoted as both an energy access solution and a livelihood opportunity within humanitarian and development programming.

Briquette production enterprises, often established by refugee-led organizations, have emerged in several refugee settlements to convert locally available waste materials into cleaner-burning cooking fuel. These initiatives hold the potential to reduce pressure on limited forest resources, improve household energy affordability, and create income-generating opportunities, particularly for refugee women and youth. However, despite growing interest and development-partner initiatives, the operational performance and long-term viability of many briquette enterprises remain uneven.

The National Renewable Energy Platform (NREP) has been contracted to support the Foreign, Commonwealth and Development Office, through the British High Commission in Kampala (FCDO/BHC) and the Ministry of Energy and Mineral Development, to undertake a rapid assessment of briquette production readiness for select organizations in Uganda's refugee settlements. This report presents the findings of this exercise, which covered seven (07) groups in four (04) refugee settlements, namely: Kiryandongo Refugee Settlement in Kiryandongo district, Nakivale Refugee Settlement in Isingiro district, Rwamwanja Refugee Settlement in Kamwenge District, and Kyaka II Refugee Settlement in Kyegegwa District.

The assessment sought to move beyond assessing the presence of briquette production activities to examine whether organizations possess the necessary technical, human, market, financial, and institutional capacities to sustain and, if possible, scale their briquette enterprises. The findings aim to inform targeted interventions and investment decisions by government, development partners, implementing agencies, and local authorities.

1.2 OBJECTIVES

On this background, the primary objective of this rapid assessment was to evaluate the operational readiness and sustainability of selected briquette production enterprises in Uganda's refugee settlements. Specifically, the assessment aimed to:

- Move beyond a simple inventory of briquette production activities to conduct a holistic evaluation of organizational capacity.
- Examine whether the selected organizations possess the necessary foundational capacities to sustain and potentially scale their enterprises, focusing on five critical pillars:
 - **Technical Capacity:** Production methods, equipment, feedstock sourcing, and infrastructure.
 - **Human Capacity:** Staff skills, training, and identified knowledge gaps.
 - **Market Capacity:** Customer base, demand, sales channels, pricing, and awareness.
 - **Financial Capacity:** Record-keeping, understanding of costs, funding sources, and co-investment willingness.
 - **Institutional/Enabling Environment:** Registration status, partnerships, and recognized risks.
- Generate actionable findings to inform targeted interventions and strategic investment decisions by the government, development partners (specifically FCDO), implementing agencies, and local authorities.

1.3 METHODOLOGY

This rapid assessment utilized a semi-structured interview methodology. A tailored questionnaire was administered to representatives of seven selected refugee-led briquette enterprises identified through NREP contact organizations working in the respective refugee settlements.

The tool was designed to systematically evaluate five pillars of business readiness: technical, human, market, financial, and institutional capacity. Data collection was conducted through face-to-face interviews at the production sites within four refugee settlements. This approach enabled direct verification of operations and contextual observation. The findings are based on the self-reported data gathered from these engagements, providing a rapid snapshot of each group's operational viability and support needs. Consider adding a brief note clarifying that organizations were selected based on NREP partner mapping rather than representing all briquette producers in the settlements. Otherwise, clarify what the basis was of selecting the respective organizations that participated in the assessment.

Table 1: The List of Organisations Assessed

Sn.	Organization	Refugee Settlement
1	South Sudanese Women Building Association (SSWBA)	Kiryandongo Refugee Settlement
2	Together We Can Group	Nakivale Refugee Settlement
3	New Hope Group	Nakivale Refugee Settlement
4	Dufatanye Briquette Group	Rwamwanja Refugee Settlement
5	Umoja Ninguvu Group	Rwamwanja Refugee Settlement
6	Kulinda Mazingira Group	Rwamwanja Refugee Settlement
7	Live in Green	Kyaka II Refugee Settlement

1.4 FINDINGS

1.4.1 Kiryandongo Refugee Settlement - South Sudanese Women Building Association (SSWBA)

1.4.1.1 About the Group

In Kiryandongo Refugee Settlement, the South Sudanese Women Building Association (SSWBA) was assessed. The assessment found that SSWBA is a well-established, refugee-led, and women-led organization operating in Cluster N, Ranch 37 of Settlement. The organization has been in existence for approximately six (06) years, having been established in 2019.

SSWBA is actively engaged in energy-related interventions through briquette production. Its broader mandate also encompasses protection services, livelihood improvement, environmental protection, and climate change-related activities. The organization primarily serves refugee populations, although it was reported that up to 30 percent of beneficiaries are drawn from the surrounding host community.

1.4.1.2 Briquette Production Capacity and Operations

The evaluation established that SSWBA produces both carbonized and non-carbonized biomass briquettes in two primary forms: stick briquettes and honeycomb briquettes. Stick briquettes are made using a motorized electric briquette press, while honeycomb briquettes are produced using a manually operated lever press. In addition, the organization operates an electrically powered crusher-mixer for feedstock preparation. At the time of assessment, all production equipment was reported to be functional. However, production volumes are constrained by limited access to electricity, which affects the operation of motorized machinery.

Briquette production takes place indoors within an iron-sheet shelter , complemented by a designated storage area and a solar dryer. The solar dryer enables briquettes to dry for up to three days before sale. SSWBA primarily uses charcoal dust as its primary feedstock, combined with molasses, clay soil, and water. Feedstock is available throughout the year and is sourced through purchase from both within the settlement and the host community. Nevertheless, the assessment highlighted growing challenges in accessing charcoal dust, which has become increasingly scarce and costly. In response, SSWBA reported plans to transition toward the use of agricultural residues, particularly maize cobs, as an alternative feedstock.

Under ideal conditions where feedstock, electricity, and labour are all available, SSWBA reported a production capacity exceeding 1,000 kg per day, with the potential to reach 2,000 kilograms per day.

1.4.1.3 Human Capacity and Skills

SSWBA employs 12 staff dedicated to briquette production, organized into two shifts of six people each. Staff received informal training on briquette production through a three-day session facilitated by Live in Green, followed by a benchmarking visit to its production facilities in Kyaka II Refugee Settlement. While this exposure provided basic operational skills, the organization acknowledged persistent knowledge and capacity gaps.

Specifically, SSWBA acknowledged a need for additional skills development in financial management and bookkeeping, branding and marketing, advanced technical skills to enable the production of briquettes that meet national and international standards, and occupational health and safety practices.[1]. Addressing these skill gaps was identified as critical to improving both production efficiency and business growth.

1.4.1.4 Market Dynamics and Demand

The assessment found that SSWBA's primary market consists of refugee households, particularly newly arrived refugees from Sudan. These customers were reported to be more familiar with briquette use, either through prior experience or access to energy-saving stoves provided upon arrival in the settlement. The organization estimated its customer base at approximately 400, including 22 SSWBA staff members, 10 large-scale customers from the host community, and around 150 households from Cluster A. However, customer numbers fluctuate with seasonal factors and broader settlement dynamics.

SSWBA sells briquettes at UGX 1,000 per kilogram. One kilogram typically contains between six and eight stick briquettes, which were reported to provide up to five hours of cooking time[2]. Briquettes are sold directly from the production facility, with additional delivery services available for customers farther away. At present, briquettes are packaged in plain plastic bags without branding, and sales are conducted exclusively in cash.

SSWBA assessed briquette demand in the area as moderate and noted that, to stimulate demand, the organization conducts customer awareness activities during mobile sales drives using a tri-cycle.

Despite these efforts, the assessment found that more sustained awareness-raising and behaviour-change initiatives are required to address misconceptions about briquette use. SSWBA strongly recommended using community outreach drives featuring pre-recorded messages in different languages as an effective communication channel. Additional suggested approaches included awareness campaigns through WhatsApp groups, distribution of information, education, and communication (IEC) materials, and radio announcements. Were these suggested by SSWBA or these are analytical recommendations.

1.4.1.5 Financial and Business Readiness

Regarding financial management, SSWBA reported maintaining basic financial records for its briquette enterprise. However, the organization does not currently have a clear understanding of unit production costs, which limits its ability to accurately assess profitability and make informed pricing and investment decisions.

SSWBA's briquette enterprise was initially established with grant funding of up to GBP 25,000 provided by UKAID through Ashden. This funding enabled the acquisition of briquette production machinery, the establishment of production, drying, and storage shelters, and the purchase of a tri-cycle for mobile sales and marketing. Although the grant period is still ongoing, SSWBA reported a shift toward using revenue generated from briquette sales to cover operational costs. Given appropriate support, the organization expressed willingness to co-invest up to 20 percent of the total investment required to grow the business, particularly in human capacity development and procurement of raw materials.

1.4.1.6 Enabling Environment, Partnerships, and Risks

The assessment established that SSWBA is formally registered with the Uganda Registration Services Bureau (URSB) and is well recognized by key stakeholders operating within Kiryandongo Refugee Settlement. The organization has established working relationships with several partners, including Ashden/UKAID, the Office of the Prime Minister (OPM), and UNHCR.

Overall, SSWBA expressed optimism regarding the future of its briquette enterprise. However, several key risks were identified that could adversely affect business continuity and growth. These include the potential for major equipment breakdowns, abrupt loss of external funding, and persistent challenges in accessing sufficient quantities of suitable feedstock.

1.4.2. Nakivale Refugee Settlement – New Hope Group

1.4.2.1 About the Group

New Hope Group is a women-only, refugee-led group located in Nakivale Refugee Settlement. The group has been in existence for about 5 years, established in 2021. It engages in several livelihood activities, including briquette production, tailoring, and village savings and loan associations (VSLA). The primary beneficiaries of these activities are refugees within the settlement.

1.4.2.2 Briquette Production Capacity and Operations

The findings indicated that the group produces round (ball-shaped) briquettes from charcoal dust, cow dung, anthill soil, and water. All stages of production, from raw material preparation to final briquette formation, are carried out manually, with no machinery used at any point. Reported that most raw materials are available throughout the year, except cow dung, which is seasonal. Raw materials are purchased both from within the settlement and from the host community. Some inputs, particularly charcoal dust, are sourced from up to 50 km away, resulting in high transportation costs.

Highlighted that briquette production and drying are conducted outdoors in open-air conditions. The group does not have sufficient land to expand production, nor does it have a centralized production or storage facility. In many cases, individual members produce briquettes at their homes and later aggregate them for sale. The group also lacks basic protective infrastructure, such as tarpaulins, to cover briquettes whenever it rains.

The group reported a production capacity of up to 2,000 kg of briquettes per day and currently has 17 active members producing briquettes. Members have received informal training and consider themselves skilled in basic briquette production. However, the group acknowledged the need for additional capacity building in financial management and bookkeeping, branding and marketing, advanced briquette production techniques, and occupational health and safety.

1.4.2.3 Market and Sales

Highlighted that the group's primary customers are institutions, although refugee households also form a large share of their customer base. Demand for briquettes in the area is reported to be high, with an estimated customer base of approximately 2,000 individuals and entities.

Revealed that briquettes are sold in various quantities, packed in sacks, basins, tins, and buckets, depending on customer needs. On average, briquettes are sold to large-scale buyers at UGX 500 per kilogram, while small-scale buyers pay up to UGX 800 per kilogram. The group found that briquettes are cheaper than charcoal, making them more affordable for low-income households. Sales are primarily on a cash basis, though limited credit is occasionally extended to trusted buyers. Customers typically collect briquettes directly from the production site, while some sales are also made at individual members' shops.

1.4.2.4 Marketing and Awareness

It was emphasized that the group has not conducted targeted customer awareness or marketing campaigns for its briquettes, as sales are mainly driven through referrals facilitated by Nsamizi Training Institute of Social Development (NTISD) and through individual members displaying briquettes at their shops.

[4] During the visit, there were no clearly defined safety procedures or evident use of personal protective equipment (PPE) during briquette production.

The group expressed a strong need for comprehensive awareness creation within the settlement. Suggested approaches include making announcements during settlement meetings, installing signposts highlighting the availability and benefits of briquettes, and working with group members to educate others on briquette use and production.

1.4.2.5 Financial and Business Readiness

It was highlighted that briquette production activities are currently financed through personal contributions from group members, which are used to purchase raw materials. The group secretary maintains basic financial records; however, the group is unable to accurately determine the production cost for specific quantities of briquettes.

The group expressed a willingness to co-invest in initiatives to grow the enterprise. Subject to available resources, members indicated readiness to contribute up to 20% of the total investment value toward establishing production shelters or acquiring briquette production equipment.

1.4.2.6 Enabling Environment and Partnerships

It was acknowledged that the group does not possess formal business registration or documentation. Nonetheless, it is known to and encouraged by relevant authorities, including the Office of the Prime Minister (OPM), to engage in briquette production activities. Nsamizi Training Institute of Social Development was identified as the group's key partner in the briquette business.

1.4.2.7 Key Risks

The group identified the following significant risks that could affect the sustainability and growth of the enterprise:

- Disruption of briquette production due to adverse weather conditions, stemming from the lack of enclosed production and drying facilities.
- Potential market limitations for briquettes.
- Long distances to source key raw materials, particularly charcoal dust, resulting in high transportation costs.

1.4.3 Nakivale Refugee Settlement – Together We Can Group

1.4.3.1 About the Group

Together We Can Group is a women-led, refugee-led organization based in Nakivale Refugee Settlement. Established in 2021, the group has been operating for approximately 3.5 years and focuses on briquette production for both household and commercial use. Its activities benefit both refugees and the host community. The group is one of four-member groups under the Nakivale Green Environment Organization.

1.4.3.2 Briquette Production Capacity and Operations

It was highlighted that the group produces spherical (ball/round) briquettes and stick briquettes. Feedstock used includes charcoal dust, clay, cow dung, anthill soil, molasses, water, and small quantities of sawdust to improve ignition. Ball briquettes are produced entirely by hand, while stick briquettes are made using a manually operated lever machine. Most raw materials are available year-round; however, charcoal dust and molasses are costly, and water shortages are common. The majority of feedstock is purchased, mainly from the host community, with some materials sourced up to 40 km away.

Highlighted that production and drying currently take place outdoors (except when using the lever machine), leaving operations vulnerable to changing weather conditions, notably rain. The group has a small indoor storage space but lacks adequate sheltered space for production and drying. Expansion is constrained by space, though the group is optimistic that OPM may allocate additional land through its partner, Nsamizi Training Institute of Social Development. Currently, the group reported an average production capacity of approximately 400 kg per day, achieved by 10 active production staff out of a total membership of 22. At present, no formal safety procedures are in place during briquette production.

Members have received a mix of formal training from Nsamizi Training Institute of Social Development and informal peer-to-peer training and consider themselves semi-skilled in briquette production. Apart from limited briquette production skills, other skills gaps identified for business growth include financial management and bookkeeping, branding and marketing, and occupational health and safety.

1.4.3 3 Market and Sales

Revealed that the group's primary customers are refugee households, estimated at around 150 regular clients. Briquettes are sold through community outlets and measured using reused detergent buckets. Prices are set at UGX 500 for small buckets, UGX 800 for medium-sized buckets, and UGX 1,000 for large-sized buckets. Sales are conducted on a cash basis. The group considers briquettes more affordable than charcoal on the local market.

Confirmed that the group has not conducted structured awareness campaigns but recognizes a strong need for awareness creation to grow its briquettes venture. Proposed awareness-raising channels include using community radio stations within the settlement for advertising, mobile loudspeaker announcements, and engagement through local leaders and village meetings.

1.4.3.4 Financial and Business Readiness

Highlighted that the group does not currently maintain formal financial records for the briquette enterprise and is not aware of unit production costs. Business operations are financed using members' own funds. The group is willing to co-invest in business expansion if external support is available, including contributing up to 33% of the required investment to construct production and drying shelters and acquire improved processing equipment.

1.4.3.5 Enabling Environment and Partnerships

Noted that the group does not yet have formal authorization from authorities to engage in briquette production and has requested support to achieve formal registration. While Together We Can Group itself is not registered, its umbrella organization, Nakivale Green Environment Organization, is formally registered with Isingiro District Local Government. It was also reported that Nsamizi Training Institute of Social Development is currently the group's only active partner supporting its briquette activities.

Acknowledged that the group identifies key risks to its briquettes venture as limited capital for growth, weather-related disruptions due to inadequate shelter, and a lack of transportation for sourcing raw materials and distributing finished products.

1.4.4 Rwamwanja Refugee Settlement - Dufatanye Briquette Group

1.4.4.1 About the Group

Dufatanye Briquette Group is a women- and refugee-led organization based in the Rwamwanja Refugee Settlement. Established in 2021, the group produces briquettes for household use and for sale, with activities primarily benefiting refugee communities.

1.4.4.2 Briquette Production Capacity and Operations

Noted that the group produces spherical (ball/round) briquettes and stick briquettes using charcoal dust, cow dung, anthill soil, and water as feedstock. All production processes are carried out manually, without the use of machinery. Most feedstock materials are available year-round; however, some are difficult to access due to high prices. Raw materials are sourced both within the settlement and from the host community, with an average sourcing distance of approximately 7.5 km.

Observed that briquette production and drying take place entirely outdoors, creating a need for indoor space to protect production from weather effects. The group has an average production capacity of approximately 350 kg per day, supported by a workforce of 12 members. For future expansion, the group would rely on space provided by members or seek additional land allocation from OPM.

Reported that members have received basic formal training in briquette production from Nsamizi Training Institute of Social Development and consider themselves fairly skilled in basic production methods. Nevertheless, they identified a need for further capacity building in advanced briquette production techniques, financial management and bookkeeping, branding and marketing, and occupational health and safety. At present, no safety procedures are in place to protect members during briquette production.

1.4.4.3 Market and Sales

Indicated that the group's main customers are refugee households, with an estimated customer base of approximately 200. Briquettes are sold directly at the production site at UGX 1,000 per kilogram. All sales are conducted on a cash basis. The group considers briquettes significantly cheaper than charcoal.

Emphasized that some awareness activities have been conducted to promote briquettes in the settlement, particularly during UNHCR meetings. However, the group reports low briquette demand in the area and highlights the need for broader awareness campaigns, including community-wide meetings and outreach initiatives led by the group.

1.4.4.4 Financial and Business Readiness.

Noted that the group keeps basic financial records for its briquette activities, as operations are financed using members' own funds, and the group is willing to co-invest in business expansion. If resources are available, the group would prioritize contributing up to 25% of the investment value toward the construction of indoor production, drying, and storage facilities, as well as the acquisition of improved equipment.

1.4.4.5 Enabling Environment and Partnerships

Indicated that Dufatanye Briquette Group does not have formal registration to conduct briquette production, although its activities are known to OPM and UNHCR offices. The group currently has no active partnerships supporting its briquette enterprise.

Emphasized that key risks identified by the group include limited market demand, insufficient working space, and weather-related disruptions to production.

1.4.5 Rwamanja Refugee Settlement – Umoja Ni Nguvu Group

1.4.5.1 About the Group

Umoja Ni Nguvu is a refugee-led, women-only group based in Rwamwanja Refugee Settlement in Kyenjojo District. Established in 2022, the group is engaged in briquette production alongside group savings activities. The primary beneficiaries of its work are refugee households.

1.4.5.2 Briquette Production Capacity and Operations

Indicated that the group produces round (ball) briquettes using charcoal dust, cow dung, anthill soil, and water. At times, carbonized agricultural residues are used as a substitute for charcoal dust. Most feedstock materials are available year-round and are sourced mainly from the host community, sometimes up to 20 km away.

^[1] A medium size sack of charcoal, which can last for between 2- and 3-weeks costs UGX 50,000 in the settlement.

Revealed that the briquette production is carried out both manually and using a hand-operated lever machine. The group also owns a non-motorized feedstock crusher, which is currently non-functional. Production and drying take place entirely outdoors, with most activities occurring at members' homes. The group has 20 active members involved in briquette production, with an average combined output of approximately 85 kg per day.

Noted that members have received formal training in briquette production from Nsamizi Training Institute of Social Development and through the GROW project, giving them solid foundational skills. However, they lack knowledge of briquette equipment maintenance. Additional skills identified as necessary for strengthening the enterprise include financial management and bookkeeping, branding and marketing, and occupational health and safety.

1.4.5.3 Market and Sales

Emphasized that the group's primary customers are refugee households, as demand for briquettes in the area is reported to be low, with an estimated customer base of approximately 100 households. Briquettes are sold at UGX 1,000 per kilogram. Customers purchase directly from the production sites, and all sales are conducted on a cash basis. The group considers its briquettes to be more affordable than charcoal.

Pointed to the group not yet having conducted structured awareness campaigns to promote briquette use, but recognizes a strong need for mass awareness creation. Proposed approaches include using mobile sound systems with recorded messages to reach a wider audience within the settlement.

1.4.5.4 Financial and Business Readiness

Emphasized that the group keeps only basic financial records for its briquette activities. Briquette production activities are funded through members' contributions, and while members have a general understanding of production costs, they are unable to determine unit production costs per kilogram accurately.

Revealed that the Umoja Ni Nguvu group expressed willingness to co-invest in growing the enterprise if external support becomes available, particularly toward the construction of sheltered facilities for briquette production, drying, and storage.

1.4.5.5 Enabling Environment and Partnerships

Demonstrated that the group has obtained formal approval from local authorities to engage in briquette production. It previously received support from Nsamizi Training Institute of Social Development, though this support has since ended. The group identifies several key risks to its briquette enterprise, including limited market demand, challenges in sourcing raw materials, inadequate workspace, and a lack of machinery.

1.4.6 Rwamwanja Refugee Settlement – Kulinda Mazingiza (Environment Protection) Group

1.4.6.1 About the Group

Kulinda Mazingiza is a refugee-led organization based in Rwamwanja Refugee Settlement and has been in operation since 2020. Briquette production forms part of the group's broader environmental protection mandate, with refugees serving as both primary members and beneficiaries.

Consider the above tense recommendations for this section and sections after reporting about the findings from the various groups.

1.4.6.2 Briquette Production Capacity and Operations

The group produces round (spherical) briquettes using charcoal dust, cow dung, anthill soil, sand, and water. Occasionally, agricultural waste is carbonized using traditional methods and used as an alternative to charcoal dust.^[1] Feedstock is available year-round and sourced both within the settlement and from the host community, with an average sourcing distance of about 2 km.

All briquette production is done manually, without machinery. Currently, no safety procedures are in place to protect members during production. Production takes place outdoors; however, the group has an indoor facility used for storage and drying during the rainy season. Members typically produce briquettes individually at home and come together only to fulfil large orders.

The group has 15 members actively involved in briquette production, with the capacity to scale up production by engaging additional individuals previously trained by the group when large orders arise.

Members are considered partially skilled in briquette production. In the past, Nsamizi Training Institute of Social Development provided formal basic training to 50 group members. Despite this, the group recognizes the need for further capacity building in advanced briquette production techniques, branding and marketing, financial management and bookkeeping, and occupational health and safety to support business growth.

1.4.6.3 Market and Sales

The group's main customers are institutions, followed by refugee households. Briquettes are sold at UGX 1,000 per kilogram and packaged in plain plastic bags. All sales are conducted on a cash basis, with rare exceptions allowing neighbours to purchase on short-term credit. Customers access briquettes directly from the production facility or from members' homes.

^[1] The group does not have a modern carboniser. When there is a need to carbonize waste, they make a traditional kiln similar to the traditional kilns used for making charcoal.

The group reports that its briquettes are significantly more cost-effective than charcoal. For example, one kilogram of briquettes can support multiple cooking activities, whereas an equivalent amount of charcoal cannot complete even a single meal.

The group has not undertaken targeted community awareness campaigns. Instead, members promote briquettes informally within their neighbourhoods. The group acknowledges the need for broader awareness creation, particularly through mobile loudspeaker campaigns on motorcycles (boda bodas), but notes that limited resources have constrained such efforts.

1.4.6.4 Financial and Business Readiness

The group keeps basic financial records for its briquette activities, though records were destroyed in a recent rainstorm. The enterprise is currently funded by member contributions, and the group lacks clarity on unit production costs.

The group has expressed willingness to co-invest in expanding its briquette business if support is provided, particularly in initiatives aimed at increasing awareness and demand, including the acquisition of transport for outreach activities.

1.4.6.5 Enabling Environment and Partnerships

The group is formally registered with local authorities. While it currently has no active partnerships, it has previously received support from Nsamizi Training Institute of Social Development. Identified risks to the briquette enterprise include limited market demand, shortages of materials such as tarpaulins, insufficient personal protective equipment (PPE), limited business and technical skills, and insufficient machinery.

1.4.7 Kyaka II Refugee Settlement - Live in Green Group

1.4.7.1 About the Group

Live in Green is a refugee- and youth-led organization operating in the Kyaka II Refugee Settlement in Kyegegwa District. Established in October 2016 and legally registered in 2017, Live in Green operates as a social enterprise. Its mandate spans agroecology and climate-smart agriculture, waste management and environmental restoration, and renewable energy. The organization serves both refugee and host community members, with briquettes sold locally and in Kampala and Nairobi.

In addition to briquette production, Live in Green fabricates briquette-making machinery, including crushers and mixers, and provides training and support for the installation of machinery to smaller refugee-led organizations.

1.4.7.2 Briquette Production Capacity and Operations

Live in Green is a leading briquette producer in Kyaka II Refugee Settlement, specializing in stick briquettes to meet local market preferences.

The primary feedstock consists of market organic waste and agricultural residues collected across the settlement. These materials are carbonized before being mixed with molasses, clay soil, and water. Charcoal dust is used occasionally when available.

The organization operates a decentralized waste collection system, with carbonization often taking place at community collection centres. Live in Green purchases carbonized waste from community centres. Using organic market waste means it is available year-round, though access is constrained by limited transportation capacity. Agricultural residues, such as maize cobs, are seasonal and are therefore procured in bulk and stored.

Briquette production is carried out using electrically powered machines that are fabricated and maintained by Live in Green. Production takes place indoors in an iron-sheet structure, while drying is done using a solar dryer. The organization has a production capacity of up to 5,000 kg per day and employs 13 active production staff. Staff acquire skills through hands-on, on-the-job training and generally possess adequate technical and machine maintenance competencies. As production scales up, the organization recognizes the need for additional training in occupational health and safety.

1.4.7.3 Market Readiness

Live in Green serves both refugee households and institutions or companies, with a customer base exceeding 300 regular clients. Demand for briquettes in the area is considered moderate. Customers purchase briquettes directly from the production facility or through community-based outlets and distributors.

Live in Green briquettes are packaged in well-branded bags bearing the Live in Green logo and product information. Pricing averages UGX 800 per kilogram for large-scale buyers and UGX 1,000 per kilogram for small-scale buyers. Household customers must pay in cash, while distributors are eligible for credit terms.

Live in Green has conducted market activations and community demonstrations to promote the use of briquettes. However, additional awareness creation, primarily through practical demonstrations, is needed to further shift community perceptions and increase adoption.

1.4.7.4 Financial and Business Readiness

The organization maintains formal financial records and conducts monthly reconciliation of income and expenditure. The briquette enterprise is primarily financed through sales revenue, supplemented by donor funding.

Live in Green is willing to co-invest in further business growth, with priorities including increased transportation capacity and subscription to online marketing platforms to reach wider markets. The organization is also seeking support to have its briquettes standardized and certified by the Uganda National Bureau of Standards (UNBS).

1.4.7.5 Enabling Environment and Partnerships

Live in Green is formally registered with the Uganda Registration Services Bureau and the NGO Board. It has established partnerships with several institutions, including Kyegegwa District Local Government, AdaptPlus, OPM, UNHCR, and Kuuza.

The primary risk identified by the organization is unstable electricity supply, which frequently disrupts production scheduling.

1.4 SUMMARY OF FINDINGS

Briquette production ventures in refugee settlements are mostly undertaken by refugee-led, women-led organizations.

A large market for briquettes remains untapped due to limited community awareness about briquette availability and benefits as compared to charcoal.

Round (ball) briquettes and stick briquettes are the most commonly produced types of briquettes in all settlements. Respondents indicated that the briquette market in refugee settlements demands these types of briquettes because they can be used on various stoves.

In addition, it is easy to vary the number of ball or stick briquettes placed on the stove, depending on the type and quantity of food to be prepared, whereas with honey-comb briquettes, this is not the case.

Most groups have limited knowledge and skills, especially in improved briquette production skills, bookkeeping & financial management, marketing & branding, as well as appropriate health & safety procedures in briquette production.

Briquette production is mainly done by hand without the use of machinery. Where machinery is used, it is usually non-motorized, hand-operated lever machinery.

Most briquette production and drying takes place outdoors, in the open air. Most groups do not have production facilities/covered shelters.

Most groups do not keep adequate records of expenses and revenues to help them estimate the profitability of the briquette production venture.

Recommendations from The Assessment

1. Whereas most of the groups have a need for briquette machinery, the following three groups showed the highest potential for putting the briquette machinery to best use:

- .South Sudanese Women Building Association (in Kiryandongo). This group already produces honeycomb briquettes, but currently uses a hand-operated lever machine, which is tedious and limits their output. A motorized honeycomb machine would help to increase their production output while minimizing labour. Moreover, due to persistent challenges in accessing electricity, SSWBA would also greatly benefit from a solar system sized to run all their other machines, including the stick briquette-making machine and the crusher-mixer machine. Also, the group already has a shelter where the machine can be installed^[1].
- Together We Can Group (in Nakivale). This group already uses a manually operated machine and would benefit from an upgrade to a motorized machine. Moreover, the group has an existing indoor space, albeit small, where the briquette machine can be installed.
- Kulinda Mazingiza (Environment Protection) Group (in Rwamwanja): The group would benefit from an improved carbonizer since they currently carbonize using a traditional kiln.

2. The briquette-making machines to be given out should be re-modelled from honey-comb to stick briquettes to meet the prevailing market in the settlements

3. Design and implement dedicated awareness campaigns about briquettes across all settlements

4. Design and implement training and skilling programs for briquette-producing groups on various topics, especially in improved briquette production techniques, bookkeeping & financial management, marketing & branding, as well as appropriate health & safety procedures in briquette production.

5. Expand interventions beyond the provision of briquette machinery to include the provision of indoor briquette production and drying facilities, and support towards the acquisition of PPEs, among others

6. Support some of the groups to obtain UNBS certification of their briquettes in order to enable them to reach a wider market beyond the settlements.

^[1] The existing structure is an iron sheet-based shelter that may need some improvement to support solar system installation.

Annex 1: An Exploratory Rapid Appraisal Tool for Briquette Production Readiness of Select Organizations in Uganda's Refugee Settlements Organizational Profile & Mandate

1. Name of Organization: _____
2. Name of Settlement/location: _____
3. Organization's status (tick):
☐ Refugee-led organization ☐ Host community group ☐ NGO
☐ Social Enterprise
4. Years of operation in settlement: _____ years
5. Is energy/livelihoods part of the organization's mandate? ☐ Yes ☐ No
6. Who are the primary beneficiaries of your organization's work?
☐ Refugees ☐ Host community ☐ Mixed
7. Is your organization women/youth-led? ☐ Yes ☐ No

Feedstock Availability & Supply

1. Feedstocks used/available (tick all):
☐ Charcoal dust ☐ Agricultural residues ☐ Sawdust ☐ Paper waste
2. How do you gauge the availability of the feedstock?
☐ Seasonal ☐ Year-round
3. How is the feedstock acquired? ☐ Purchased ☐ Collected
4. Where do you source the feedstock from?
☐ Within the settlement ☐ In the host community ☐ Both the settlement and the host community
5. What is the average distance to feedstock source (km): _____

Technical Capacity

1. Briquette production technology used:
☐ Manual ☐ Lever ☐ Motorized
2. Current status of equipment used:
☐ Functional ☐ Partially functional ☐ Non-functional
3. Where does briquette production take place?
☐ Indoors ☐ Outdoors
4. Availability of enough space for expansion:
☐ Yes ☐ No
5. What is the average briquette production per day (kg): _____
6. How are the briquettes packaged for the market?
☐ Not packaged ☐ Packaged in plain bags ☐ Packaged in well-branded bags
7. How are the briquettes dried?
☐ Open-air drying ☐ Solar-aided dryer ☐ Indoor drying

Human Capacity

1. What is the number of active briquette production staff?
☐ 1 – 3 ☐ 4 – 6 ☐ 7 – 9 ☐ 10 and above
2. Do staff have adequate skills for briquette production & equipment maintenance? ☐ Yes ☐ Partially ☐ No

3. If Yes, how was the skill attained ☐ Formal training ☐ Informal training
4. Which of the following skills might your organization need to improve briquette production?
 - ☐ Financial management & Book keeping ☐ Branding & Marketing
 - ☐ Production technical skills ☐ Health & Safety
 - ☐ None of the above ☐ Others, specify _____
5. Are safety procedures in place?
 - ☐ Yes ☐ No

Market Readiness

1. Who are the main customers for briquettes?
 - ☐ Refugee households ☐ Host community households ☐ Institutions
2. What is the average selling price per kg of briquettes (UGX)? _____
3. Which payment modalities model do you use to sell your briquettes (tick all that apply)?
 - ☐ Cash payment ☐ Credit (Pay-As-You-Go) ☐ Barter trade (feedstock-for-briquettes model)
4. Are your briquettes cheaper than charcoal? ☐ Yes ☐ No
5. Have you conducted customer awareness/training on briquette use?
 - ☐ Yes ☐ No
6. Is there any need for additional awareness creation? ☐ Yes ☐ No
7. How best can messages about briquettes be conveyed to people in your area? ☐ Radio ☐ Community meetings ☐ IEC materials
8. How do people access your briquettes?
 - ☐ Production facility ☐ Community outlets ☐ Delivery
9. What is the estimated number of your briquette customers? _____
10. How do you rate the level of briquette demand in your area? ☐ Low ☐ Moderate ☐ High

Financial & Business Readiness

1. Do you keep financial records for your briquettes production enterprise? ☐ None ☐ Basic ☐ Formal
2. What is the current source of funding for your briquette enterprise? ☐ Grant ☐ Equity ☐ Debt ☐ Blended
3. Do you know your production costs? ☐ Yes ☐ No
4. Are you willing to co-invest to grow your briquette enterprise? ☐ Yes ☐ No
5. If yes, where would you be willing to co-invest?
 - ☐ Equipment acquisition ☐ Housing facilities ☐ Transport & Installation
6. If yes, how much would you be willing to co-invest to grow your briquette enterprise (UGX)?

Enabling Environment & Partnerships

1. Do you have formal approval from the settlement/local authorities to do briquette production? ☐ Yes ☐ No
2. Do you have any partnerships with NGOs/private sector companies? ☐ Yes ☐ No If yes, which ones? _____
3. Which major risks do you see that could affect your briquette enterprise?

Annex II: Photos

South Sudanese Women Building Association (SSWBA) Photos



New Hope (Dufatane Munda) Group Photos





Together We Can Group Photos



Dufatanye Briquette Group Photos



Umoja Ni Nguvu Group





Kulinda Mazingiza (Environment Protection) Group Photos





Live in Green photos







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