

USAFI GREEN ENERGY LIMITED



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The Care Economy
Knowledge Hub

the-care-economy-knowledge-hub.org

Profiling Businesses in the Care Economy

The care economy consists of paid and unpaid labor and services that support caregiving in all its forms. In Africa, Asia and Latin America, women spend between three to five times as many hours on unpaid care and domestic work as men. This represents 80 percent of a household's total hours devoted to unpaid care work.

Care economy businesses can help recognize, redistribute, reduce and reward – also known as the 4 Rs – unpaid and paid care and domestic work in the following ways:



Recognize: Initiatives that increase visibility and recognition of paid and unpaid care and domestic activity as "productive" work that creates real value and contributes to economies and societies.



Redistribute: Services and initiatives that redistribute care work from individuals to public and private sector entities, and redistribute care and domestic work within the household.



Reduce: Products and initiatives that reduce the time spent on and burden of unpaid care and domestic work.



Reward: Products, services and initiatives that ensure that care and domestic workers are paid fairly and have professional growth potential. This provides them with financial reward and security.

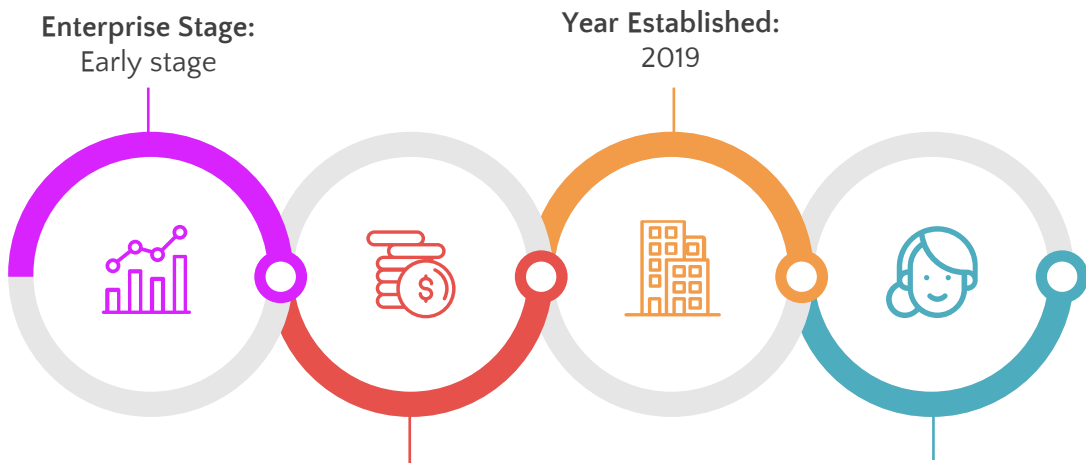
The Care Economy Knowledge Hub aims to address the knowledge gap around care businesses by showcasing various business models and creating a resource base for relevant stakeholders. It also aims to raise awareness and increase knowledge of the state of impact-driven care economy business models and attract a broad range of funders to invest in care economy solutions by showcasing opportunities. These business profiles are intended to showcase said potential investment opportunities. They have been created from information and data provided by the business itself.

This project is supported by Canada's International Development Research Center, in partnership with the Soros Economic Development Fund at the Open Society Foundations. Building on their track record and commitment to transforming the care economy and mobilizing finance for gender equality, they have jointly launched this action research program to help transform the care economy through impact business and investment.

Executive Summary

Reduce

Usafi Green Energy Limited (Usafi) is a for-profit company that manufactures and distributes cookstoves and biomass briquettes in Kenya. Usafi briquettes are of high calorific value, as well as high heat content, making them more viable for household, industrial, and institutional uses (as compared to more traditional cooking methods, such as charcoal and firewood). Usafi reduces the burden of unpaid care work by helping households, specifically women, to spend less time on chores. Since its inception in 2019, 13,490 households have used Usafi's products. In 2021, Usafi's revenue was US\$88,330. The enterprise currently has 9 full-time, and 10 part-time, employees.



Enterprise Stage:
Early stage

Year Established:
2019

Enterprise Type:
For-profit enterprise

Women Owned/Led:*

This enterprise is not women-owned or led, as it does not meet the criteria of having either a woman founder, or being 51% women-owned. It also does not have at least 30% of women in senior leadership (executive level/C-suite positions), or a board composed of at least 30% women.

Enterprise Contact

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Brian Onyango, CEO/Founder

[Linkedin Profile](#)

*According to 2X "women entrepreneurship" and "women leadership" criteria; [2X Challenge Criteria](#)

1. About The Enterprise

1.1 Problem

It is estimated that nearly 75% of households in Kenya rely primarily on wood or charcoal fuels for cooking.¹ This is especially prevalent in rural areas, where 90% of households reportedly rely on wood fuels for both cooking and heating.² This widespread use of wood fuels contributes to environmental degradation, increases pressure on limited natural resources, as well as intensifies health risks. Furthermore, it worsens the household burden for women and girls, as they often bear the burden of both collecting firewood and cooking.

Research shows that collecting firewood for the household is a time consuming task. A study in Kenya found that, on average, women and girls spent 12 hours per week collecting fuel. For women, this is time that could be spent performing other household or income tasks, or resting and socialising; in the case of children, more time could be spent resting, playing and attending school.³ With access to an improved cook stove (with better wood-burning efficiency, reduced cooking times, and lower smoke emissions), the time spent on collecting fuel is reduced to only 5 hours per week.⁴ Further, for households that use both improved cook stoves and clean cooking fuels (such as briquettes), that time could be reduced even further.

For women and girls, time spent on fuel collection varies greatly based on location and resource availability. Due to an increase in environmental degradation and deforestation, women and girls have been forced to walk longer distances in order to obtain fuel. This can be dangerous, as traveling longer distances increases the risk of assault⁵ and attacks by wild animals.

In addition, evidence from various studies shows that the use of firewood for cooking purposes increases exposure to indoor air pollution and health risks for women and children, who are more likely to spend longer hours indoors and near cookstoves. As a result of higher exposure to indoor smoke and concentrated particulate matter, women disproportionately suffer from

¹ Anna, N. Tessa, S. Marrie, J.K. (2021, July). New Climate Institute-The Kenyan Cooking Sector-Opportunities for Climate Action and Sustainable Development https://newclimate.org/sites/default/files/2022-03/a2a_kenya_cleancookingstudy_july2021.pdf Mweu, P. (2019, October 24).

² Mweu, P. (2019, October 24). Evaluating household energy resources in rural Kenya. Engineering For Change. Retrieved from <https://www.engineeringforchange.org/news/evaluating-household-energy-resources-rural-kenya/>

³ Varalakshmi, V. Ward, J. (2018, September). Kenya Development Response to Displacement Impact Project-Understanding and Addressing Gender-Based Violence <https://documents1.worldbank.org/curated/zh/102451537203164341/pdf/129961-WP-P161067-KDRDIP-GBV-Composite-Note.pdf>

⁴ Kirstie, J. Madeleine, R. Dana, C. Jonathan, R. Francis, W. MarryAnne, W. Samantha, D. Richardo, P. Kavanaugh, L. (2020, June). Sharing the burden: Shifts in family time use, agency and gender dynamics after the introduction of new cookstoves in rural Kenya. <https://www.sciencedirect.com/science/article/pii/S2214629619306668#bib0016>

⁵ Varalakshmi, V. Ward, J. (2018, September). Kenya Development Response to Displacement Impact Project-Understanding and Addressing Gender-Based Violence <https://documents1.worldbank.org/curated/zh/102451537203164341/pdf/129961-WP-P161067-KDRDIP-GBV-Composite-Note.pdf>

diseases such as chronic obstructive pulmonary disease (COPD).⁶ WHO estimates show that household air pollution accounted for the loss of approximately 86 million healthy life years in 2019. The largest burden of this loss fell on women living in low- and middle-income countries.⁷ In Kenya, respiratory diseases (stemming from partially combusted firewood) are the third highest cause of premature death.⁸ Furthermore, households that use firewood and charcoal incur higher expenditures on fuel.

Evidence suggests that there are benefits from using clean energy sources or improved energy technologies.⁹ A study by Oxfam showed that access to time and labor-saving equipment such as fuel-efficient stoves, water tanks or solar lamps made unpaid care tasks less time-consuming and intense.¹⁰ However, the adoption of such products is limited because of limited awareness of the benefits, high costs and lack of after-sales services options for these products. In Kenya, most poor households have little resources to procure energy technologies and labor-saving equipment or get a grid connection or a LPG cylinder.¹¹

1.2 Solution

Through the provision of clean cook-stoves and briquettes, Usafi has helped households incorporate cleaner energy solutions, reducing instances of carbon monoxide poisoning, as well as other health conditions, that may occur as a result of high exposure to indoor smoke and particulate matter.¹² As a result, caregivers are able to reduce the time needed to tend to ill household members.

Usafi serves low-income households by offering affordable purchasing options such as 'pay-as-you-go' plans. Households that use Usafi's cookstoves and briquettes can save up to 65% on costs, compared to traditional cooking methods that use firewood and charcoal. Money saved can be invested in productive and consumptive needs, contributing to the overall improvement of household welfare. In addition to low cost, the use of briquettes as cooking fuel has proven to be more time efficient. This is because little attention is needed once the stove is lit.¹³

⁶ United States Agency for International Development (USAID)-*Clean and Efficient Cooking Technologies and Fuels*. (2017, September) <https://winrock.org/wp-content/uploads/2017/09/WinrockCookstoveCombined.pdf>

⁷ World Health Organization- Household air pollution and health. (2022, July 27) <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health>

⁸ *Cooking energy access: A Kenyan case study*. Multi-disciplinary research developing a sustainable energy supply. (2019, December 9). Retrieved from <https://energyfutureslab.blog/2019/12/05/cooking-energy-access-a-kenyan-case-study/>

⁹ Clancy, J., Winther, T., Matinga, M., & Oparaocha, S. (2012). *Gender equity in access to and benefits from modern energy and improved energy technologies: world development report background paper*. Gender and Energy WDR Background Paper, 44. https://ris.utwente.nl/ws/portalfiles/portal/5131977/WDR_Norad_ENERGIA_Exec_Summary.pdf

¹⁰ Oxfam (2019). *Gendered patterns of unpaid care and domestic work in the urban informal settlements of Nairobi, Kenya. Findings from a Household Care Survey 2019*. <https://oxfamlibrary.openrepository.com/bitstream/handle/10546/620910/rr-nairobi-kenya-household-care-survey-191119-en.pdf;jsessionid=60FF0F64D05C9263AFF2ECF9A2205B10?sequence=1>

¹¹ Malonza, R., & Fedha, M. (2015). *An assessment of gender and energy in Kenya: the underlying issues*. International Journal of Scientific and Technology Research, 4(9), 137-153. https://genderandsecurity.org/sites/default/files/Malonza_Fedha_-_An_Assessment_of_G_Energy_in_Kenya_0.pdf

¹² United States Agency for International Development (USAID)-*Clean and Efficient Cooking Technologies and Fuels*. (2017, September) <https://winrock.org/wp-content/uploads/2017/09/WinrockCookstoveCombined.pdf>

¹³ Rainforest Alliance (Article)-Meet A Renewable-Energy Convert in Kenya. (2019, January). <https://www.rainforest-alliance.org/in-the-field/clean-energy-convert-in-kenya/#:~:text=In%20addition%20to%20the%20clear.by%20more%20than%20a%20third>

In addition to clean cookstoves and briquettes, Usafi also distributes clean energy products from third party manufacturers. These include solar kits that enable households to have access to reliable sources of lighting inside their home. Usafi's distribution of kits also supports other small businesses and organizations.

1.3 Customer Segment

Customer Segment	Product / Service Provided	Paid / Unpaid
Households	<ul style="list-style-type: none"> Briquettes and cookstoves: Usafi manufactures and distributes briquettes, as well as two variants of cookstoves: <ul style="list-style-type: none"> A 'basic' variant for low income households (monthly income < US\$30), as well as in refugee camp regions (Kiambu and Kakuma). An improved variant for higher income households (monthly income >US\$70). Solar products: Usafi distributes a wide range of solar products from third-party manufacturers. Solar kits for lighting are offered as products for purchase, once a household has paid off their stove. The solar kit includes 4 bulbs. 	<p>Paid</p> <p>Households pay for the clean energy products through a pay-as-you-go model. Households can also choose to pay on a per day basis, based on fuel purchase and usage.</p>
Institutions, schools, businesses, hospitals, and hotels	<ul style="list-style-type: none"> Briquettes and cookstoves: Provision of briquettes and institutional cookstoves. Solar products: Computer solar power systems, as well as solar miller machines (largely for businesses, schools and hospitals). The enterprise additionally provides consultancy services for installations on briquettes machines. 	<p>Paid</p> <p>Institutions may also choose the pay-as-you-go-model. Product prices range from US\$ 300 to US\$7,000, based on the size of the cookstove purchased. The institutions would then be responsible for the payment of fees for any consultancy services provided.</p>

Customer Segment	Product / Service Provided	Paid / Unpaid
Private Institutions, such as: NGOs, sector stakeholders in renewable energy	<ul style="list-style-type: none"> Consultancy services: Usafi offers consultancy services to institutions for targeted research on clean energy related activities. They also provide training on how to use the cookstoves and the benefits of using Usafi cookstoves, etc. 	Institutions pay all fees for the consultancy services provided.

1.4 Team And Governance Structure

There are 9 full-time and 10 part-time employees at Usafi. 55% of the full-time employees are women, as well as 70% of the part-time employees. The full-time staff includes: the CEO, 5 female management-level employees (1 accountant, 1 admin, 1 customer service manager, 1 marketing manager and 1 project manager), and 3 operations and maintenance managers. The part time employees include: 3 women sales representatives, 5 cook stove manufacturers (3 men and 2 women), and 2 employees (both women) responsible for briquette manufacturing. There are 3 men on the management board, 1 internal and 2 external.

1.5 Enterprise Policies

Policy	Yes / No
Overall HR Policy	Yes
Equal pay for equivalent work policy	No
Non-discrimination / Equal employment opportunity / Diversity and inclusion policy (gender, LGBTQ, PWD, etc.)	Yes
Anti bullying and sexual harassment policy / Respectful workplaces	Yes
Whistleblower policy / Employee grievance mechanism	Yes
Maternity / Paternity leave policy	Yes
Safeguarding policies for vulnerable groups (children, elderly, PWDs)	Yes
Safeguarding policies for the environment or to reduce detrimental impact on the environment (covers reducing carbon footprint, reduced water consumption etc.)	Yes

2. Impact

2.1 Mission Statement

Usafi's mission is to provide affordable, renewable, energy solutions to improve living standards within communities and reduce deforestation.

2.2 Intended Impact

Usafi's model has clear benefits for households, through its alignment with one of the four Rs:

- Usafi **reduces** the burden of unpaid care work by helping households spend less time on both the sourcing of fuel and cooking. This is done by replacing traditional cookstoves and fuel sources, such as charcoal and firewood.

2.3 Monitoring And Measurement

Usafi measures its performance through monitoring the reach and quality of its services provided to customers. Reach data is tracked on a weekly basis, through the following indicators:

- Number of products sold across all categories
- Number of stoves installed
- Number of end customers

To track the quality of service, the enterprise regularly follows-up with its customers. This is done through bi-monthly, after sales, calls. During these calls, the Client Relationships Department gathers feedback on both cookstoves and briquettes sold. The first monthly call focuses on feedback specifically related to usage of the products, or any problems encountered during use. The second monthly call focuses on providing the customers with solutions and action plans to these problems. Furthermore, customers can use a free SMS-inquiry mechanism, in order to provide weekly feedback on product performance.

In addition to tracking the reach and quality of its products and services, the enterprise also gathers indicators related to the cost-savings and environmental impact of its products. On a quarterly basis, Usafi tracks:

- the cost savings per household
- the number of trees saved
- the reduction in carbon emissions

This is achieved by keeping a log of briquettes and stoves sold, as well as gathering data related to customer savings per cookstove/briquette owned.

2.4 Results To Date

Usafi reports the following results to date:

- Number of cookstoves sold: 11,000
- Quantity of briquettes sold (in kgs): 4,600
- Number of households that have benefitted from Usafi's products and services: 11,000
- Number of institutions (schools, businesses, hospitals, hotels, etc.) using Usafi cookstoves: 15
- Reduction in the cost of fuel (%), for institutions that use Usafi cookstoves: 50%
- Number of household solar kits sold: 22
- Number of computer solar products sold: 7
- Number of trees saved: 34,000
- Reduction in CO2: 7,255 tons of carbon emissions

Currently, 70% of Usafi's products are distributed via external vendor partners. More than 200 local businesses have been trained on how the products work, to become local resellers.

Usafi's work is aligned with the following Sustainable Development Goals (SDGs):



3. Financials

3.1 Financial Status

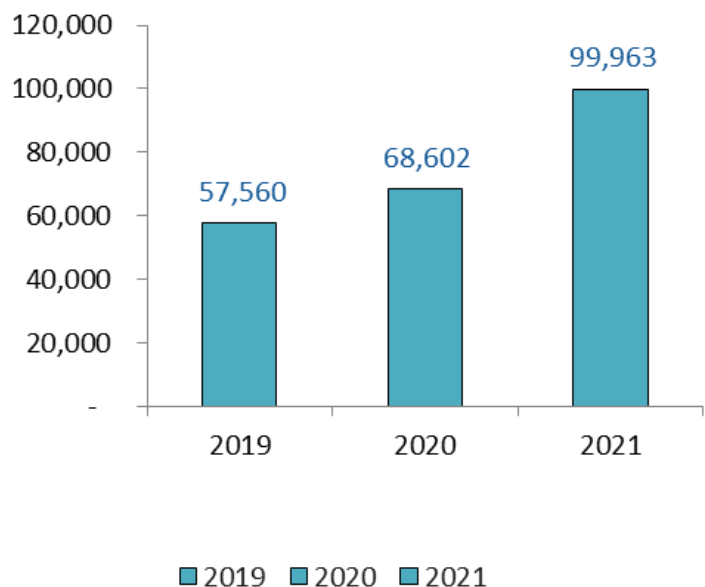
The following table provides an overview of the financial status of the enterprise during the period 2019–2021. The enterprise is financially profitable.

<i>(Amounts in US\$)</i>	FY 2019	FY 2020	FY2021
Total Revenue ¹⁴	57,560	68,602	99,963
Total Expenses	50,696	59,440	82,730
EBITDA OR Profit/Loss	6,864	9,163	17,232
EBITDA Margin	11.93%	13.36%	17.24%

3.1.1 Revenue Streams

Usafi's revenue sources include both the sale of products and grants. Currently, 75% of its revenue comes from product sales, with the remaining 25% from grants. Product sales revenue can be further segmented, as follows:

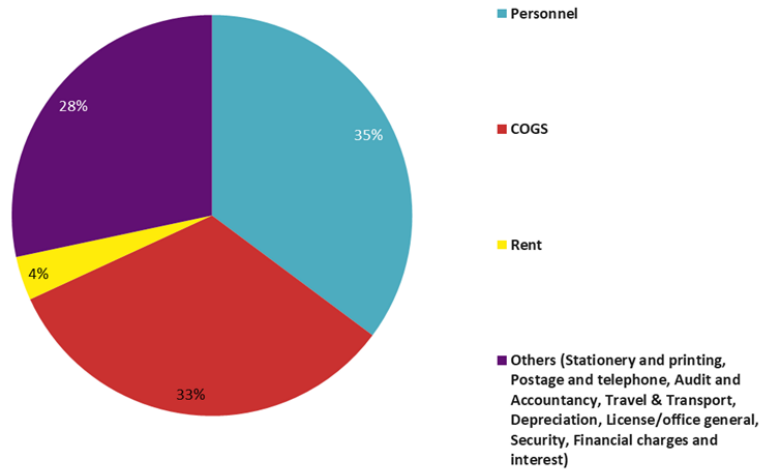
- 65% from cookstoves
- 25% from briquettes
- 10% from solar products



¹⁴ The enterprise receives revenue from sales of products and grants.

3.1.2 Expenses

The following pie-chart provides details of the key areas of past expenditure for the enterprise in the year 2021.



3.2 External Funding Sources (Past and Current)

The enterprise has received external funding from multiple sources and is currently in advanced discussions for additional equity-funding and grants. Details on both past and current funding are provided below:

- Usafi has received a bank loan of US\$5,000. This was used to purchase material to build institutional stoves.
- The enterprise received a grant of US\$26,000 from the Kakuma Kalobeyei Challenge Fund (KKCF/ AECF). This grant was used to support the construction of a new storage room, in order to meet the production demand and create more usable space. The remaining funds were used to purchase raw materials for production.
- Since 2020, the enterprise has received continued support from SNV. The milestone-based grant of US\$10,000 per year supports marketing and behavioral changes within refugee settings. In addition, this grant has enabled Usafi to conduct roadshows and vendor visits, resulting in 200 vendors being trained.
- The enterprise has received a grant of US\$2,500 from ygap (NGO). This was used to support training for Usafi's personnel, cookstove artisans, as well as to purchase raw materials.
- Usafi has received US\$51,300 in equity funding from Uncap (a fintech company). This funding will be used to support and scale-up the enterprise's products and services, specifically to purchase land and pick-up trucks for the transportation of products. The land will be used for construction of a central office and production area. Remaining funding will be used for the construction of a storage area for cookstoves and cookstove-related machinery.

3.3 Challenges Faced In Accessing Capital

High cost of capital: Usafi is an early stage venture and is therefore perceived as a riskier investment. Consequently, the cost of capital available from mainstream financiers, such as banks and commercial institutions, is very high for the enterprise.

4. Path To Scalability

4.1 Potential Avenues For Growth

Usafi has identified the following avenues for growth:

- **Expand production facilities:** The enterprise aims to establish two more production centers for cookstoves and briquettes in the next six years.
- **Expand customer base:** Usafi aims to increase the number of customers served to 500,000 in the next six years. Furthermore, the enterprise intends to expand its customer base, by serving other customer segments, such as hotels and smaller industries.

4.2 Risks And Challenges

- **Operational (Personnel):** For the enterprise, the cost of training its personnel is high. The Usafi model relies on a large number of trainers who are dispatched from locations such as Nairobi, as well as areas in Turkana county, like Kakuma town. Given the distance between these two locations, the overall cost of training and transporting personnel is high.
- **Operational (Production):** As a result of taxes levied on raw materials, the cost of production for the enterprise is very high. In addition, a high cost of transportation for these materials further increases the overall expenditure. The enterprise also needs to expand its production capacity in order to meet the demand for its products.
- **Operational (Customers):** Usafi uses a pay-as-you-go model, in order to reach low-income customers. However, frequent delays in payment from its customers has a negative impact on the enterprise's working capital needs.
- **Technology:** Usafi's pay-as-you-go model uses an online system to track payments. This is very costly. Further, internet connectivity is poor in many regions of operation, which often leads to difficulties in processing online payments in a timely manner.

4.3 COVID-19 Impact On The Enterprise

Due to restrictions on mobility imposed during the COVID-19 pandemic, the number of household members at home during the day increased. However, the availability of ready-made food from local markets decreased. This led to an increase in cooking activity at home, and therefore a demand for Usafi's cookstoves. Although the increase in demand for cookstoves had a positive impact on Usafi's business, the enterprise also experienced an increase in cost of operations, particularly due to an increase in transportation costs during lockdown. To counter this, Usafi has established long-term contracts with three new transporters, in order to get lower pricing for the transportation of goods.

4.4 Support Received To Date

Usafi received support for market activation and awareness through SNV's 'EnDev Market Based Energy Access II' project. Using this support, in 2021 Usafi expanded into the Kakuma refugee camp in Kenya. It has further leveraged this support to develop distribution channels, recruiting local sales staff, identifying and training local stove vendors, and carrying out marketing activities—such as cooking demonstrations.

The enterprise has also received support from Kenya Climate Innovation Center (KCIC). KCIC is currently offering expertise and training to Usafi's management, under the Greenbiz program.

4.5 Inputs Required For Growth

Financial:

The enterprise is currently seeking a total of US\$700,000, in two tranches. This funding will be used for the following activities:

- Construction of a modern, full steel, warehouse. This will be constructed on new land that Usafi plans to purchase in order to expand operations and meet local demand. The warehouse will reduce exposure to heavy rains and winds, which at times can significantly affect their storage efficiency (US\$275,000).
- Purchase of machinery (sealer coding machine and auto-painting machine for cookstoves), as well as their own pick-up trucks to reduce transportation costs and increase the size of their delivery network (US\$ 100,000).
- Solarizing of all their equipment and machinery. Currently, the grid electricity in their network is unreliable and disrupts production. Solarization would enable the enterprise to unlock production at full capacity, so that it can triple production by 2023 (US\$250,000).
- Purchase of non-carbonized briquettes (both briquetting press and drier) for US\$150,000.

Usafi is seeking non-financial support for:

- Capacity development: The enterprise seeks support to build the capacity of its personnel through training in areas such as sales, production, financial and management skills.
- Technology: The enterprise seeks support to improve its online payment platform that is used for the collection of pay-as-you-go payments.
- Marketing: The enterprise seeks support to further develop marketing material for its offerings.
- Partnerships: The enterprise seeks access to networks and partnerships in order to increase its visibility and more widely showcase its products.
- Product development: The enterprise seeks support to enhance its engineering skills to further improve the design of its cookstoves.