REPORT

Solar Harnessed Entrepreneurs (SHE) Baseline Assessment: Promoting Productive Use of Energy (PUE) for Women and Girls in Sierra Leone

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List of Abbreviations and Acronyms

BSL	Bank of Sierra Leone
CARE	Cooperative for Assistance and Relief Everywhere
CSO	Civil Society Organisation
CSV	Comma Separated Value
DFS	Digital Financial Services
FIRST	Financial Inclusion and Resilience Srengtening
FSA	Financial Services Association
FSI	Financial Services Institution
FSP	Financial Service Provider
GPS	Geo Positioning System
GTB	Guaranty Trust Bank
IDRC	Inclusive Development and Research Consultancy
IGDs	Intergenerational Dialogue Group
IP	Implementing Partner
KADDRO	Kambia District Development and Rehabilitation Organisation
KII	Key Informant Interview
MEAL	Monitoring, Evaluation, Accountability and Learning
MFI	Micro Finance Institution
MSME	Micro-, Small- and Medium- Scale Enterprises
NGO	Non-Governmental Organisation
ODK	Open Data Kit
PaR	Portfolio at Risk
PI	Personal Interviews
SEA	Sexual Exploitation and Abuse
SEEP	Small Enterprise Evaluation Project
SHE	Solar Harnessed Entrepreneurs
PUE	Productive Use of Energy
SGBV	Sexual and Gender Based Violence
MADAM	Mankind Activities for Development Accreditation Movement
ToR	Terms of Reference
ToT	Training of Trainers
UNCDF	United Nations Capital Development Fund
UNFPA	United Nations Population Fund
UNSCR	United Nations Security Council Resolution
USAID	United States Agency for International Development
UTB	Union Trust Bank
VSLA	Village Savings and Loan Association
GoSL	Government of Sierra Leone
DfID	Department for International Development
UNOPS	United Nations Office for Population Services
RREP	Rural Renewable Energy Project
RP	The Rockefeller Foundation
WEE	Women Economic Empowerment

EXECUTIVE SUMMARY

This report presents findings from a baseline assessment conducted to provide contextual analysis of the Solar Harnessed Entrepreneurs (SHE) project's target population, capturing initial data against selected indicators in the project Results Framework. The SHE project aims to provide women groups and individual run enterprises with a package of support, including financing for energy-enabled appliances, training in their use and an enhanced market access and linkages with the aim to leverage the new access to energy for business growth. The ideal setting of the project is to cover over 330 newly enabled businesses by engaging 7,120 women, living in Sierra Leone's mini-grid locations.

Although quantitative data collection was largely used to get primary information using structured questionnaires for personal interviews, the research team also used qualitative methods through Key Informant Interviews (KIIs), with respondents drawn from the renewable energy sector/mini-grid power stations. The study also used Focus Group Discussion (FGD) guides to interview Project's target groups and individual women entrepreneurs in the study areas. The coverage of the assessment was to include twenty (20) communities in all seven (7) intervention districts (Bo, Bonthe, Moyamba, Pujehun, Kambia, Koinadugu and Bombali), but based on initial targets for the first phase of implementation, only sixteen (16) communities were reached during the assessment.

Key Findings

The key findings of the assessment are aligned to internal consistency and do relate with the goals and objectives as outlined in the project proposal and the Log Frame. The findings captured indicators related to: a) situation of solar-enhanced businesses, b) current electricity consumption behaviours, c) community perceptions, attitudes and understanding of existing solar opportunities, and d) understanding gender equality and practices across the business sector. Key results from the assessment are set out as follows:

Specific Objective 1: *Capacity of women entrepreneurs to engage in energy-enabled businesses to ensure economic inclusion and empowerment*

A key objective of the SHE project focuses on the provision of training for women entrepreneurs, and provide them with the support they need to expand their businesses with renewable energy and access to specially adapted appliances and funding. The assessment captured baseline values indicators in an effort to partly analyze the current situation of solar-enhanced businesses in the project intervention districts. .

- **Outcome Indicator 1.1:** *Percent of women entrepreneurs who have skills and capability to participate equitably in energy enabled economic activities.*

The assessment revealed 59.6% of entrepreneurs claimed to have acquired the skills and capability to effectively use electricity appliances/equipment, and this was higher for women entrepreneurs (60.2%) than men (58.6%). According to findings, the high proportion for women is due to the fact that they use light electrical appliances in households and shops including bulbs (50%), refrigerators/freezers (35.9%), phone chargers (33%), television (24.9%), CD/DVD player (12.5%), fans (12%) and sewing machines (0.3%). Amongst the 789 women entrepreneurs interviewed, only 11 (1.6%) proved to have access to heavy energy-enabled commercial motor equipment such as rice mill.

- **Outcome Indicator 1.2:** *Percent of women entrepreneurs who expressed confidence in energy enabled businesses.*

Even though the study shows that high proportion of women entrepreneurs claimed to have the skills and capability to participate in energy enabled economic activities, the assessment submits that confidence building to engage in energy enabled business is very low among them. Confidence in the use of energy-related electricity appliances by women entrepreneurs is lacking as over 79 percent of them expressed the lack of confidence in the various project areas.

- **Indicator 1.3:** *Percent of women and men utilizing Distributed Renewable Energy (DRE) who are active users of formal financial services (access to loan)*

The assessment revealed that access to formal credit is of critical concern among both male and female entrepreneurs using DRE in the intervention districts. With such a finding being glaring during the assessment, there is a justification towards the project drive for the need to improve access to finance for especially women-owned enterprises. The survey reveals 85 percent of DRE users do not have access to formal financial services. Enterprises run by women especially face myriad constraints such as lack of collateral and less control over assets compared to male run enterprises.

- **Indicator 1.4:** *Percent of women entrepreneurs reporting increased access to and use of market intelligence including digital financial services*

Findings show that approximately 33 percent of women entrepreneurs have access to and use of market intelligence and digital banking. Although the percentage is more than 15 percent lower than the proportion of male entrepreneurs (48.6%), the assessment reveals a relatively low level of the use of market intelligence and digital financial services in the project intervention districts. The assessment also discloses that lack of access to digital bank also presents critical challenges to business transactions. Significantly, most renewable energy supply systems are prepaid systems that require mobile money accounts for connections. Therefore, lack of access to mobile money account among women entrepreneurs is a huge challenge to access uninterrupted renewable power supply in the project intervention areas.

Specific Objective 2: *Facilitating development and expansion of newly energy enabled women's enterprises in mini-grid sites*

The project design states that linkage to mini-grids can introduce an exciting potential of transforming micro-businesses from manual to energy-enabled businesses which is expected to increase production and return on investment. The assessment observed that a renewable energy landscape has already been established in the project locations with the exception of Rokupr in the Kambia district which is yet to be connected to mini-grid. Key baseline results captured in relation to objective 2 are set out as follows:

- **Outcome Indicator 2.1**: *percentage of women-owned businesses who are connected to the mini-grid (RF indicator)*

The research revealed that generally, 49.2% of women entrepreneurs are connected to mini-grid.. This percentage is almost the same with their male counterparts. Notably, a number of these connections are not done for productive use, and are mainly for domestic consumption.

- **Outcome Indicator 2.2**: *percentage of women using renewable energy enabled appliances for non-agro-processing productive use in the target communities*

The assessment points out that there is low proportion of women connected to mini-grid for business purpose and many are yet to utilize the DRE mini-grid for productive purpose (65%). For those who are connected for productive purpose, almost all of the connections are for non-agro-based businesses. As observed, almost all commercial heavy energy enabled appliances used for agro-processing across the project districts were not connected to mini-grid power supply. These appliances were mainly rice mill and cassava processing machines.

- **Outcome Indicator 2.3**: *percentage of men and women in the target communities who perceived renewable energy services to be affordable, reliable and sustainable energy services.*

The aspect of affordability, reliability and sustainability of power supply is a serious challenge as revealed by all entrepreneurs connected to DRE mini-grid power supply in the project areas. Interestingly, there is high demand for distributed renewable energy, but the effectiveness and sustainability of the energy supply has been questioned with low power supply capacity, spontaneous power cut, perceived high tariff and lack of service users' understanding of the metering/billing process across the project intervention communities.

This claim was specifically noted among an approximated 85 percent of women entrepreneurs; and more men (88.9%) are even demotivated with the power supply than women entrepreneurs are.

- **Outcome Indicator 2.4:** *percentage of women-owned businesses who report to have received funding or business development support to engage in new off-grid economic opportunities*

Almost all of the women entrepreneurs (99.4%) in the project areas claimed they have never received any funding or business development support. Although the proportion of men who claimed limit access to funding and/or business development support is slightly lower than women entrepreneurs, the overall finding proved that such opportunity is hardly available in the beneficiary communities.

- **Outcome Indicator 2.5**: *percentage of women entrepreneurs that are engaged in peer mentorship opportunities*

Approximately 15 percent of women in the beneficiary communities across the intervention areas engaged in peer-to peer networking and mentorship, and comparison across gender revealed that the proportion of women entrepreneurs who engage in peer-to peer networking and mentorship activities is approximately 3 percent high than the proportion of male entrepreneurs.

- **Outcome Indicator 2.6:** *percentage of existing women-owned businesses reporting their business has grown or expanded in mini-grid locations.*

As a part of the study, readiness assessment was done to identify opportunities and needs that will allow women entrepreneurs to engage in more profitable businesses. The findings revealed that only 2.5 percent of 798 women entrepreneurs who were interviewed agreed that their businesses have grown or expanded to mini-grid locations since establishment.

Specific Objective 3: *Building evidence based for decentralised energy provision as an entry point for women's economic empowerment.*

The initial design of the project intends to identify 120 established individual women-led small and medium enterprises (SMEs) who have the potentials to expand their businesses through renewable energy use. This is because the strategy aims to build evidence based for decentralized energy provision as an entry point for women's economic empowerment. Key baseline indicators related to objective 3 are discussed as set out:

- **Outcome Indicator 3.1:** *percent and number of energy-enabled businesses that are replicable across mini-grid sites in various geographics*

Using a highly participatory focused discussions approach with entrepreneurs across the 16 communities covered, the assessment identified energy-enabled businesses that have the potentials for replication across the project districts. The assessment documented showed 7 most profitable business sectors/ segments that present the potential for replication across the project districts. These are mostly food crop products including rice, cassava, palm oil, pepper, groundnut, cocoa, and sweet potato. Other sectors of business identified as highly profitable include fish, retail/wholesale trading, charging stations and entertainment centres.

- **Outcome Indicator 3.2:** *percentage of women reporting significant increases in their revenue and profits*

Only 2 percent of women entrepreneurs reported to have experienced significant increase in their revenue and profit since the establishment of their businesses, which shows a low percent towards revenue increase as revealed by the assessment.

- **Outcome Indicator 3.3:** *Current overall energy consumption in the project locations*

The overall energy consumption on average was noted as 2.63kWh with the energy consumption rate by male entrepreneurs (3.10 kWh) than female entrepreneurs (2.43kWh). At district level, energy consumption is highest for project communities in Bonthe district

accounting for an average of 10.10 per kilowatt hour and lowest in Moyamba (1.20 KWh). However, the study revealed that the maximum min-grid electricity consumption at household level is at 40.40 kWh. According to records from the mini-grid service providers the current threshold is 46.38 kWh- which means the project intervention may likely surge the consumption rate to an extent that would exceed this average threshold. The overall average cost for energy consumption is critically higher in the project location.

Specific Objective 4: *Strengthening enabling environment and sustainability*
The SHE project intends to promote behaviour change towards supportive enabling environment for energy-enabled women entrepreneurship and then reduce the burden on women for household labour through the promotion of household appliances. Key findings on indicators identified under this object are discussed below:

Outcome Indicators 4.1: *Percentage of women who have meaningfully participated in economic decision-making in the household and their workplace/community*
Women's meaningful participation in economic decision-making in their households and communities is low as revealed by the assessment. About 8 percent of women claimed to have meaningfully participated in economic decision making.

- **Outcome Indicator 4.3**: *percent of women entrepreneurs reporting time saved in a) enterprise and b) household due to increased energy use.*

The study compared time used in both enterprise and home for entrepreneurs connected to mini-grid and those not connected. The difference in average daily time used was therefore considered to computed the percent time saved as a result of increased use of energy. This analysis showed that mini-grid power supply can help women to save 20 percent on time used in the home and engage more in their business activities.

- **Outcome Indicator 4.4**: *percent of women entrepreneurs who are using their capacities for resilience and adaptation to the effects of climate change.*

The assessment showed that as high as 44 percent of entrepreneurs are engaged in the crop value, including production and processing sector. Capacity assessment on climate change and resilience is therefore crucial at the project inception phase. However, the findings are anecdotal and may not present the actual status of entrepreneurs on climate change and resilience building. It turned out though, that a high proportion of women entrepreneurs (71.3%) demonstrated low capacity and adaptation to climate, comparatively, the percent of male entrepreneurs (46.8%) who demonstrated using their capacities and adaptation to climate change almost doubled those of women entrepreneurs (28.7%). This had meant increased effort is required to prepare women entrepreneurs in the food crop value chain for climate change resilience.

Conclusion and Recommendations
It cannot be overemphasised that findings from the assessment established the significance of the Solar Harnessed Entrepreneurs (SHE) project in Sierra Leone. It can be cogently argued that there is high demand for distributed renewable energy. It should be noted that effectiveness and sustainability of the energy supply is a serious challenge as demonstrated by low power supply capacity, spontaneous power cut, high tariff and lack of users' understanding of the metering/billing process. It is however the case, that the business environment of the project areas is conducive. There are potentials of profitable businesses with high returns on investment that can be connected to mini-grid for growth. Although the project design was well planned to address the gaps observed, there are key recommendations that may require urgent attention for redesign of the program. The key gaps/findings and recommendations were aligned to the project approaches adapted from globally tested strategies for productive use of energy.

- Research findings revealed that access to finance is crucial for business expansion. It is recommended that the Project team and leadership strengthened advocacy and strategic

partnership with financial service providers and to increase the chances of accessing available credit opportunities.

- Promoting financial inclusion and resilience strengthening through digital inclusion is critical for sustained access to loan opportunities.
- Implement gender transformative strategy can give equal opportunity to all types of loans
- It is recommended that local artisans/ technicians be trained and if possible include users in the installation and maintenance of appliances.
- Negotiating for flexible tariff and building service users knowledge on meter reading and billing process is critical for sustainability of the DRE initiative
- Promote the formalization of beneficiary enterprises especially those in the medium enterprise business category

1 BACKGROUND OF THE STUDY

1.1 Purpose and objectives of the study

The overall purpose of the proposed consultancy is to conduct a baseline assessment ***'to provide contextual analysis of the SHE project's target population, while capturing initial data against selected indicators in the project results framework.'*** In particular, the assessment will be used to determine baseline values for indicators selected to capture the SHE project's objectives and outcomes. The assessment will specifically identify and interview a selection of potential participants and stakeholders that will be involved in the project (government actors, SMEs, suppliers and local communities). In addition to data collection to measure indicators, the baseline seeks to answer the following research questions:

1. What is the situation of solar business, particularly as it relates to women?
2. What are the community perceptions, attitudes and understanding of existing solar opportunities?
3. What is the current community electricity consumption and behaviour?
4. How are key crosscutting themes, gender equality and child rights/protection, understood and practiced across the business sector?

The key audience of the research findings will include CARE International and their partners (mini-grid operators) and research institutions including the Department of Renewable Energy, Njala University)).

1.2 Background/ context to the project

This Most recent energy report on rural electricity suggests that only 6.4% of Sierra Leone's (SL) rural population has access to electricity.[1] The time, cost and reliability of getting electricity for businesses remains a challenge to the growth of private sector and the country's struggling economy. SL ranks 181 out of 190 countries in "getting electricity" to run a business[2]. The Government of Sierra Leone (GoSL) has ambitious plans and with recent donor investments in mini-grid energy provision, the potential for transformative impact is unprecedented. In 2016, Sierra Leone became the first African country to sign the Energy Africa Policy Compact with the UK Government. Since then, the Department for International Development (DfID) in collaboration with the United Nations Office for Project Services (UNOPS) and the Ministry of Energy has invested £43 million for the Rural Renewable Energy Project (RREP), one of the largest green mini-grid projects in Sub-Saharan Africa "to improve rural renewable energy access through the deployment of 97 mini-grids connecting 360,000 people".[3]

Most women entrepreneurs run subsistence level micro-businesses and have limited growth opportunity as a result of their over reliance on manual labor to operate. Overall, 56% of all employed women in SL live below the international poverty line with little access to finance. Only 15.4% of women have access to an account at a financial institution or mobile money service.[4] There is also poor consumer awareness on how these mini grids can be accessed and utilized, especially among women.[5] Negative socio-cultural norms and beliefs reinforce gender inequalities and men's role as the breadwinner and decision-maker.[6] Research also shows that specific barriers women face in connecting to energy for productive use include financing to invest in PUE, discriminatory social norms and time poverty for engaging in income-generating activities. The COVID-19 pandemic has worsened barriers to women's

[2] https://www.doingbusiness.org/en/data/exploreeconomies/sierra-leone

3 Assessment: Sierra Leone Green Mini-Grid Market Development Programme: African Development Bank (AfDB) and Sustainable Energy Fund for Africa (SEFA) November 2019

[4] https://data.unwomen.org/country/sierra-leone

[5] www.clasp.ngo/research/all/off-and-weak-grid-appliance-market-sierra-leone-2/

[6] FCDO 2021, Solar Market Update for Sierra Leone

entrepreneurship, such as deepening women's burden of unpaid care and gender-based violence against women in the home[7]

The use of electricity and distributed renewable energy (DRE) to benefit women is a central component in GoSL's economic development strategy. The National Energy Strategy (2020), Gender Action Plan (2020), Off-grid Solar Energy Strategy (2020) and Electricity Sector Reform Roadmap (2017-2030) contain clear commitments to gender-transformative decentralized energy access.[8] There is also growing access to loans and microcredit to support energy-enabled micro, small and medium sized enterprises (MSME), particularly in the agricultural sector, which is the mainstay of women's employment. [9] For instance, the government's investment in a national microcredit scheme (Munafa Fund) represents a big opportunity for women entrepreneurs. [10]

CARE's proposed project, Solar Harnessed Entrepreneurs (SHE), was therefore designed to provide women group and individual run enterprises with a package of support including financing for energy-enabled appliances, training in their use, as well as soft and hard business skills, mentoring, enhanced market access and linkages with the aim to leverage the new access to energy for business growth. SHE will expand and launch over 330 newly energy enabled businesses by engaging 7,120 women living in Sierra Leone's (SL) mini-grid locations. SHE will create a blueprint for creating profitable and sustainable renewable energy enabled businesses for women. These strategies for women to take advantage of reliable power can be replicated in SL and adapted to other contexts. The program model and evidence developed through this project will contribute to SDGs 5 (Achieve gender equality), SDG 7 (Ensure access to affordable, reliable, sustainable and modern energy for all), and SDG 8 (Achieve economic growth and decent work for all).

The goal of this project will be achieved through four specific objectives:

1. Build capacity of women entrepreneurs to engage in energy enabled businesses to ensure economic inclusion, and empowerment
2. Facilitate development and expansion of newly energy enabled women's enterprises in mini-grid sites
3. Build evidence base for decentralized energy provision as an entry point for women's economic empowerment (WEE)
4. Strengthen enabling environment and sustainability

SHE is expected to kick off with a landscape mapping that will help the program managers to better understand who the key actors are and what opportunities exist for linking women in rural communities with DRE enabled businesses. Data gathering through consultations with community members as well as collaborations with government and donors around energy enabled business development will inform the refining of the project design. CARE International and their partners will also engage with livelihood funders who will be potential co-investors in continuing this work. SHE will explore partnerships with a range of regional and local DRE actors, including appliance suppliers and financial service providers to test new business models and credit financing mechanisms. SHE also embeds CARE's approach to achieving impact at scale[11], commitment to innovation and value for money, as well as the organisation's expertise from over 15 countries working at the intersection of renewable energy (RE) and WEE.[12] .

[7] Zara Laouan, CARE Rapid Gender Analysis - COVID-19, West Africa –April 2020; https://www.careevaluations.org/evaluation/west-africa-covid-19-rga-may-2020/

[8] http://www.energy.gov.sl/

[9] http://www.fao.org/publications/card/en/c/I9554EN/

[10] https://statehouse.gov.sl/sierra-leones-president-julius-maada-bio-unveils-national-micro-finance-programme-explains-benefits-of-the-munafa-fund-to-small-businesses/

[11] https://insights.careinternational.org.uk/publications/care-s-approach-to-impact-at-scale

[12] https://careclimatechange.org/cares-capacity-statement-on-renewable-energy/

2 METHODOLOGY

2.1 Design and scope of the study

The study employed a mixed method approach. Meanwhile, quantitative method was largely used to solicit primary information using structured questionnaires for personal interviews. However, qualitative methods were used to some extent used through key informant interviews (KIIs) with representatives from the renewable energy sector/ mini-grid power stations at community level. In addition, focus group discussions (FGDs) guides were used to interview project's target groups (group run women entrepreneurs from VSLAs or cooperatives (aged 15)) to 49 Years) and individual women entrepreneurs (aged 35-60 years)) in the study areas.

Ideally, the scope of work/coverage for the assessment was expected to include 20 communities in all 7-intervention districts (Bo, Bonthe, Moyamba, Pujehun, Kambia, Koinadugu and Bombali) as shown on the map. However, based on initial targets for the first phase of implementation, only 16 communities were reached during the assessment.

2.2 Sampling design for personal interviews

Considering that the total number of project target beneficiaries is known, the sampling selection procedures for personal interviews used formula (i) below to select the minimum sample size. Notably, the project targets 7,120 beneficiaries (women entrepreneurs and adolescent girls). Based on the calculations a minimum of 365 respondents for PIs would be required per district.

$n=z^2pqN/(z^2pq+Ne^2)$---------- (i)

Where

- n=the desired minimum sample size
- z= the value of the standard normal deviation corresponding to the level of confidence
- p= the estimated population experiencing positive outcome measures (e.g engaged in profitable business)
- q= 1-p= estimated population experiencing negative outcome measures
- N= total number of beneficiaries across the intervention areas
- e= desired minimum level of precision/accuracy

For the study p was estimated at 50% and e, at 0.05 level of accuracy. Therefore, substituting in the above equation gives the sample size,

$$\mathbf{N=1.96^2 \times 0.5\times0.5\times7{,}120/ (1.96^2 \times 0.5\times0.5+7{,}120\times0.05^2) = 364.49\approx365}$$

Whilst 20 communities have been identified as beneficiary communities for project implementation, only 16 communities are expected to be targeted in the first phase of implementation. Therefore respondents were drawn from all 16 community clusters across the 7 intervention districts during the baseline assessment, The minimum sample size was however multiplied by a standard design effect of 2 and some allowances such as 10% addition[13] were made for non-responses, incomplete questionnaires or sampling errors. This

[13] The 10 percent inflation was calculated using the following formula: The computed desired sample size (n)= 365. To calculate the expected sample size (ne) with 10% inflation, Expected sample size (ne) x (% expected to respond) = desired sample size. So ne x 0.90= 365, which implies ne= 365/0.90= 406. Assuming a standard design effect of 2, the expected sample size will increase to 406 x 2 = 812 respondents

implies that ideally, a total of 812 business women across all districts were expected to be targeted and interviewed during the assessment (as shown in Table 1). However, 798 business women (98.2% response rates) were interviewed during the assessment. Notably the project targets beneficiaries by categories including 1) VSLA (group run category 59%)), 2) cooperatives/association/ family (group run category (39.3%)) and 3) individual business category (1.7%). Although the total project targets was proportionately stated by category, random interviews with 798 business women entrepreneurs across the 7 districts revealed that only 9.5% (76) are associated with VSLAs and 3.8% (31) are associated with cooperatives/ family group run businesses). Apparently, the assessment revealed that over 86% of women entrepreneurs are not associated with group run businesses.

Figure 1: Distribution of business women interviewed by group membership

Table 1 presents the number of project targets, and the expected and actual sample sizes targeted for field interviews.

Table 1: Selected sample for the baseline assessment

Beneficiary category	# of project target	Weight of category	Expected total sample size	Actual sample size interviewed
# of group run women entrepreneurs (VSLA members)	4,200	0.5899	479	76
# of group run women entrepreneurs (cooperatives/Associations/family)	2.800	0.3933	319	31
# of women entrepreneurs who are not in group run businesses	120	0.0169	14	691
Total	**7,120**	**1.0000**	**812**	**798**

As cited in previous discussions, all 16 communities and 7 districts targeted by the project for the first phase of implementation were selected for the assessment. This means sampling was only done at household/ individual levels. Purposive and simple random sampling technique were therefore used in the baseline. That is, respondents were selected based on project interest which aims to draw beneficiaries from group run businesses (such as cooperatives, associations and/family businesses) and individual businesses mainly on cassava, rice, palm oil, sweet potato, cashew and fishing value chains, coffee, cocoa as well as other income generating activities including water filtration, charging stations, cold storage/ fridges in bar/ restaurant, etc. Respondents were randomly selected and interviewed in each of the 16 target communities across the 7 project intervention districts. In each district, it was expected that the total number of at most 51 respondents would be interviewed in each of the 16 communities selected by the project. It is also worth noting that some indicators require male entrepreneurs. The study therefore added at least 50 percent of the total number of female entrepreneurs for male respondent interviews. Hence, 1,232 (816 female and 416 male) respondents were expected to be interviewed. However the actual sample size (1,240) exceeded the expected total sample size. It is noteworthy that due

to differences in population density of the targeted categories of entrepreneurs, the actual size of respondents interviewed varied by communities and districts. Table 2 below presents the expected and actual number of respondents interviewed by sex category for each of the selected districts.

Table 2: Expected sample size and actual sample of respondents interviewed by district and sex category

District	Selected communities	Number of communities	Expected total sample size	Actual sample of respondents interviewed	# of female respondents interviewed	# of male respondents interviewed
Koinadugu	Sinkunia, Musaia	2	154	148	93	55
Bombali	Batkanu, Rokonta	2	154	172	111	61
Kambia	Kychom, Rokupr, Mambolo	3	231	242	135	87
Bo	Bumpeh	1	77	59	38	21
Bonthe	Tihun, Madina, Gbap	3	231	236	148	88
Moyamba	Gbangbatoke, Bradford	2	154	145	100	45
Pujehun	Mano Gbojeima, Bandajuma Sowa, Futa Peje	3	231	238	153	85
Total	**16**	**16**	**1,232**	**1,240**	**798**	**442**

2.3 Sources of data/ information

Data/information was gathered at two levels- The secondary and primary sources of information. Secondary information were sourced from project documents, research reports and trusted websites. Further, primary data were collected from target beneficiaries and Renewable Energy providers/ operators. For primary data collection, separate research tools comprising structured and semi-structured questions were designed to collect data/ information from the respective target respondents.

2.3.1 Quantitative methods

i. ***Personal interviews questionnaire***: include structured questions used to solicit quantitative information from the target beneficiaries including group run women entrepreneurs, and male entrepreneurs.

2.3.2 Qualitative methods

i. ***Focus group discussions (FGDs):*** these guides were administered to actors targeted in the personal interviews. It also included a mix of male and female entrepreneurs including those connected to mini-grid power supply, group run businesses and individual businesses. The FGD was essential for triangulation of information with the personal interviews and well as to respond to specific questions in the terms of reference. FGDs were done in all communities targeted by the project. That is, a total of 16 FGD sessions were done during field interviews.

ii. ***Key Informant Interviews (KIIs)***; Ideally, this type of assessment required to conduct in-depth interviews with a range of stakeholders/actors including representatives of CARE and their partners, Renewable Energy Association of Sierra Leone, Renewable Energy manufacturers/ operators, mobile money operators, MFIs/Financial Services Providers, renewable energy training institutions/ departments. However, it is noteworthy that the assessment was simultaneously conducted with a mapping exercise, that is expected to target these stakeholders. This limited the key informant interviews (conducted by the baseline assessment) to only Renewable Energy Providers/ operators in the targeted communities. A total of 12 renewable energy providers/ operators were interviewed across the seven intervention districts.

2.4 Risk management procedures

- **Risk management**.

Potential Risk	Level of Risk	Mitigation
Exposure of data collectors and	Low	COVID-19 prevalence has been in its lowest as at the time of field data

respondents/ participants to the risk of contracting COVID-19 and other communicable diseases during community data collection		collection. However, it was ensured that the selected locations for the FGDs had adequate space for social distancing and ventilation.
Potential of compromising the safety and wellbeing of FGD participants through exposure of risk to GBV	Low	All researchers received training sessions on safeguarding guidelines including awareness on key sexual exploitation and abuse (SEA) procedures to support and protecting participants from possible abuses. Researchers were instructed to ensure that they were never alone with any one adolescent participant. Target communities werel informed about the purpose of the research to minimize any risk of a backlash from the community towards any of the research participants. All activities in relation to the assessment were conducted during the daytime in a safe location which the participants can access without security risk.
Instances where the respondents' participation and termination may not include prior informed consent,	Low	All participants were explained the purpose of the research and their role. They wieree assured about their right to withdraw at any time and that they do not need to answer any question they do not wish to answer. They were also requested to give their consents, and researchers ensured that every single research participant has fully understood the content of the research and the use of photos recordings before giving their consent.
Breach/compromise of privacy and confidentiality of respondents	Low	Protocols were put in place to ensure responsible data management. Efficient monitoring of data access and data breach notification procedures, will be put in place to protect the security of personal data against or from unauthorized access, damage loss or other risks presented by data processing. In general, the repository will be encouraged to ensure that personal data are de-identified to minimize any potential risks to privacy.

2.5 Ethical consideration

To counter any risk of data collection exposing participants to COVID infection, data collection will be undertaken in accordance with the rules of social distancing. However due to low prevaence, flexibility was made regarding use of masks and hand sanitizers- eventhough these were available for the data collectors.

To ensure that participation is voluntary, informed consent was obtained from all participants during interviews. The purpose of the exercise, the intended use of the findings and the process were explained to participants who were also encouraged to ask questions for clarity and understanding.

The questions for the discussion were asked in the local language as the data collectors were recruited based on familarity with the locations and/or local dialects. Participants were treated with respect and dignity and were not be pressured to engage in any activity in which they do not wish to participate.

2.6 Data management

Mobile data collection method as especially used to collect quantitative information/ data from respondents. The SurveyCTO mobile data collection app was especially used for quick turnaround from personal interviews. This app has features such as query languages, flagging, calculations, GPS, Voice recording and image/photo taking to ascertain trustworthiness of the data. For instance, the query languages are used to allow for skip questions, multiple choice selections and single choice selection; and therefore, field data collectors are prompted by the system to answer mandatory questions/ conditions before moving to the next question. The GPS of location of interviews or during submissions will be visualised by the system after submissions are made. Also, important to note is that once every field data collector's mobile phone detail/name has been included in the system, the lead consultant used this tol monitor and review individual submissions; and once flaws are detected in the submissions the specific questions will be flagged and automatically sent back to the data collector to repeat interviews. Other stakeholder/ key informants were also assured during interviews about non-disclosure of names or photos for any sensitive quotes that would implicate their personality/positions.

2.7 Methods for analysis of data/ information

This exercise was designed to use mixed methods to solicit information/data. Hence quantitative analyses were done for personal interview data, whilst content analysis was done for qualitative information such as FGDs, Key Informant Interviews and Case Study documentation (where possible). The results from content analysis was especially used to triangulate (or produce the why and how components of) some specific sections from the quantitative findings and to ascertain the quality and effectiveness of the approaches/procedures used.

Descriptive research technique was adopted for the personal interviews, and therefore means analyses, cross-tabulations, generation of figures was done for presentation and discussion of findings. Respondents targeted for personal interviews were largely considered as units of analyses for findings across the intervention area. CSV and excel spreadsheets were used for data analyses.

2.8 Critical timeline

The exercise was carried out over a period of 29 days between February and May 2022. Table 3 presents the critical timelines used for reporting the deliverables:

Table 3: Critical timeline for implementation of the exercise

Deliverable Details	Dates	Responsible person
Submission of final inception report and baseline tools	15th February 2022	Consultants
Submission of draft report	29th April 2022	Consultants
Submission of final report	11th May 2022	Consultants

2.9 Composition of the research team

Thirteen (13) team members will be involved in the exercise. The composition of the research team to effectively carry out the interviews includes the following:

- **The Lead Researcher** is the key signatory to the services contract and bears the overall responsibility of the research exercise. He ensures that quality data and report is available at the end of the exercise. At field level, the lead researcher will be mainly responsible for key informant interviews and also ensures that data collectors produce quality data. He will lead the data analyses, field data collection report writing and all other subsequent submissions to the commissioning organization.
- **Data Analyst:** Will assist the lead consultant in coordination, analysis and report writing
- **Research Assistant:** Will assistant the lead consultant in recruitment of enumerators, and coordinating field activities to ensure data quality and ethical considerations are adhered to.
- **The Supervisors/team leads:** Responsible for supervision of the field data collectors/enumerators. They facilitate all FGDs and KIIs and ensure that the targeted group of actors are engaged. 5 supervisors/team leads were recruited to work across the targeted communities.
- **Field Data Collectors/Enumerators**: conduct individual interviews using mobile data collection tools. 7 data collectors were recruited and deployed across the five identified zones.

3 FINDINGS AND DISCUSSIONS

The findings and discussion section of this report follows internal consistency with the goals and objectives as outlined in the project proposal and the project log frame. However, the discussions ensure that the key research questions of the baseline assessment are answered including capturing indicators related to a) situation of solar-enhanced businesses, b) current electricity consumption behaviour, c) community perceptions, attitudes and understanding of existing solar opportunities, and d) understanding gender equality and practices across the business sector.

3.1 Basic demographic characteristics of entrepreneurs in the project intervention districts

Key demographic characterisitcs that influence the business sector were analysed and discussed. As discussed in the methodology section, a total of 1,240 (798 women, 442 men) entrepreneurs were targeted and interviewed across 16 communities in the 7 intervention districts. The study revealed that approximately 41 percent of women entrepreneurs in the intervention districts are young entrepreneurs aged 18-35 years (Figure 2). Further 46 percent of women entrepreneurs are between ages 36 and 49 years, whilst approximately 13 percent are older. This finding is especiaslly critical for targeting and scaling during the project intervention and indicates that the project is very likely to achieve its target of 7,000 (98% of toal target) entrepreneurs who are expected to be between 15 and 49 years.

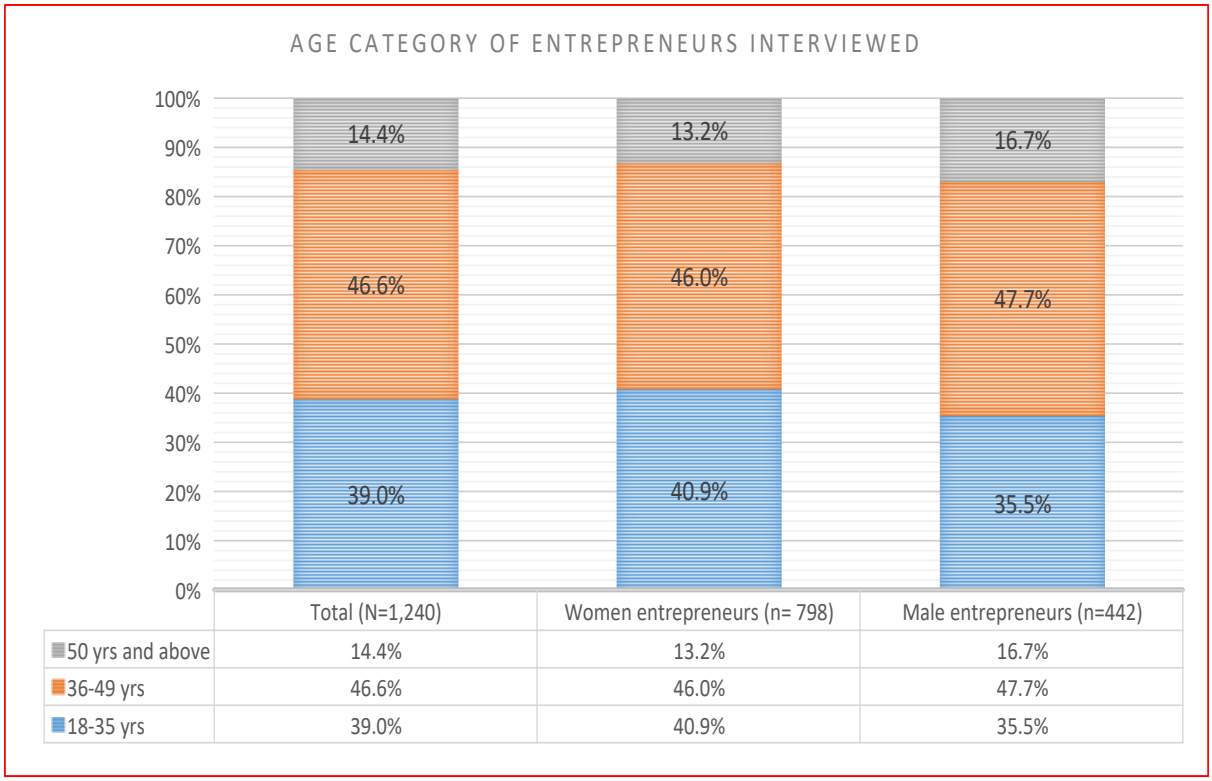

Figure 2: Age category of entrepreneurs interviewed across the 7 intevention communities

It is noteworthy the SHE project intends to harness the `power of collectives‘ to identify group run enterprises ready for growth. One of the platforms for this activity is the Village Savings and Loan Association (VSLA). The assessment suggests that fewer businesses are connected to groups such as VSLAs and other groups/cooperatives. Figure 3 depicts the group characteristics of businesses/enterprises randomly assessed in the 7 intervention districts. Only 13.4 percent of all businesses are group, and 71 percent of this proportion are enterprises linked to VSLAs. Notably over 59 percent of the group formation were reportedly supported by CARE International while 40.8 percent were formed by other actors including World Vision, NACSA, GIZ, farmers associations, mothers‘ clubs and other community initiatives.

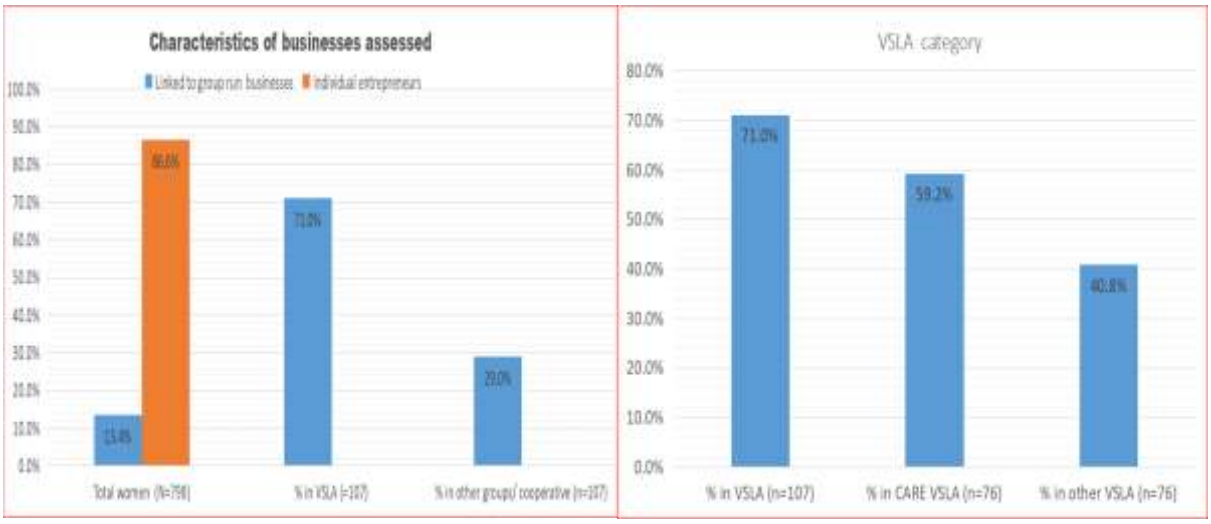

Figure 3: Group charcteristics of businesses assessed across the 7 intevention communities

The literacy status of entrepreneurs is generally very low acrosss the intervention districts. Over 56 percent of entrepreneurs in the study districts cannot read and write in English. Comparatively, women entrepreneurs in the study districts are about 19 percent more likely to be illiterate than their male counterparts. In spite of this situation, at at least 80 percent of women entrepreneurs claimed to have lacked training support for both business management and leadership skills. (See Figure 4)

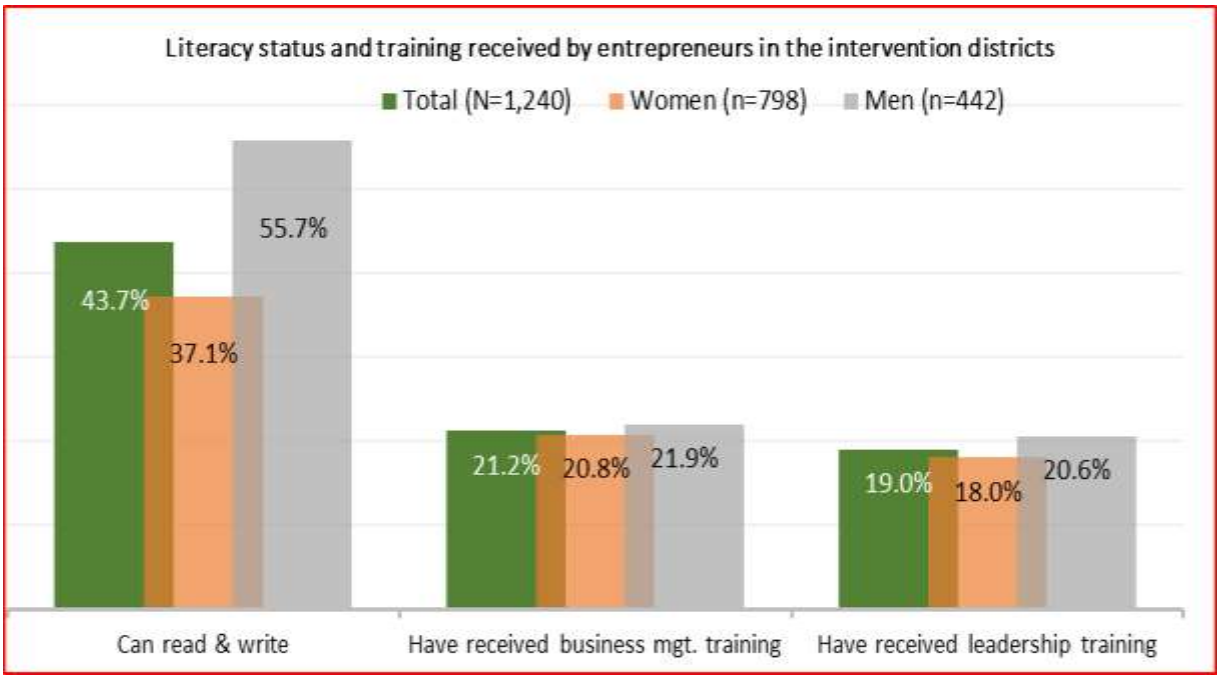

Figure 4: Literacy status and training received by entrepreneurs in the intervention districts

Further noted from the assessment was that over 90 percent of all businesses/ enterprises in the intervention districts are not formalised. Comparatively, the proportion of male enterpreneurs who have legally registered enterprises (17.2%) is almost 3 times the proportion of women-owned enterprises (5.9%). Inventory management was also noted to be generally poor among women-owned enterprises. Over 70 percent of women-owned businesses do not keep record of goods purchased and sold (see Figure 5).

Figure 5: Registration status and record keeping habits of businesses in the intervention districts

3.2 **Project Goal:** Equitable access to and control over decentralised energy and opportunities to run financially sustainable and renewable energy-enabled businesses

The assessment made effort to capture baseline value for the impact indicator; and this will be used to measure progress in the overall goal of the SHE project which aims at `*equitable access to and control over decentralised energy and opportunities to run financially sustinable and renewable-enabled businesses*' in the intervention districts. Accordingly, the project will create a blueprint for creating profitable and sustainable renewable energy-enabled businesses for women. The expected impact of the project is therefore for women to benefit from improved conditions to develop and run businesses. The assessment considered a combination of factors to capture the baseline value for the impact indicators. The factors used to measure improved consitions as cited in the project document include access to formal credit opportunities, business intelligence (customer acquisition, market information), distributed renewable energy (DRE) and business networks. To this end, the proportion of women who currently benefit from these improved conditions to run their businesses is very low. As shown in Figure 6, slightly over 26 percent of women entrepreneurs are benefiting from improved conditions to run their businesses. However, the low exposure to these improved conditions was noted as a general situation for both women and men across the 7 intervention districts.

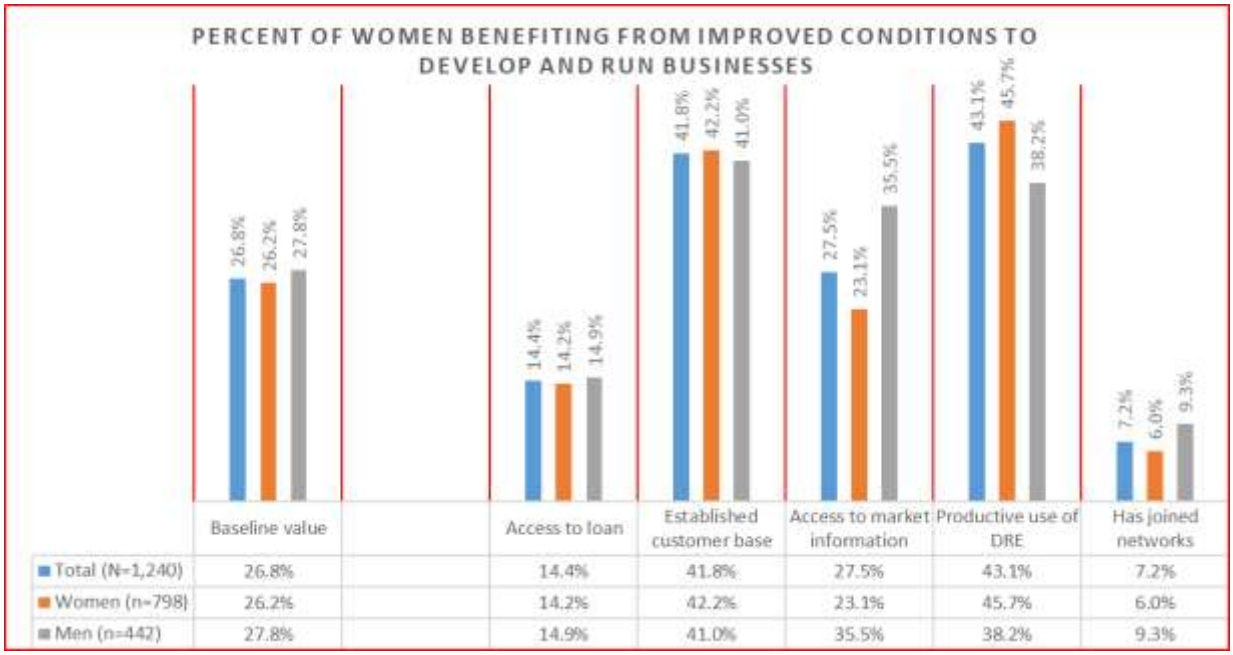

Figure 6: Percent of women benefiting from improved conditions to develop and run businesses

The findings further revealed women are especially highly deprived from exposure to improved conditions such as access to networks (94%), access to formal credit facilities (85.8%) and access to market information (76.9%). Customer acquisition (42.2%) and productive use of distributed renewable energy (45.7%) were also observed to be relatively low for women-owned entrepreneurs in the SHE project intervention districts.

3.3 **Specific Objective 1:** Capacity of women entrepreneurs to engage in energy-enabled businesses to ensure economic inclusion and empowerment

The first objective of the SHE project is to offer training and skills for women entrepreneurs, and provide them with the support they need to expand their businesses through the use of renewable energy and access to specially adapted appliances and funding. Notably, four key perfromance indicators were identified as measures to capture progress in achieving objective 1. The assessment captured baseline values for these indicators in an effort to partly analyse the current situation of solar-enhanced businesses in the project intervention districts.

3.3.1 Indicator 1.1: percent of women entrepreneurs who have skills and capability in non-agro processing energy enabled economic activities in target communities

The proportion of entrepreneurs who claimed to have acquired the skills and capability to effectively use electrical appliances/ equipment was relatively high (59.6%). This proportion is especially higher for women entrepreneurs (60.2%) than men (58.6%) (see Figure 7).

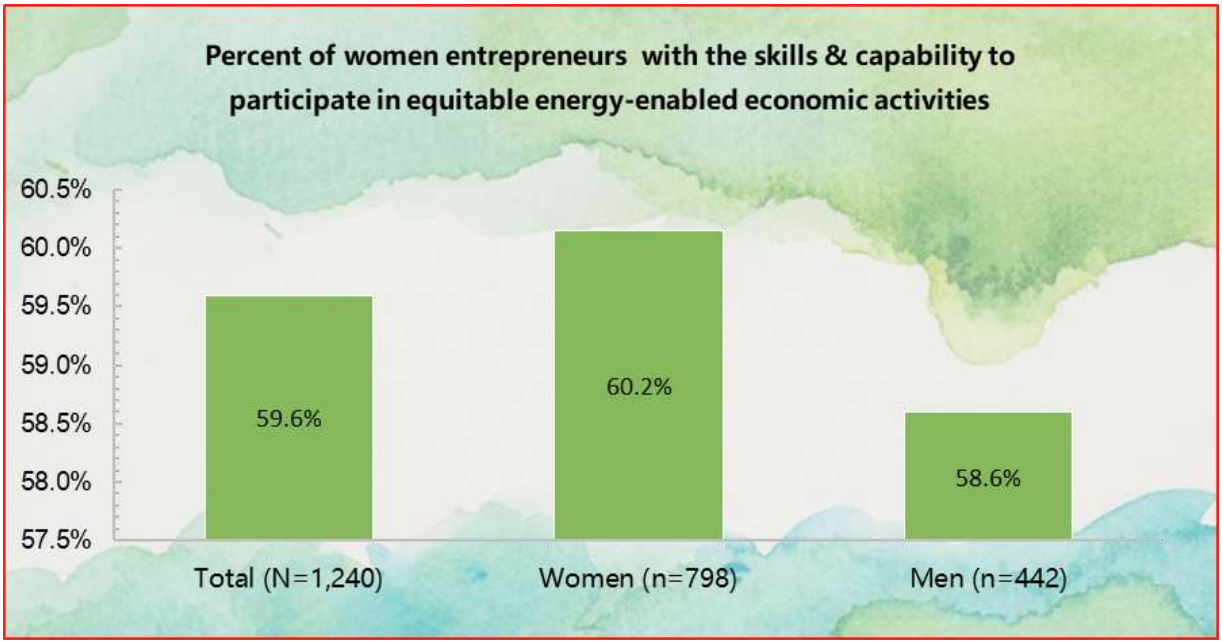

Figure 7: Percent of women netrepreneurs with the skills & capability to participate in non-agro processing energy-enabled economic activities in the target communities

Meanwhile, this result was partly due to the fact that the use of electrical appliances/ equipment among women entrepreneurs was largely limited non- agro processing light appliances used in households and shops including bulbs (50%), referigerators/ freezers (35.9%), phone charger (33%), television (24.9%), CD/DVD player (12.5%), fans (12%) and sewing machines (0.3%). Only 11 (1.6%) 789 women entrepreneurs interviewed proved to have access to heavy energy-enabled commercial motor equipment such as rice mill.

District comparison (as shown in Table 4) showed that support and skills in utilisation of energy-enabled business appliances remain critical for women entrepreneurs in project locations in Bombali and Bonthe districts.

Table 4: Indicator 1.1: Percent of women netrepreneurs with the skills & capability to participate in equitable energy-enabled economic activities by district

Indicator	Disaggregation	Baseline value	Bo	Bombali	Bonthe	Kambia	Koinadugu	Moyamba	Pujehun
Indicator 1.1:: percent of women entrepreneurs who have skills and capability to participate equitably in energy enabled economic activities	Total (N=1,240)	59.6%	96.6%	34.7%	10.6%	80.6%	68.2%	86.2%	64.7%
	Women (n=798)	60.2%	94.7%	50.5%	8.8%	91.1%	68.8%	81.0%	69.9%
	Men (n=442)	58.6%	100.0%	42.6%	13.6%	82.8%	67.3%	97.8%	55.3%

3.3.2 Indicator 1.2: percent of women entrepreneurs who expressed confidence in energy enabled businesses

In spite of the relatively high proportion of women entrepreneurs claiming to have the skills and capabiltiy to participate in energy enabled economic activities, the study suggests that confidence building to enage in energy enabled business is very low among them. Over 79 percent of women entrepreneurs in the project communities expressed lack of confidence to use energy-related electricity appliances to run their business (see Figure 8).

Figure 8: Percent of women netrepreneurs who expressed confidence in energy-enabled businesses

Comparatively, confidences remains similarly low across gender, but as shown in Table 5, significant difference in confidence building between districts. The total result is especially lower in Bombali (2.5%), Bonthe (5.1%) and Koinadugu (15.5%). Accross these districts, women are at least 2 times less confident to use energy enabled appliances to run their busy than men.

Table 5: Indicator 1.2: Percent of women netrepreneurs who expressed confidence in energy-enabled businesses by district

Indicator	Disaggregation	Baseline results	Bo	Bombali	Bonthe	Kambia	Koinadugu	Moyamba	Pujehun
Indicator 1.2: :percent of women entrepreneurs who expressed confidence in energy enabled businesses	Total (N=1,240)	21.9%	25.4%	2.5%	5.1%	25.6%	15.5%	27.6%	47.9%
	Women (n=798)	20.4%	18.4%	2.7%	4.1%	27.4%	7.5%	27.0%	49.7%
	Men (n=442)	24.7%	38.1%	4.9%	6.8%	28.7%	29.1%	28.9%	44.7%

3.3.3 Indicator 1.3: percent of women and men utilizing Distributed Renewable Energy (DRE) who are active users of formal financial services (access to loan)

Figure 9 and Table 6 present the percent of women and men entrepreneurs who use decentralised renewable power supply and at the same time have access to formal financial services across the seven intervention districts. The assessment revealed that access to formal credit is of critical concern among both male and female entrepreneurs using DRE in the intervention districts. It is noteworthy that limited access to finance undermines the huge potentials presented by financial services for both financial empowerment and human development. This finding therefore justifies the project‘s drive for the need to improve access to finance for women-owned enterprises. Generally, 85 percent of DRE users do not have access to formal financial services (see Figure 9). This figure is even higher (85.6%) when all entrepreneurs (1,240) are captured in the analysis (see Figure 6).

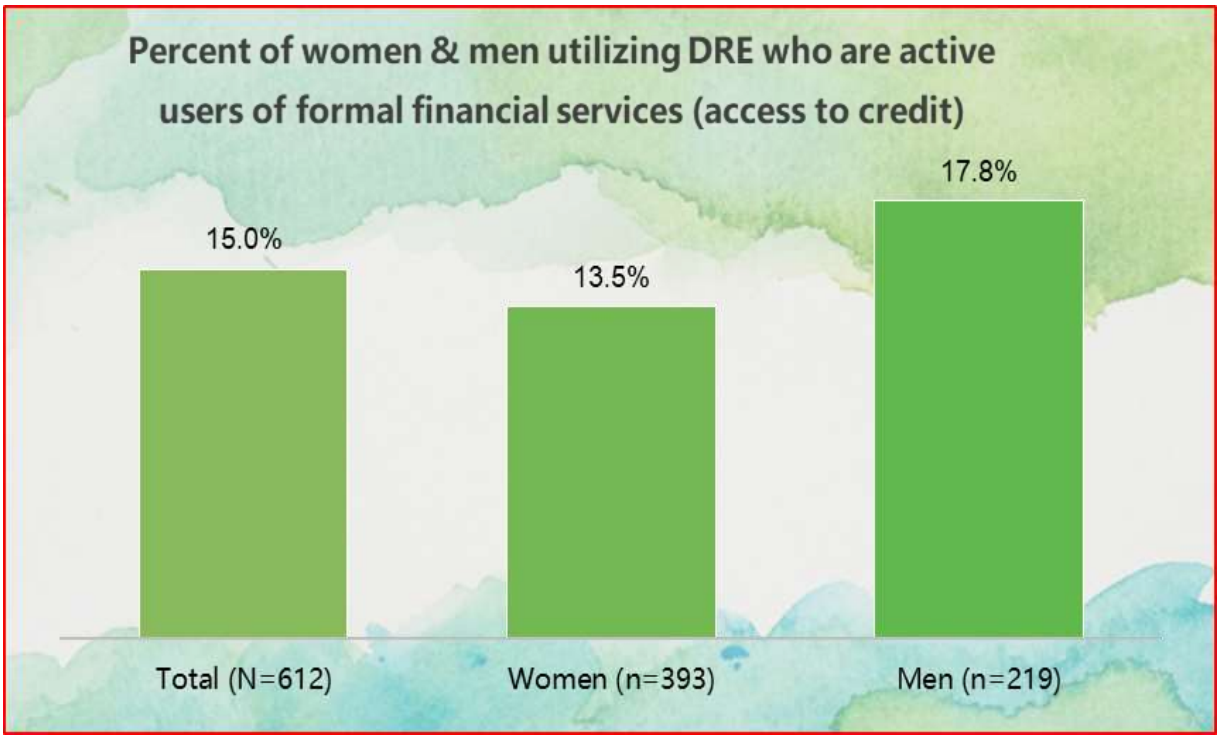

Figure 9: Percent of women and men utilizing DRE who are active users of formal financial services

However, in spite of the generally limited access to financial services among all enterprises access to formal credit by men-owned entrepreneurs (17.8%) is about 4 percentage points higher than women-owned enterprises. District comparison shows that access to formal credit is highest in Bonthe (79.6%) district and lowest in Pujehun district (see Table 6)

Table 6: Indicator 1.3: Percent of women and men utilizing DRE who are active users of formal financial services by district

Indicator	Disaggregation	Baseline value	Bo	Bombali	Bonthe	Kambia	Koinadugu	Moyamba	Pujehun
Indicator 1.3: percent of women and men utilizing Distributed Renewable Energy (DRE) who are active users of formal financial services (access to loan) (**CARE Global Indicator for Inclusive Market-Based Approaches**)	Total (N=612)	15.0%	14.0%	18.8%	79.6%	27.6%	34.8%	12.3%	2.2%
	Women (n=393)	13.5%	19.2%	23.1%	96.9%	27.4%	22.7%	9.1%	0.0%
	Men (n=219)	17.8%	14.3%	15.8%	54.5%	27.9%	32.4%	19.0%	4.2%

The foregoing findings on limited access to formal fiancial services clearly support a part of the project’s justification for implementation that `*...access to finance is a key constraint to growth...and women run enterprises face additional constraints such as lack of collateral and*

less control over assets compared to male run enterprises'. Meanwhile, various factors preventing women entrepreneurs from accessing formal credits were noted from the assessment including a) high interest rate (42%), b) unfriendly repayment policy (42%), c) distance to service providers (40%) and d) lack of collateral (35%).

3.3.4 Indicator 1.4: percent of women entrepreneurs reporting increased access to and use of market intelligence including digital financial services

Access to, and use of market intelligence (such as market information) and digital financial services (DFS) is also relatively low in the project intervention areas. According to the findings, an approximated 33 percent of women entrepreneurs have access to and use of market intelligence and digital banking; and this figure is more than 15 percentage points lower than the proportion of male entrepreneurs (48.6%). (See Figure 10)

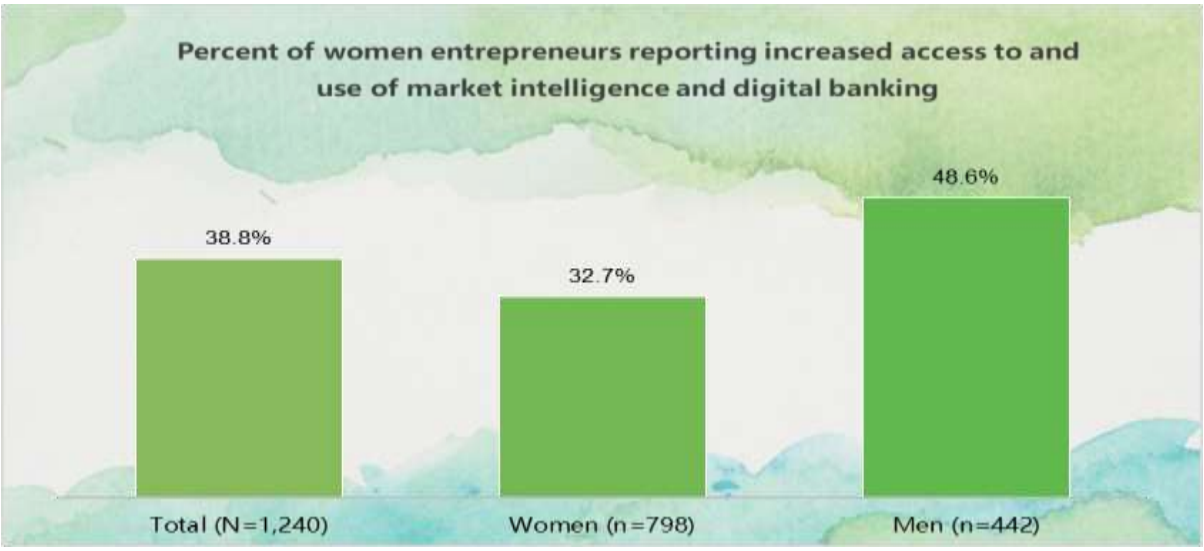

Figure 10: Percent of women entrepreneurs reporting increased access to and use of market intelligence including digital financial services in target communities

At district level, access to and use of market intelligence among women entrepreneurs (as presented in Table 6) is lowest in Bombali district (5.4%) and moderately high in Bonthe (51.4%) and Moyamba (50%). The overall low access to market intelligence and use of market districts is a critical concern for women entrepreneurs. It is noteworthy that the lack of access to market information undermines effort and skills in customer acquisition and retention strategies among women entrepreneurs in the intervention areas-which further impacts on profit margin and returns on investment (RRI). On the other hand, lack of access to digital bank such as (ownership of mobile money account) also presents critical challenge to business transactions. Importantly, most renewable energy supply systems are prepaid systems that require mobile money accounts for connections. Hence, lack of access to mobile money account among women entrepreneurs is a can be a huge challenge to access uninterrupted renewable power supply in the project intervention areas.

Table 7: Indicator 1.4: Percent of women and men utilizing DRE who are active users of formal financial services by district

Indicator	Disaggregation	Baseline value	Bo	Bombali	Bonthe	Kambia	Koinadugu	Moyamba	Pujehun
Indicator 1.4: % of women entrepreneurs reporting increased access to and use of a) market intelligence and b) digital banking	Total (N=1,240)	38.8%	40.7%	9.5%	56.1%	31.0%	36.8%	51.0%	41.4%
	Women (n=798)	32.7%	32.9%	5.4%	51.4%	25.6%	31.7%	50.0%	37.6%
	Men (n=442)	48.6%	54.8%	27.0%	64.2%	46.6%	45.5%	53.3%	48.2%
Indicator 1.4.1: percent of women entrepreneurs reporting access to and use of market intelligence	Total (N=1,240)	27.5%	11.9%	4.7%	40.7%	36.4%	20.3%	13.8%	37.4%
	Women (n=798)	23.1%	10.5%	2.7%	37.2%	36.3%	16.1%	13.0%	35.9%
	Men (n=442)	33.3%	14.3%	13.1%	46.6%	44.8%	27.3%	15.6%	40.0%
Indicator 1.4.2: percent of women entrepreneurs reporting access to and use of digital banking	Total (N=1,240)	50.1%	69.5%	14.4%	71.6%	25.6%	53.4%	88.3%	45.4%
	Women (n=798)	42.4%	55.3%	8.1%	65.5%	14.8%	47.3%	87.0%	39.2%
	Men (n=442)	64.0%	95.2%	41.0%	81.8%	48.3%	63.6%	91.1%	56.5%

Notably, market information are mostly received from friends/ relatives (95.6%) and peers (96.2%). Meanwhile a moderately high proportion of entrepreneurs receive market information from radio media. The most common market information reportedly received by entrepreneurs are commodity prices (97.1%), customer demands (86.2%) and available ready markets for goods (64.5%). (See Figure 11)

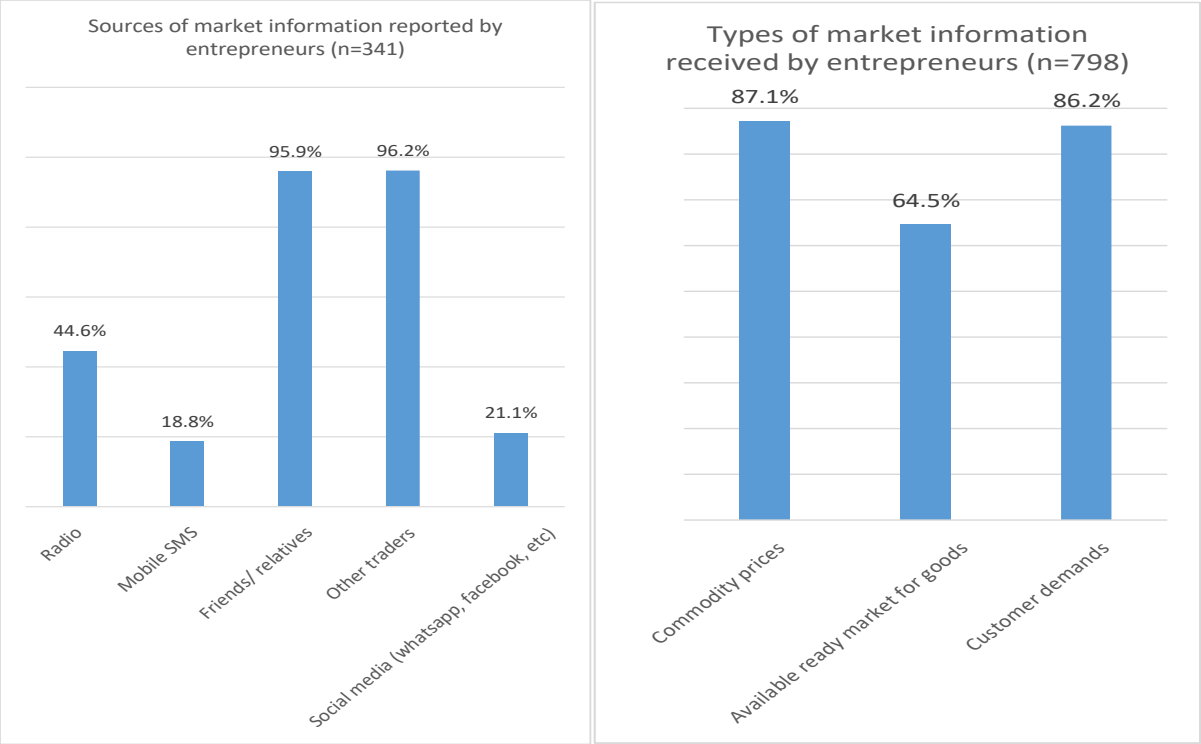

Figure 11: Sources and types of market market information received by entrepreneurs in the project areas

3.4 **Specific Objective 2:** Facilitating development and expansion of newly energy enabled women's enterprises in mini-grid sites

Stated in the SHE project design is that linkage to mini-grids can introduce an exciting potential of transforming micro-businesses from manual to energy-enabled businesses which is expected to production and return on investment. The assessment observed that a renewable energy landscape has already been established in the project locations- with the exception of Rokupr, Kambia district, which is yet to be connected to mini-grid. Notably this is very important in achieving the second objective of the project, which intends to also provide a selected number of women entrepreneurs with the additional support they require to make use of renewable energy within their business.

3.4.1 Indicator 2.1: percentage of women-owned businesses who are connected to the mini-grid (RF indicator)

The assessment noted that almost half of women entrepreneurs (49.2%) are generally connected to mini-grid either for business and/or household consumption purpose. The proportion of women entrepreneurs connected to mini-grid is almost the same with their male counterparts (49.5%)(See Figure 11). Meanwhile, the study noted that some of these connections are not done for productive use.

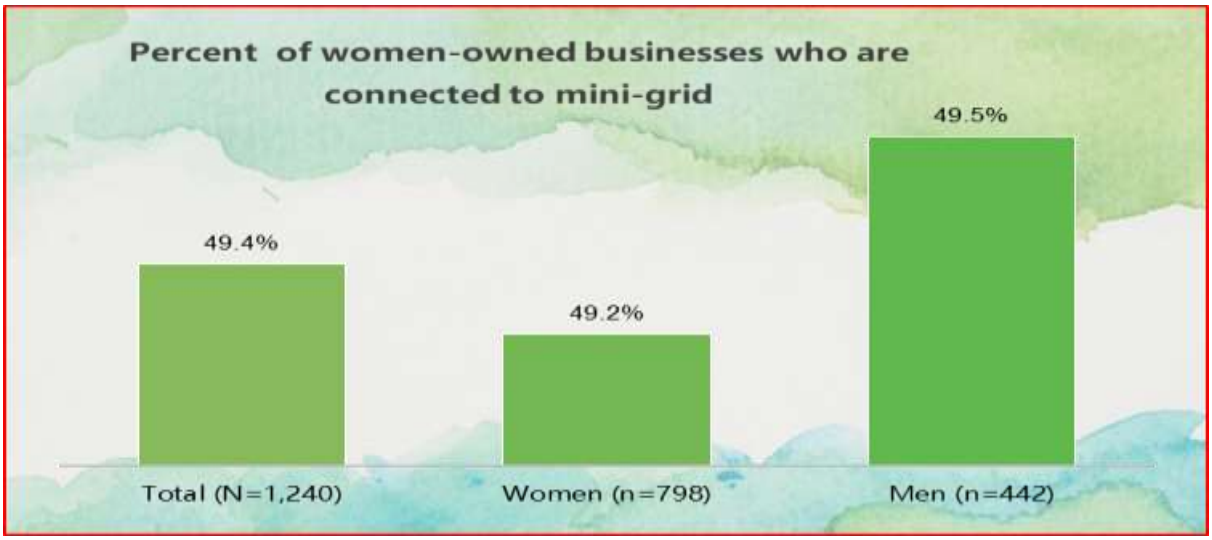

Figure 12: Percent of women-owned businesses who are connected to mini-grid

However, access to mini-grid power supply among women entrepreneurs markedly varies across the seven intervention districts. As presented in Table 6, Bombali (11.7%), Bonthe (21.6%) and Koinadugu (23.7%) presented extremely low connection coverage for women entrepreneurs, whilst renewable energy power supply coverage for women entrepreneurs is higher in Moyamba (88%), Kambia (83.7%), Bo (68.4%) and Pujehun (58.2%).

Table 8: Indicator 2.1: Percent of women-owned businesses who are connected to mini-grid by district

Indicator	Disaggregation	Baseline value	Bo	Bombali	Bonthe	Kambia	Koinadugu	Moyamba	Pujehun
Indicator 2.1:: percentage of women-owned businesses who are connected to the mini-grid **(RF indicator)**	Total (N=1,240)	49.4%	96.6%	13.6%	22.9%	64.5%	31.1%	89.7%	57.6%
	Women (n=798)	49.2%	68.4%	11.7%	21.6%	83.7%	23.7%	88.0%	58.2%
	Men (n=442)	49.5%	100.0%	31.1%	25.0%	49.4%	43.6%	93.3%	56.5%

3.4.2 Indicator 2.2: percentage of women using renewable energy enabled appliances for non-agro-processing productive use in the target communities

The assessment suggests that although the proportion of women who are connected to mini-grid for business purpose is moderately low- over one half (65%) of them are yet to utilise the DRE mini-grid for productive purpose (See Figure 13).

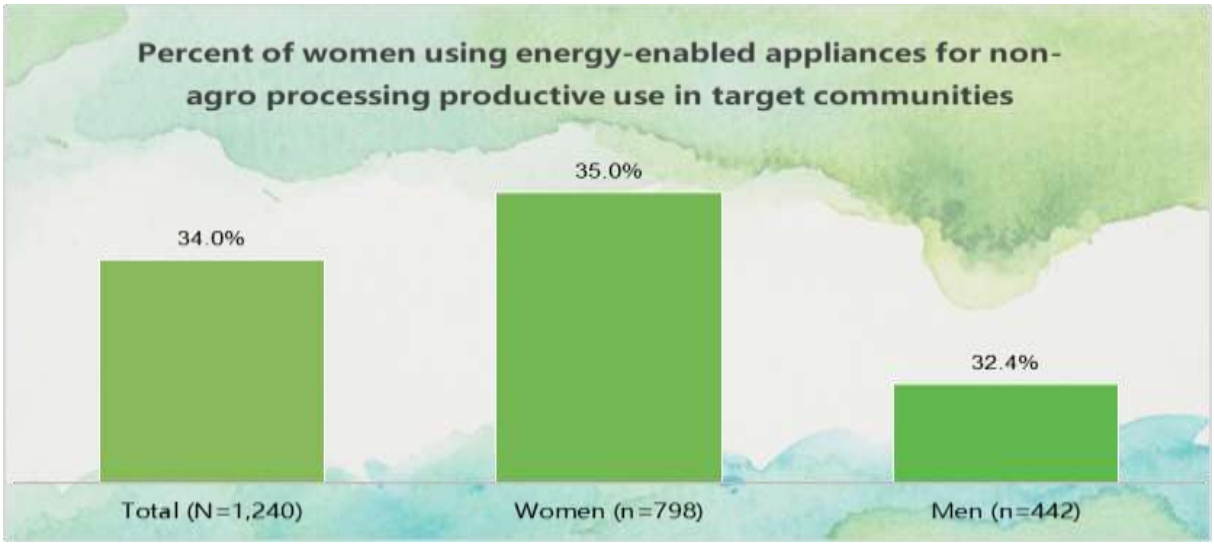

Figure 13: Percent of women using energy-enabled appliances for productive use

Observably, district comparison shows that this figure would have been even lower without Bo (86.8%), Moyamba (84%) and Kambia (74.1%) who presented extremely high mini-grid power connectivity among women. The high number of mini-grid connections in these districts are linked a number of factors. In Bumpe community in Bo district for instance, PowerGen mini-grid electricity providers supported community members with soft asset loans such as providing freezers to enhance solar-harnessed businesses. These loans should be repaid over a period of three years. The loan is repaid in the form of metre charges. Accordingly, the minimum meter charge for freezer connection is Le12,000 per day. This amount was then increased to Le15,000 for all clients to allow for a loan repayment at Le3,000 per day over a period of 3 years. The findings also concludes that using freezers/fridges is particularly dominant among solar-harnessed businesses carried out by women across the project districts. As presented in Figure 14, 35.9 percent of women entrepreneurs have freezers/fridges, which validates the finding on the proportion of women connected to mini-grid for business purpose (35%) (see Figure 14)..

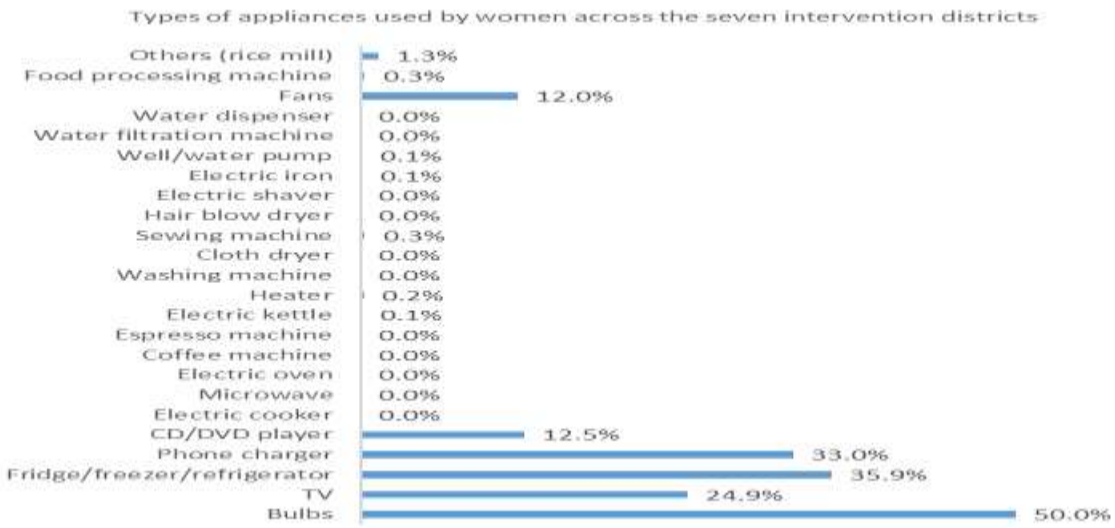

Figure 14: Types of appliances used by women entrepreneurs across the project districts

At district level, energy deprivation is especially high for women in Bonthe (3.4%), Bombali (0.9%) and Pujehun (14.0%) districts (see Table 9).

Table 9: Indicator 2.2: Percent of women using energy-enabled appliances for productive use by district

Indicator	Disaggregation	Baseline value	Bo	Bombali	Bonthe	Kambia	Koinadugu	Moyamba	Pujehun
Indicator 2.2: percentage of women using energy enabled appliances for productive use	Total (N=1,240)	34.0%	89.8%	0.8%	3.8%	57.0%	19.6%	86.2%	27.7%
	Women (n=798)	35.0%	86.8%	0.9%	3.4%	74.1%	14.0%	84.0%	28.1%
	Men (n=442)	32.4%	95.2%	1.6%	4.5%	43.7%	29.1%	91.1%	27.1%

3.4.3 Percentage of women with access and control to renewable energy enabled appliances/ machinery in the target communities for agro-processing and are connected to mini-grids.

Another interesting finding from the assessment was that whilst 1.6 percent of women have access to agro-processing appliances/ machinery (as presented in Figure 13), almost all commercial heavy energy enabled appliances assessed were not connected to mini-grid power supply. For instance none of the 11 rice mill processors assessed was observably

connected to the DRE power supply and all cassava and oil palm processing equipment were manually operated. Notably, most of these equipment are in their original forms, and have not been adapted to mini-grid enabled equipment.

3.4.4 Indicator 2.4: percent of men and women in the target communities who perceived renewable energy services to be affordable, reliable and sustainable energy services.

According to all entrepreneurs connected to DRE mini-grid power supply in the project area, affordability, reliability and sustainability of the power supply remain to be critical concerns in their respective communities. On average, approximately 86 percent of all entrepreneurs who utilise DRE power supply in the project intervention areas perceived the service is unaffordable and unreliable, and to some extent may not be sustainable. This claim was specifically noted among an approximated 85 percent of women entrepreneurs; and more men (88.9%) are even demotivated with the power supply than women entrepreneurs are. (See Figure 15).

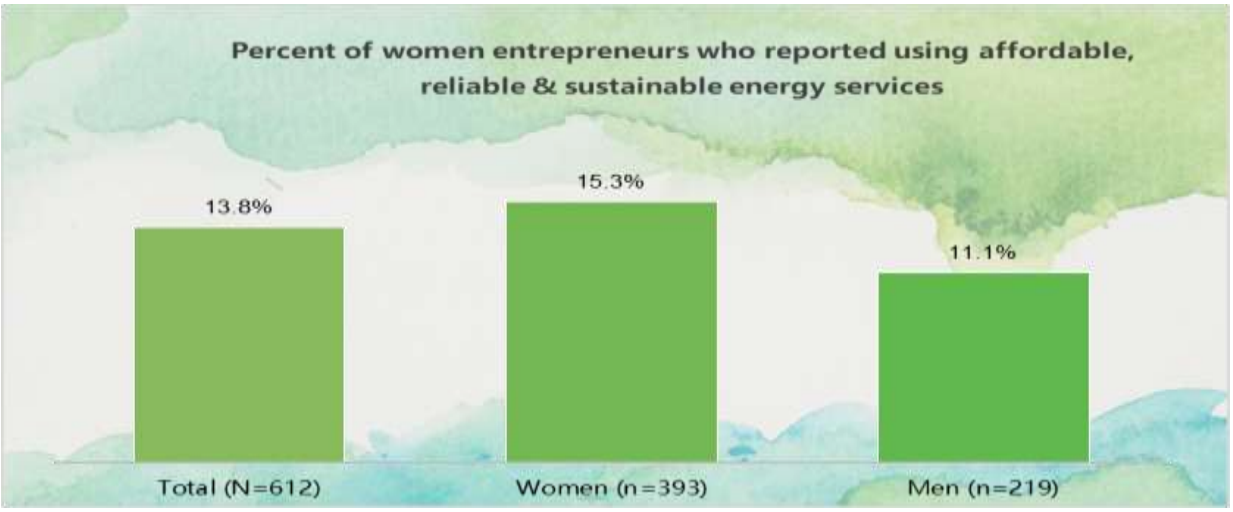

Figure 15: Percent of women who perceived using affordable, reliable and sustainable energy services

District comparison showed that DRE mini-grid power supply is reportedly unaffordable and unreliable across the seven intervention districts, which further questions its sustainability over time. Beneficiary communities in Bonthe (0.6%), Bombali (4.2%), Bo (5.3%) and Moyamba (6.9%) present the worst situations of unaffordable and unrealistic mini-grid power supply. In Bo, almost all entrepreneurs interviewed claimed that the mini-grid power supply is unreliable, and therefore question its sustainable. (See Table 10)

Table 10: Indicator 2.3: Percent of women who reported using affordable, reliable and sustainable energy services by district

Indicator	Disaggregation	Baseline value	Bo	Bombali	Bonthe	Kambia	Koinadugu	Moyamba	Pujehun
Indicator 2.3: percent of women entrepreneurs who reported using affordable, reliable, and sustainable energy services	Total (N=612)	13.8%	5.3%	4.2%	0.6%	13.7%	25.4%	6.9%	14.4%
	Women (n=393)	15.3%	9.0%	5.1%	1.0%	18.0%	39.4%	9.8%	25.8%
	Men (n=219)	11.1%	3.2%	3.5%	0.0%	2.3%	20.6%	0.8%	27.8%
Indicator 2.3.1: percent of women entrepreneurs who reported using **affordable** energy services	Total (N=612)	9.0%	1.8%	6.3%	1.9%	9.6%	30.4%	7.7%	8.8%
	Women (n=393)	9.7%	3.8%	0.0%	3.1%	12.4%	27.3%	10.2%	7.9%
	Men (n=219)	7.8%	0.0%	10.5%	0.0%	2.3%	23.5%	2.4%	10.4%
Indicator 2.3.2: percent of women entrepreneurs who reported using **reliable** energy services	Total (N=612)	20.4%	8.8%	6.3%	0.0%	14.1%	30.4%	9.2%	11.7%
	Women (n=393)	22.6%	15.4%	15.4%	0.0%	18.6%	81.8%	13.6%	49.4%
	Men (n=219)	16.4%	4.8%	0.0%	0.0%	2.3%	23.5%	0.0%	45.8%
Indicator 2.3.3: percent of women entrepreneurs who reported using **sustainable** energy services	Total (N=612)	11.9%	5.3%	0.0%	0.0%	17.3%	15.2%	3.8%	22.6%
	Women (n=393)	13.5%	7.7%	0.0%	0.0%	23.0%	9.1%	5.7%	20.2%
	Men (n=219)	9.1%	4.8%	0.0%	0.0%	2.3%	14.7%	0.0%	27.1%

3.4.5 Indicator 2.5: percentage of women-owned businesses who reported to have received funding or business development support to engage in new off-grid economic opportunities

The findings revealed that the support base for funding and/ or business development is low in the project areas. Over 99 percent of women entrepreneurs in the project areas claimed they have never received any funding and/ or business development support. Although the proportion of men who claimed limit access to funding and/or business development support is slightly lower than women entrepreneurs, the overall finding (as shown in Figure 16) proved that such opportunity is hardly available in the beneficiary communities.

Figure 16: Percent of women-owned businesses who report to have received funding or business development support

At district level, none of the women entrepreneurs interviewed has access to funding and/ or business development support in Bo, Bombali, Kambia, Koinadugu and Moyamba districts. (See Table 11)

Table 11: Indicator 2.4: Percent of women-owned businesses who report to have received funding or business development support by district

Indicator	Disaggregation	Baseline value	Bo	Bombali	Bonthe	Kambia	Koinadugu	Moyamba	Pujehun
Indicator 2.4: percentage of women-owned businesses who report to have received funding or business development support to engage in new off-grid economic opportunities	Total (N=1,240)	0.6%	1.7%	0.0%	0.4%	0.0%	0.0%	0.0%	2.5%
	Women (n=798)	0.6%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	2.6%
	Men (n=442)	0.7%	4.8%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%

3.4.6 Indicator 2.6: percentage of women entrepreneurs that are engaged in peer mentorship opportunities

Further noted from the findings was that networking and access to peer mentorship are hardly practiced among women entrepreneurs across the intervention communities. As depicted in Figure 15, on 15 percent of women in beneficiary communities across the seven intervention districts are engaged in peer-to-peer networking and mentorship support.

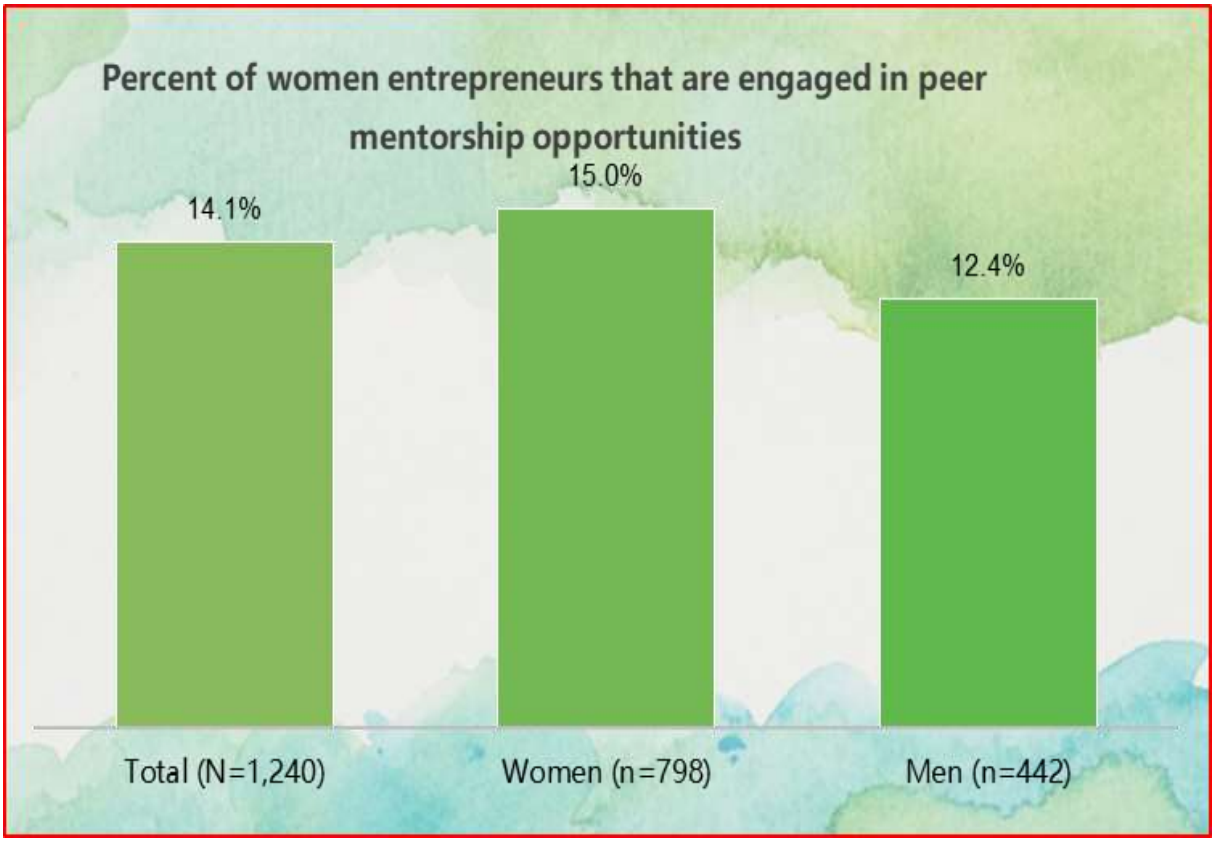

Figure 17: Percent of women entrepreneurs that are engaged in peer mentorship opportunities

Comparison across gender revealed that the proportion of women entrepreneurs who engage in peer-to-peer networking and mentorship activities is approximately 3 percent higher than the proportion of male entrepreneurs. However, there are marked disparity across the project districts. As presented in Table 12, peer-to-peer networking and mentorship among women entrepreneurs is particularly lower in Kambia (4.4%), Bonthe (6.8%) and Bombali (8.1%) and highest in Moyamba district (42%).

Table 12: Indicator 2.5: Percent of women entrepreneurs that are engaged in peer mentorship opportunities by district

Indicator	Disaggregation	Baseline value	Bo	Bombali	Bonthe	Kambia	Koinadugu	Moyamba	Pujehun
Indicator 2.5: percentage of women entrepreneurs that are engaged in peer mentorship opportunities	Total (N=1,240)	14.1%	25.4%	3.8%	4.7%	2.5%	9.5%	40.7%	25.6%
	Women (n=798)	15.0%	13.2%	8.1%	6.8%	4.4%	11.8%	42.0%	24.2%
	Men (n=442)	12.4%	47.6%	0.0%	1.1%	0.0%	5.5%	37.8%	28.2%

3.4.7 Indicator 2.7: percent of existing women-owned businesses reporting their business has grown or expanded in mini-grid locations (RF indicator)

Notably the SHE project intends to provide a readiness package for growth for women entrepreneurs in the project communities across the seven districts. The package will support women entrepreneurs to further expand their businesses. As a part of the study, readiness assessment was done to identify opportunities and needs that will allow women entrepreneurs to engage in more profitable businesses. Figure 18 depicts the proportion of existing women-owned businesses who reported their business has grown or expanded in mini-grid locations. According to the findings, this figure is very low among women-owned businesses. Only 2.5 percent of 798 women entrepreneurs who were interviewed agreed that their businesses have grown or expanded to mini-grid locations since establishment.

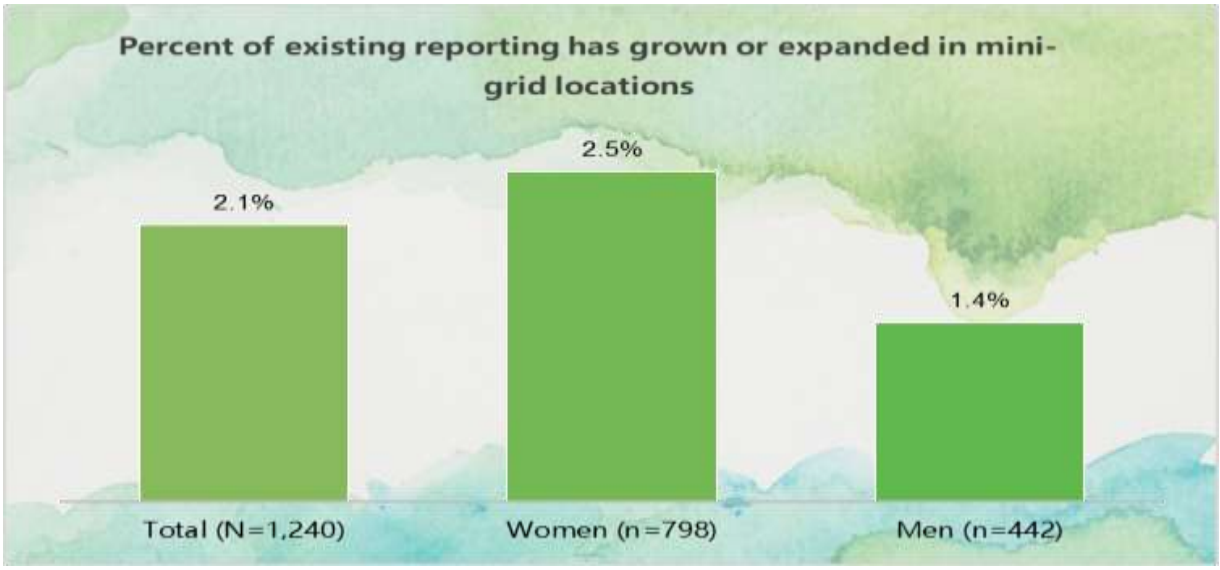

Figure 18: Percent of women-owned businesses reporting their business has grown or expanded in mini-grid locations

Notably, almost none of the women entrepreneurs reported any growth potential in Bo, Pujehun and Bonthe districts. On the contrary, more women reported growth potentials in Bo district (26.3%) than any of the other project intervention districts. (See Table 13)

Table 13: Indicator 2.6: Percent of women-owned businesses reporting their business had grown or expanded in mini-grid locations by district

Indicator	Disaggregation	Baseline value	Bo	Bombali	Bonthe	Kambia	Koinadugu	Moyamba	Pujehun
Indicator 2.6: percent of existing women-owned businesses reporting their business has grown or expanded in mini-grid locations **(RF indicator)**	Total (N=1,240)	2.1%	23.7%	0.0%	0.4%	1.7%	2.0%	2.1%	0.4%
	Women (n=798)	2.5%	26.3%	0.0%	0.7%	2.2%	3.2%	3.0%	0.0%
	Men (n=442)	1.4%	66.7%	0.0%	0.0%	1.1%	0.0%	0.0%	1.2%

Interestingly, a high proportion of women entrepreneurs are observably interested in using their profit for reinvestment into further businesses (77.9%) and savings for business expansion (70.8%). The share of business profit has also been reportedly allocated towards purchasing and maintenance of electrical appliances, hiring of additional workers, household expenses, etc. (See Figure 19)

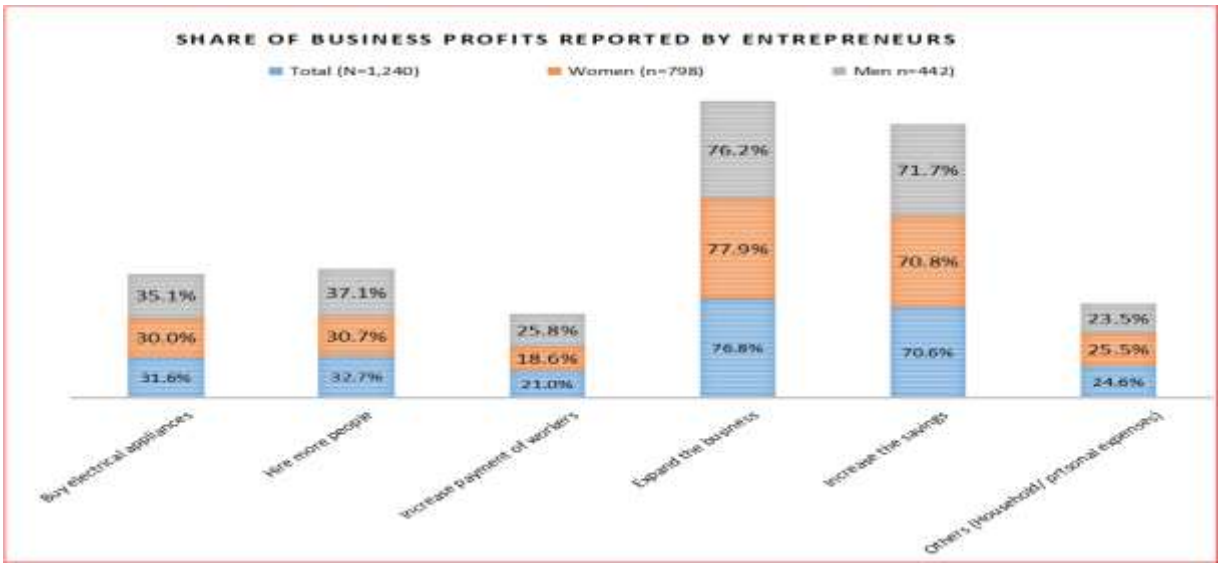

Figure 19: Share of business profits reported by entrepreneurs

3.4.8 Indicator 2.8: # of downstream/supply chain relationships/partnerships created between formal private sector (firms, producer groups, business associations) and informal workers (smallholder farmers, informal traders, etc.).

The SHE project emphasises the power of collectives/ group formations. Accordingly, women's membership in collective enterprises and collective commercial activities is a proven strategy for empowerment. This forms part of the assessment of downstream/ supply chain relationships/ partnerships already existing between the formal business sector and informal workers in the project areas. Some research findings suggest that push upstream and downstream activities encourage collaboration between actors in the business sector so they can cluster supply chain strategy and facilitate the steady flow of input supplies for producers and other business entities to deliver products to the customers (NG and Chung, 2008)[14].

As noted in foregoing findings, entrepreneurs randomly interviewed in the project communities mainly run their businesses as producers, processors, small-scale manufacturers or retailer/ wholesome traders. Other businesses include bar and restaurants, mobile chargers, hairdressing and cosmetics. The assessment observed both upstream and downstream relationships (presented in Figure 18) that present the potentials for strategic targeting for group-run enterprises and commercial activities in the project.

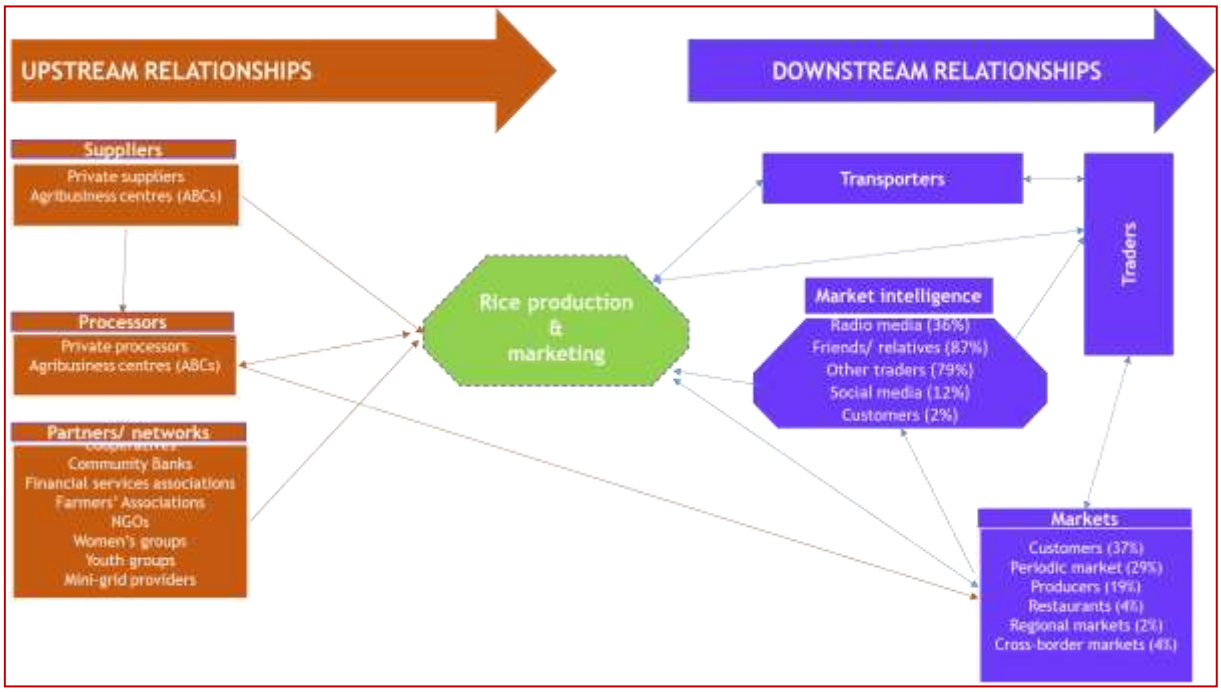

Figure 20: Example of downstrean/ supply chain relationships observed in the project districts

At the upstream build-up of relationship in the supply chain, there were pockets of reported activities that will benefit women entrepreneurs when appropriately strengthened. Considering rice value chain as one of the profitable sectors identified from the assessment, the analysis noted key actors who are active within the upstream supply chain relationship

[14] See Ng, T. W., & Chung, W. (2008). The Roles of Distributor in the Supply Chain – Push-pull Boundary. International Journal of Business and Management, 3(7), 28–39. Available at: **DOI:**10.5539/ijbm.v3n7p28

including private suppliers, private processors, agribusiness centres (ABCs), VSLAs, cooperatives and networks (including trade union). Importantly, ABCs, VSLAs and cooperatives have been strongly connected to businesses, thereby playing critical role in promoting women entrepreneurs (especially informal smallholder farmers) in the project areas. The ABCs are established by the government, and the centres have reportedly replaced private input suppliers and processors thereby providing tools, fertilizers and processing services for producers in the project communities. Further, the power of collectives was strongly noted from the role played by VSLAs and cooperatives in promoting small-scale businesses in the project communities. This further affirms the project's argument that '…*VSLAs provide a collective platform for women's engagement and enterprise support work whilst also tackling a critical barrier to enterprise growth by providing savings and loans for individual and joint venture'*. According to women entrepreneurs engaged in the FGD sessions, VSLAs provide them with seed capital and loans to promote their business.

"A group of forty (40) women contribute money over a specific time and then disburse it among themselves. Members normally borrow money from the association and pay later with a small amount of interest. The amount of contribution is fixed at seven thousand Leones (Le7,000). This has helped most of us to expand our business because we can have our individual share of the money that we have been contributing over certain period in bulk. We have the opportunity to use this money to buy so many items we can add to the business." **Female Entrepreneur, Mambolo, Kambia district**

The power of group formation was also noted to have facilitated expedited mini-grid power connection process. This was evidenced in Bandajuma Sowa, Pujehun district.

``Working as a group has resulted in other other indirect benefits to our businesses... Here, women also come together as a group to request for connection because it is sometimes difficult for technicians to come and connect only a single person. Also, on some occasions, we experience shortage of prepaid meters in the community; so community women come together and make a request for connection. **Female Entrepreneur, Bandajuma Sowa, Pujehun District**

3.5 **Specific Objective 3**: Building evidence base for decentralised energy provision as an entry point for women's economic empowerment

As per design the project seeks to identify 120 already established individual women-led SMEs with strong potentials to further expand their businesses through renewable energy use. This strategy is in bid to build evidence base for decentralised energy provision as an entry point for women's economic empowerment. To this end, the assessment captured key indicators related to a) energy-enabled businesses that are replicable across mini-grid sites, b) Revenue and profitable business sectors/segments identified, and c) overall energy consumption.

3.5.1 Indicator 3.1: Number of energy-enabled businesses that are replicable across mini-grid sites in various geographies (RF indicator)

The assessment further made efforts to identify potential business opportunities by engaging entrepreneurs in focus discussions in each of the 16 communities covered. This was in bid to identify energy-enabled businesses that have the potential for replication across the project districts Hence as part of the assessment, availability of energy-enabled equipment, potentials for group run businesses and profitable business sectors/ segments were identified with entrepreneurs in each of the 16 project communities. As presented in Table 16, 7 most profitable business sectors/ segments that present the potential for replication across the project districts were identified by entrepreneurs engaged in the focus group discussions. These are mostly food crop products including rice, cassava, palm oil, pepper, groundnut, cocoa, and sweet potato. Other sectors of business identified as highly profitable include fish, retail/wholesale trading, charging stations and entertainment centres.

Table 14: Potential business opportunities and needs identified by entrepreneurs engaged

#	Community	Available energy-enabled equipment	Potentials for group business	Profitable business sector/ segment identified by entrepreneurs
Koinadugu District, Northern Province				
1	Sinkunia	The community has: ▪ 2 cassava processing machines (Not connected to mini-grid- operated by both men and women), ▪ Rice mills (Not connected to mini-grid- with one operated by a woman} ▪ Welding machines (not connected to mini-grid- operated by men) ▪ Commercial tailoring machines (not connected to mini-grid- operated by both men and women) ▪ Palm oil processing equipment- manually operated by women) ▪ Tyre pumping machine (Not connected to mini-grid- operated by men)	The community has both VSLAs and cooperative/ association that provide support for women. For instance, the VSLA (which was formed by CARE) provide business women with loans to be repaid with little interest. The cooperatives/ APC Farmers ass. Provide seed/ planting materials to producers	The following were identified by entrepreneurs as profitable businesses ▪ Rice ▪ Cassava and cassava products ▪ Palm oil ▪ Pepper ▪ Groundnut ▪ Livestock (goat/ sheep) ▪ Retail/ wholesale trading
2	Musaia	The community has: ▪ Cassava processing machines (Not connected to mini-grid- operated by women), ▪ Rice mills (Not connected to mini-grid- operated by both men and woman} ▪ Welding machines (not connected to mini-grid- operated by men) ▪ Commercial tailoring machines (not connected to mini-grid- operated by both men and women) ▪ Palm oil processing equipment- manually operated by women) ▪ Fish processing equipment (smoking equipment)- not connected and operated by women	The community has both VSLAs that provide support for women during emergencies. The association also provides loan to women. There is a cooperative, but not too effective.	The following were identified by entrepreneurs as profitable businesses ▪ Rice ▪ Palm oil ▪ Pepper ▪ Groundnut ▪ Retail/ wholesale trading ▪ Vegetables
Bombali District, Northern Province				
3	Batkanu	The community has: ▪ Cassava processing machines (Not connected to mini-grid- operated by both men and women), ▪ Rice mills (Not connected to mini-grid- with one operated by a woman} ▪ Welding machines (not connected to mini-grid- operated by men) ▪ Commercial tailoring machines (not connected to mini-grid- operated by both men and women) ▪ Palm oil processing equipment- manually operated by women) ▪ Water pump (Not connected to mini-grid- operated by men)	The community has both VSLAs and cooperative/ association that provide support for women. For instance, the VSLA (which was formed by CARE) provide business women with loans to be repaid with little interest. The cooperatives/ APC Farmers ass. Provide seed/ planting materials to producers	The following were identified by entrepreneurs as profitable businesses ▪ Cassava and cassava products ▪ Rice ▪ Palm oil ▪ Pepper ▪ Fish ▪ Groundnut ▪ Livestock (goat/ sheep) ▪ Retail/ wholesale trading
4	Rokonta	The community has: ▪ Cassava processing machines (Not connected to mini-grid- operated by both men and women), ▪ Rice mills (Not connected to mini-grid- with one operated by a woman} ▪ Palm oil processing equipment- manually operated by women) ▪ Fish processing equipment (preservation equipment)- not connected and operated by women	The community has both VSLAs (established by CARE and GIZ) and cooperative/ association formed by community people. However, these have reportedly not been very helpful for women in the community.	The following were identified by entrepreneurs as profitable businesses ▪ Rice ▪ Cassava and cassava products ▪ Palm oil ▪ Pepper ▪ Groundnut ▪ Retail/ wholesale trading
Kambia District, North-West Province				
5	Kynchom	The community has: ▪ Rain-fed agriculture irrigation equipment (manually operated by both men and women) ▪ Rice mills (Not connected to mini-grid- operated by both men and women} ▪ Commercial tailoring machines (not connected to mini-grid- operated by men) ▪ Fish processing equipment (smoking equipment)- not connected and operated by women	The community has both VSLAs (established by CARE and WABICC (West Africa Biodiversity and Climate Change) and the ABC cooperative/ association. The VSLAs provide reasonable sum for participants during share out at the end of a cycle; and also credit members with seed income which is returned with a little interest. The ABC provides seedlings, storage facilities, processing unit and fertiliser to farmers.	The following were identified by entrepreneurs as profitable businesses ▪ Rice ▪ Palm oil ▪ Fish ▪ Retail/ wholesale trading
6	Rokupr	The community has: ▪ Rain-fed agriculture irrigation equipment (manually operated by men) ▪ Rice mills (Not connected to mini-grid- operated by men} ▪ Commercial tailoring machines (not connected to mini-grid- operated by men)	The community has no VSLA, but the ABC is available. As indicated for Kychom, the ABC provides seedlings, storage facilities, processing unit and fertiliser to farmers.	The following were identified by entrepreneurs as profitable businesses ▪ Rice ▪ Palm oil ▪ Fish ▪ Retail/ wholesale trading
7	Mambolo	The community has:	The community has both VSLAs	The following were identified

		▪ Rain-fed agriculture irrigation equipment (connected to mini-grid and sometimes manually operated by men) ▪ Rice mills (Not connected to mini-grid- operated by both men and women} ▪ Commercial tailoring machines (some connected to min—grid and others manually operated by men)	(established by an individual) and the ABC and SLPMC (Sierra Leone Produce Marketing Company) established by the Government of Sierra Leone (GoSL). The VSLAs provide reasonable sum for participants during share out at the end of a cycle; and also credit members with seed income which is returned with a little interest. The SLPMC is not effective, but ABC provides seedlings, storage facilities, processing unit and fertiliser to farmers.	by entrepreneurs as profitable businesses ▪ Rice ▪ Palm oil ▪ Fish ▪ Ginger ▪ Vegetables ▪ Retail/ wholesale trading ▪ Charging stations ▪ Entertainment centres
Bo District, Southern Province				
8	Bumpeh	The community has: ▪ Cassava processing machines (Not connected to mini-grid- operated by men), ▪ Rice mills (used both manual and mini-grid- operated by men} ▪ Commercial tailoring machines (Operated both manually and with mini-grid - operated by both men and women) ▪ Palm oil processing equipment- manually operated by women) ▪ Fish processing equipment (smoking equipment)- not connected and operated by women ▪ Tilling and ploughing machines- operated manually ▪ Water pump	The community has both VSLAs (established by the community). The VSLAs provide loan to members to start up business.	The following were identified by entrepreneurs as profitable businesses ▪ Cassava ▪ Rice ▪ Retail/ wholesale trading
Bonthe District, Southern Province				
9	Tihun	The community has: ▪ Cassava processing machines (Not connected to mini-grid- operated by women), ▪ Potato chips making machines (Not connected to mini-grid- operated by men and women), ▪ Commercial tailoring machines (Operated both manually and with mini-grid - operated by both men and women) ▪ Palm oil processing equipment- manually operated by women) ▪ Groundnut processing equipment- not connected and operated by women and men ▪ Water pump	The community has VSLAs (established by World Vision and Seed Salone). The VSLAs provide loan to members to start up business.	The following were identified by entrepreneurs as profitable businesses ▪ Palm oil ▪ Cassava ▪ Rice ▪ Groundnut ▪ Livestock (goat and sheep) ▪ Retail/ wholesale trading
10	Madina	The community has: ▪ Cassava processing machines (Not connected to mini-grid- operated by men and women), ▪ Commercial tailoring machines (Operated both manually and with mini-grid - operated by both men and women) ▪ Palm oil processing equipment- manually operated by men and women) ▪ Welding machines (not connected to mini-grid- operated by men) ▪ Fish processing equipment (smoking equipment)- not connected and operated by men ▪ Water pump	The community has VSLAs (established by World Vision and Seed Salone). The VSLAs provide loan to members to start up business.	The following were identified by entrepreneurs as profitable businesses ▪ Palm oil ▪ Cassava ▪ Rice ▪ Retail/ wholesale trading ▪ Pepper ▪ Groundnut ▪ Welding ▪ Livestock (goat and sheep)
11	Gbap	The community has: ▪ Cassava processing machines (Not connected to mini-grid- operated by men and women), ▪ Palm oil processing equipment- manually operated by men and women) ▪ Fish processing equipment (smoking equipment)- not connected and operated by men ▪ Water pump	The community has VSLAs (established by World Vision and Seed Salone). The VSLAs provide loan to members to start up business.	The following were identified by entrepreneurs as profitable businesses ▪ Fish ▪ Rice ▪ Groundnut ▪ Pepper ▪ Cassava ▪ Potato ▪ Vegetables ▪ Retail/ wholesale trading ▪ Palm oil
Pujehun District, Southern Province				
12	Mano Gbojeima	The community has: ▪ Welding machines (not connected to mini-grid- operated by men)	The community has both VSLAs and cooperative. The VSLAs are established by Save the Children, while cooperatives are formed by the community people. The VSLAs provide both seed capital and loan to members that help them start their business. The copperatives provide similar	The following were identified by entrepreneurs as profitable businesses ▪ Fish ▪ Groundnut ▪ Pepper ▪ Rice ▪ Palm oil ▪ Retail/ wholesale trading

			support to their members.	▪ Cassava ▪ Livestock (goat and sheep) ▪ Poultry and poultry egg ▪ Vegetable ▪ Tailoring
13	Bandajuma Sowa	The community has: ▪ Cassava processing machines (Not connected to mini-grid- operated by men), ▪ Palm oil processing equipment- manually operated by men and women) ▪ Welding machines (not connected to mini-grid- operated by men) ▪ Rice mills (used both manual and mini-grid- operated by both women and men} ▪ Commercial tailoring machines (Operated both manually and with mini-grid - operated by both men and women)	The community has 4 VSLAs supported by individuals and World Vision. The VSLAs provide capital to start up business and loan to support those in agricultural activities. There are also cooperatives established by community people. The cooperatives support women (financial and physically) to effectively engage	The following were identified by entrepreneurs as profitable businesses ▪ Fish ▪ Pepper ▪ Groundnut ▪ Cassava ▪ Livestock (goat & sheep) ▪ Palm oil ▪ Leafy vegetables ▪ Welding ▪ Cocoa ▪ Coffee ▪ Poultry and poultry egg ▪ Potato ▪ Retail/ wholesale trading ▪ Hair dressing & cosmetics ▪ Tailoring ▪ Ginger
14	Futa Peje	The community has: ▪ Cassava processing machines (Not connected to mini-grid- operated by men), ▪ Palm oil processing equipment- manually operated by men and women) ▪ Commercial tailoring machines (Operated both manually and with mini-grid - operated by both men and women)	The community has VSLAs established by BRAC and LAPO. The VSLAs provide capital for members to start up business and loan to support those in agricultural activities. VSLAs also facilitate skills training like catering. There are also cooperatives established by BRAC, LAPO, World Vision and Save the Children. The cooperatives support women with the skills for job opportunities and self-reliance.	The following were identified by entrepreneurs as profitable businesses ▪ Cassava ▪ Pepper ▪ Vegetables ▪ Groundnut ▪ Livestock (goat & sheep) ▪ Palm oil ▪ Poultry and poultry egg ▪ Retail/ wholesale trading ▪ Cocoa and cocoa products
Moyamba District, Southern Province				
15	Gbangbatoke	The community has: ▪ Cassava processing machines (Not connected to mini-grid- operated by men), ▪ Rice mills (used both manual and mini-grid- operated by men} ▪ Commercial tailoring machines (Operated both manually and with mini-grid - operated by both men and women) ▪ Palm oil processing equipment- manually operated by women) ▪ Fish processing equipment (smoking equipment)- not connected and operated by both men and women ▪ Welding machines (not connected to mini-grid- operated by men) ▪ Tilling and ploughing machines- operated manually ▪ Water pump	The community has VSLAs supported by individuals. The VSLAs provide loan to group members. There is no cooperative in the community.	The following were identified by entrepreneurs as profitable businesses ▪ Cassava ▪ Rice ▪ Retail/ wholesale trading
16	Bradford	The community has: ▪ Cassava processing machines (Not connected to mini-grid- operated by men), ▪ Rice mills (used both manual and mini-grid- operated by men} ▪ Commercial tailoring machines (Operated both manually and with mini-grid - operated by both men and women) ▪ Palm oil processing equipment- manually operated by women) ▪ Fish processing equipment (smoking equipment)- not connected and operated by both men and women ▪ Welding machines (not connected to mini-grid- operated by men) ▪ Tilling and ploughing machines- operated manually ▪ Water pump	The community has VSLAs supported by NaCSA. The VSLAs provide loan to group members. There is no cooperative in the community.	The following were identified by entrepreneurs as profitable businesses ▪ Cassava ▪ Rice ▪ Oil palm ▪ Retail/ wholesale trading

Entrepreneurs were further allowed to justify the prioritisation of the selected profitable business engagement in the communities. These justifications for the most highly prioritised businesses are provided verbatim as quotes in Table 17 below.

Table 15: Justification of the selected profitable business sectors/ segments

RICE PRODUCTS

'A majority of us here are doing this business and it is in fact our most profitable business. Rice production is our main economic activity where almost every individual is attracted to. The simple reason for this is that the demand for rice increases every year and so does the price. This makes it a popular business in this part of the country. To the extent, even those who cannot produce tend to buy and sell to customers coming from afar thereby making this sector very attractive. It is the only business that one can do without any fear of losses except in rare cases of a boat or vehicle accident. If you buy a bag of rice at four hundred thousand Leones (le400000), you end up selling it at five to six hundred thousand Leones to customers coming from Guinea.' **FGD participant, Entrepreneur, Kychom, Kambia District**

'This is the most common form of business in the community and attractive profit more profit than any other business in the community. it is common among both men and women. Rice business is a seasonal business mainly in the dry season but attractive high profit to the demand. The price of locally produced is constantly increasing every year. Even within the same year, the price keeps changing from month to month. For instance, in January this year we bought a bag of local rice (parboiled rice) at le350000 and by the end of March, the price has risen to le450, 000. This simple reason for this changes in price is that, in the early months of the dry season production is very high and the price tends to fall and that is the time normally buy rice store it to wait for the change in price. One major advantage of this business is that we don't need to travel to sell it, we buy, store and wait for the customers to come and meet us. So there is no transportation cost incurred except one wants to make more profit. Some would even go to Guinea or Freetown to sell their but a majority of us normally wait for the customers.' **FGD participant, Entrepreneur, Mambolo, Kambia District**

PALM OIL

'Most common among women entrepreneurs, this is one of the most profitable business. When we buy a container of palm oil and retail it in pint or milk cup, we profit at least forty thousand Leones (le40000). The most important thing about palm oil business is that, it is demanded every day especially for cooking. A majority of the inhabitants of the community use prefer palm oil to vegetable oil due to its competitive price over its substitute.' **FGD participant, Entrepreneur, Kychom, Kambia District**

'Among the businesses considered for women, palm oil is one of the business that gives us more profit. We buy the container at le160000 and sell at le 4000 for a pint. It must also be noted that the price of this product changes from month to month. For instance, the price will tend to fall to as low as le100000in the months of April and May an then goes up.' **FGD participant, Entrepreneur, Mambolo, Kambia District**

`Palm oil accounts for high profit even though it involves a lot of physicality in its processing. But when once processed, the demand is very high at the market with a high profit. We sometimes sell at LE 120,000/130,000 per 20 litres as the case may be. Some other business people can buy and resell at LE 230,000/ 240,000 as the case may be.' **FGD participant, Entrepreneur, Bandajuma Sowa, Pujehun District**

FISH

'Common among men, it is a type of business that involves mainly producers and it is the second most attractive one. For now, we considered it as an auxiliary to our rice business (Rice business booms mainly in the dry season). During the rainy season when we are busy working on our farms, one of our key sources of livelihood is fishing. In the morning we go to our farms and in the evening we take our boats to go fishing. What we get is what we sell to maintain our family needs as things are very difficult during this time. Even though there are women who do the same business, the difference between men and women is that, men produce while women buy. Comparatively, this business has the capacity to employ more youths in the community than even the rice that all of us are focused on. But it needs to be well structured and facilities provided. You will agree with us that fishing in this part of the country has been a boom for most of us for a very long time. In the 90s, the government wanted to build a fishery here but because the then paramount chief was not from here and was not in good term the us, he decided to shift the project to Yeliboya (Yelibya is an island in lower Samu Chiefdom whose main economic activity is fishing). In the end the fishery was destroyed by flooding and today there is not even a trace of fishery in that community. There are times when we catch a lot of fish that can occupy the whole jetty when offloaded from the boats but because we do not have fishery where we can process them, we normally just auction them in order for us not to run at a loss or waste our energy for nothing. This has made most of the youths who have interest in fishing to move to other places like Yeliboya, Korthimoh or even Guinea after the planting season because of lack of fish processing facilities. We do not have what it takes for us maintain the fishing sector, but if the government and its partners consider this, we can assure you that this sector can provide more employment than any other sector you may think of in this part of the country.' **FGD participant, Entrepreneur, Kychom, Kambia District**

'Rokupr is considered the centre of fish trading in this part of the country. All those fishermen along the river line bring their fish to Rokupr to be transported to different part of the country. It is during this process that we buy from them and sell to our customers. Some of us would also go down to Yeliboya where these fishes are produced and processed. Other fish women normally go to Freetown to buy frozen fish since it is not possible to have them from those coming from those villages along the river line due to lack of processing facilities.' **FGD participant, Entrepreneur, Rokupr, Kambia District**

`It is very difficult to sometimes see fish around as this is not a primary fishing zone, but it is highly profitable. The few fish traders we have here go to fishing ground to buy at low cost for resale. They sometimes buy a small sized basket Le 150,000- Le200,000 as the case may be and sometimes get Le 300,000- Le400,000 profit after sale.' **FGD participant, Entrepreneur, Bandajuma Sowa, Pujehun District**

CASSAVA PRODUCTS

`Cassava processing accounts for a very high profit in that there isn't much financial requirements in its production and processing. Also, cassava and cassava products moves faster in the market as compared to other products. We do not also have to spend too much on transportation cost as we run lumor in this community.' **FGD participant, Entrepreneur, Bandajuma Sowa, Pujehun District**

`Cassava and cassava products are highly demanded at the market, especially gari and foofoo. Customers pay cash instantly rather than paying by bits. we primarily produce gari so we do not consider cost of purchase, but cust of sale at Le 200,000-250,000 etc as prices fluctuates.' **FGD participant, Entrepreneur, Futa Peje, Pujehun District**
GROUNDNUT
`This is another sector with high profit margin. We can buy a bag of unprocessed groundnut at say Le300,000-350,000 per 50kg bag and cultivate it. We can harvest sometimes 10 to 15 bags out of that single bag and resell it at Le400,000-450,000 per 50kg bag.' **FGD participant, Entrepreneur, Bandajuma Sowa, Pujehun District**
ASSORTED RETAIL/WHOLESALE TRADING
'This is the most lucrative business in the community. Most of us the large scale traders in the community have shops and we sell different types of items put together in one shop. And these items range from food stuff, building materials and toiletries. We sell in both wholesale and retail.' **FGD participant, Entrepreneur, Rokupr, Kambia District**

It is noteworthy that ideally, as part of the readiness for growth criteria[15], annual revenue (including asset value) as defined in Annex VI of CARE SHE project proposal, was analysed by the assessment. Accordingly, this is important to allow for determining the percent of women entrepreneurs operating in each of the business categories including micro, small medium enterprises. The analyses showed that over 83 percent of women entrepreneurs are concentrated in the micro enterprise category, while about 17 percent are in the small enterprise category and less than 1 percent are in the medium enterprise category (see Table 14). This analysis is crucial to guide the project in the sequential expansion of women entrepreneurs from lower to higher enterprise categories.

Table 16: Percent of enterprises in the project locations by MSME categories

Enterprise category	Total assets/annual sales	Total (N=1073)	Women (n=691)	Men (n=382)
Micro enterprise	<$2000	81.7%	83.9%	77.7%
Small enterprise	$2000- <$6000	16.7%	15.1%	19.6%
Medium enterprise	$6000- $12000	0.9%	0.6%	1.6%
Other enterprises	>$12000	0.4%	0.1%	0.8%

3.5.2 Indicator 3.2: percentage of women reporting significant increases in their revenue and profits (RF indicator)

The research revealed low percent of women entrepreneurs women who report significant increase in profit since establishment. As presented in Figure 20, less than 2 percent of women entrepreneurs have reportedly experienced significant increase in their revenue and profit since establishment.

Figure 21: Percent of women reporting significant increases in their revenue and profit

[15] The three criteria set for readiness to engage in energy-enabled businesses include: 1) being in a form of business, 2) formal registration of business and 3) minimum annual sales or total assets.

District level results show that none of the women entrepreneurs in project communities in Bo and Bombali districts reportedly experience increased revenue and profit; while the districts presenting the highest proportion of women who reported increased revenue include Kambia (3%) and Moyamba (3%).

Table 17: Indicator 3.2: Percent of women reporting significant increases in their revenue and profit by district

Indicator	Disaggregation	Baseline value	Bo	Bombali	Bonthe	Kambia	Koinadugu	Moyamba	Pujehun
Indicator 3.2: percentage of women reporting significant increases in their revenue and profits **(RF indicator)**	Total (N=1,240)	1.5%	1.7%	0.0%	1.3%	1.7%	0.7%	2.8%	2.1%
	Women (n=798)	1.6%	0.0%	0.0%	1.8%	3.0%	1.1%	3.0%	2.0%
	Men (n=442)	1.1%	4.8%	0.0%	1.6%	0.0%	0.0%	2.2%	2.4%

Detailed analyses of revenue and profit across business sectors in the project locations produced interesting results. Figure 21 depicts the summary of revenue, profit margin and return on investments (RRI) analysed for various business sectors identified across communities in the project intervention districts. The findings suggest that entrepreneurs engaged in the processing sector realise higher revenue and profit margin (78.4%), and an astronomically high return on investments (362.8%). The assorted retail and/or wholesale trading was noted as the second most profitable business sector. Other sectors exhibiting relatively high profit margin include the manufacturing (42%) and production (39.4%) sectors.

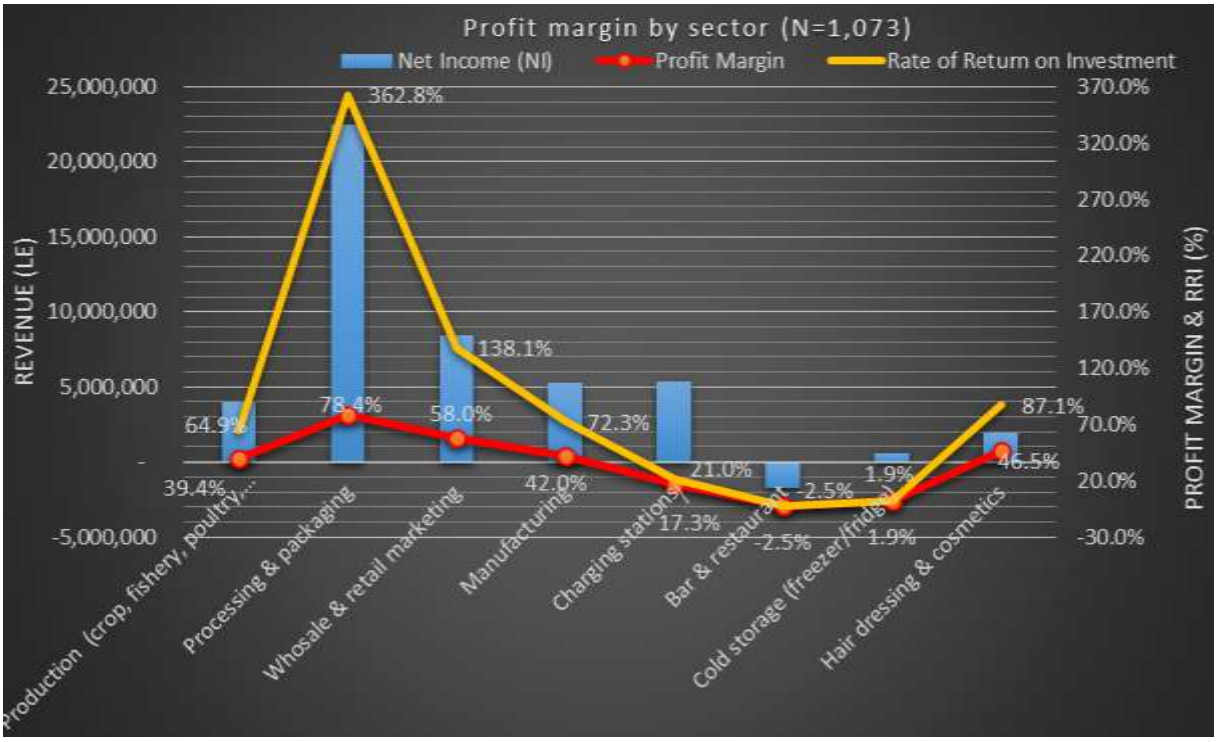

Figure 22: Analysis of profit margin by business sector

Notably, business sectors/ segments showing high profit margin and returns on investment are characterised a comparatively lower variable costs that less profitable sectors. Conversely, there are sectors that showed high annual revenue, but with very low profit margin and returns on investment. For instance, it could be observed from Table 9 that whilst bar and restaurant services showed very high annual revenue than any other business sector, it proved to be a less attractive business with a loss of 2.5 percent. One of the critical lessons learnt from this is finding is that the level of revenue does not determine the profit

margin. Strategically selecting businesses with lower variable cost is critical for increased profit margin and high return on investment.

Table 18: Analysis of profit margin, benefit-cost ratio and rate of return on investment by business sector

Sector	Average gross annual revenue (Le) (Jan-Dec'2022)	Average Total variable cost (TVC)	Average Investment cost (Le)	Average Total cost (TC)	Net Income (NI)	Benefit Cost Ratio (BCR)	Profit Margin	Rate of Return on Investment
Production (crop, fishery, poultry, livestock)	10,121,000	2,631,000	3,505,000	6,136,000	3,985,000	1.649	39.4%	64.9%
Processing & packaging (rice mills)	28,636,000	2,508,000	3,680,000	6,188,000	22,448,000	4.628	78.4%	362.8%
Whistle & retail marketing	14,545,000	3,505,000	2,605,000	6,110,000	8,435,000	2.381	58.0%	138.1%
Manufacturing	12,641,000	3,735,000	3,601,000	7,336,000	5,305,000	1.723	42.0%	72.3%
Charging stations	30,800,000	5,073,000	20,387,000	25,460,000	5,340,000	1.210	17.3%	21.0%
Bar & restaurant	69,750,000	16,210,000	55,300,000	71,510,000	-1,760,000	0.975	-2.5%	-2.5%
Cold storage (freezer/fridge)	29,484,000	5,226,000	23,712,000	28,938,000	546,000	1.019	1.9%	1.9%
Hair dressing & cosmetics	4,125,000	355,000	1,850,000	2,205,000	1,920,000	1.871	46.5%	87.1%
Average total	13,025,000	2,643,000	3,880,000	6,523,000	6,502,000	1.997	49.9%	99.7%

In-depth analysis of income and profit was carried out for specific business sectors identified across communities in the project intervention districts. Following this analysis, key sectors that proved profitable with high returns on investment were noted as indicated in Table 20.

Table 19: Analysis of profit margin, benefit-cost ratio and rate of return on investment by sector/ value chain segment

Business sector/ segment	% of businesses in the sector			Income and profit analysis							
	Women (n=691)	Men (n=382)	Total (N=1,073)	Average gross annual revenue (Le) (Jan-Dec'2022)	Average Total variable cost (TVC)	Average Investment cost (Le)	Average Total cost (TC)	Net Income (NI)	Benefit Cost Ratio (BCR)	Profit Margin	Rate of Return on Investment
Cassava value chain	37.3%	37.7%	37.5%	9,806,000	2,236,000	3,083,000	5,319,000	4,487,000	1.844	45.8%	84.4%
Rice value chain	42.0%	39.8%	41.2%	10,669,000	2,876,000	4,343,000	7,219,000	3,450,000	1.478	32.3%	47.8%
Oil palm value chain	44.0%	35.3%	40.9%	10,339,000	2,261,000	3,064,000	5,325,000	5,014,000	1.942	48.5%	94.2%
Fishery value chain	16.1%	12.3%	14.7%	10,505,000	2,991,000	3,755,000	6,746,000	3,759,000	1.557	35.8%	55.7%
Cocoa value chain	0.1%	0.8%	0.4%	24,500,000	2,200,000	900,000	3,100,000	21,400,000	7.903	87.3%	690.3%
Coffee value chain	0.4%	0.0%	0.3%	7,333,000	4,388,000	2,067,000	6,455,000	878,000	1.136	12.0%	13.6%
Pepper value chain	25.9%	36.4%	39.1%	10,128,000	2,596,000	3,551,000	6,147,000	3,981,000	1.648	39.3%	64.8%
Cashew value chain	1.0%	0.3%	0.7%	5,421,000	1,051,000	3,175,000	4,226,000	1,195,000	1.283	22.0%	28.3%
Potato value chain	37.6%	33.5%	36.2%	10,908,000	2,641,000	3,693,000	6,334,000	4,574,000	1.722	41.9%	72.2%
Groundnut value chain	42.0%	35.1%	19.1%	10,538,000	2,612,000	3,561,000	6,173,000	4,365,000	1.707	41.4%	70.7%
Ginger value chain	9.7%	8.1%	9.1%	11,405,000	2,483,000	4,145,000	6,628,000	4,777,000	1.721	41.9%	72.1%
Livestock value chain	25.3%	25.7%	25.4%	10,538,000	2,417,000	3,519,000	5,936,000	4,602,000	1.775	43.7%	77.5%
Poultry value chain	22.3%	18.6%	21.0%	9,925,000	2,741,000	3,797,000	6,538,000	3,387,000	1.518	34.1%	51.8%
Vegetables	38.8%	33.5%	36.9%	10,683,000	2,681,000	3,679,000	6,360,000	4,323,000	1.680	40.5%	68.0%
Retail and wholesale of assorted goods	55.9%	37.4%	49.3%	14,545,000	3,231,000	4,274,000	7,505,000	7,040,000	1.938	48.4%	93.8%
Metal work (welding, still door and window, etc)	1.2%	4.2%	2.2%	10,768,000	3,296,000	4,088,000	7,384,000	3,384,000	1.458	31.4%	45.8%
Water filtration	0.0%	0.0%	0.0%	-	-	-	-	-	-		
Pottery	0.0%	0.0%	0.0%	-	-	-	-	-	-		
Tailoring (clothing and textiles)	2.3%	3.1%	2.6%	5,947,000	1,655,000	2,910,000	4,565,000	1,382,000	1.303	23.2%	30.3%
Gara tye dying (clothing and textiles	0.6%	0.5%	0.6%	4,859,000	491,000	1,373,000	1,864,000	2,995,000	2.607	61.6%	160.7%
Furniture/ other wooden products	0.4%	2.9%	1.3%	11,013,000	4,500,000	3,675,000	8,175,000	2,838,000	1.347	25.8%	34.7%
Plastic and rubber production	0.0%	0.0%	0.0%	-	-	-	-	-	-	0.0%	0.0%
Local alcohol production	0.0%	0.3%	0.1%	2,000,000	180,000	100,000	280,000	1,720,000	7.143	86.0%	614.3%
Bakeries	0.4%	0.8%	0.6%	7,272,000	3,238,000	2,917,000	6,155,000	1,117,000	1.181	15.4%	18.1%

Shoe making	0.0%	0.0%	0.0%	-	-	-	-	-	-		
Charging stations	0.1%	2.1%	0.8%	30,800,000	5,073,000	20,387,000	25,460,000	5,340,000	1.210	17.3%	21.0%
Bar and restaurants	0.1%	0.8%	0.4%	69,750,000	16,210,000	55,300,000	71,510,000	-1,760,000	0.975	-2.5%	-2.5%
Cold storage (fridges/ freezers)	1.2%	2.9%	1.8%	29,484,000	5,226,000	23,712,000	28,938,000	546,000	1.019	1.9%	1.9%
Hairdressing and cosmetics (Saloon/ shop)	0.1%	0.3%	0.2%	4,125,000	355,000	1,850,000	2,205,000	1,920,000	1.871	46.5%	87.1%
Average Total				13,025,000	2,643,000	3,880,000	**6,523,000**	**6,502,000**	**1.997**	**49.9%**	**99.7%**

3.5.3 Indicator 3.3: current overall energy consumption in the project locations (RF indicator)

It is worth noting that the SHE project seeks to work with micro, small and medium enterprises (MSMEs) that present wide spectrum of energy needs in the targeted project communities. The project suggests that '*access to energy can be a potential game-changer for lives and livelihoods of these women, when the socio-economic environment facilitates the continued utilisation of this energy for income generating activities'*. The assessment therefore analysed the average overall energy consumption in the project locations. As depicted in Figure 23, the overall energy consumption on average was noted as 2.63 kWh. Notably energy consumption rate by male entrepreneurs (3.10 kWh) than female entrepreneurs (2.43 kWh) by approximately 28 percentage points.

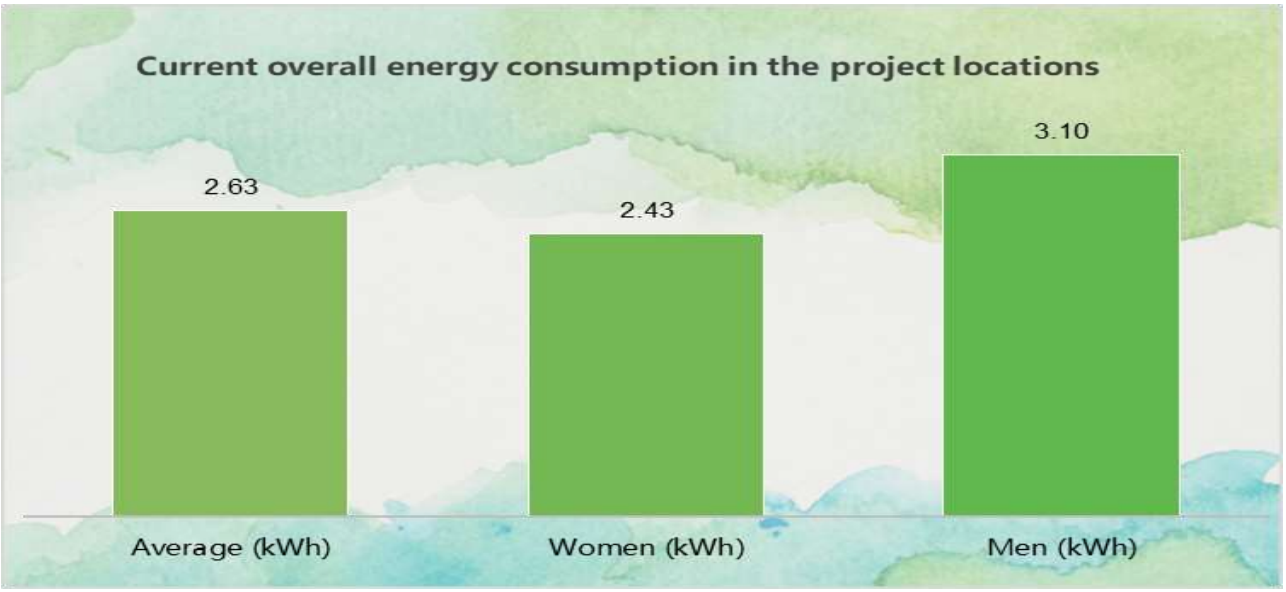

Figure 23: Current overall energy-consumption in the project locations

At district level energy consumption is highest for project communities in Bonthe district accounting for an average of 10.10 per kilowatt hour and lowest in Moyamba (1.20 kWh). (See Table 19)

Table 20: Indicator 3.3: Current overall energy-consumption in the project locations by district

Indicator	Disaggregation	Baseline value	Bo	Bombali	Bonthe	Kambia	Koinadugu	Moyamba	Pujehun
Indicator 3.3: current overall energy consumption in the project locations **(RF indicator)**	Average (kWh)	2.63	3.42	3.36	10.10	2.72	3.38	1.20	2.30
	Women (kWh)	2.43	3.12	3.46	9.74	2.68	3.51	1.11	0.83
	Men (kWh)	3.10	3.90	3.25	11.25	2.82	2.24	1.37	5.71

However, the study revealed that the maximum min-grid electricity consumption at household level is at 40.40 kWh. According to records from the mini-grid service providers the current threshold is 46.38 kWh- which means the project intervention may likely surge the consumption rate to an extent that would exceed this average threshold. The overall average

cost for energy consumption is critically higher in the project location. According to the project proposal document a tariff of $0.85/kWh is affordable compared to other alternatively energy sources for households and MSMEs[16]. This assumption shows that the overall energy consumption of $0.71 (Le8,749)/kWh in the project locations is relatively affordable compared to alternative sources of energy. The assessment noted that entrepreneurs spend Le35,932 ($2.92) a day on energy consumption. However, energy supply was observed to be comparatively unaffordable in Kambia district, which shows cost for energy consumption at $1.17 per kWh. (See Table 20 and Figure 24)

Table 21: Average total electricity consumption rates and cost in the project locations

District	Average total electricity consumption rate					Average cost of electricity consumption			
	Total power (Watts)	Avg daily run time (hr)	kWh (w*t / 1000)*	Minimum (kWh)	Maximum (kWh)	Cost/kWh (Le)	Cost/kWh (US$)	Cost/day (Le)[17]	Cost/day (US$))
Bo	8269	21	3.42	0.10	12.55	8397.00	0.68	56,664.00	4.61
Bombali	2289	14	3.36	1.40	6.40	7267.00	0.59	14,127.00	1.15
Bonthe	13201	11	10.16	0.07	24.00	8000.00	0.65	115,357.00	9.38
Kambia	29822	11	2.72	0.04	40.40	14392.00	1.17	63,001.00	5.12
Koinadugu	12758	15	3.38	0.24	6.40	1246.00	0.10	4,328.00	0.35
Moyamba	22777	6	1.20	0.03	6.69	7753.00	0.63	9,836.00	0.80
Pujehun	11582	7	2.30	0.05	28.38	6632.00	0.54	32,969.00	2.68
Average total	100698	11	2.63	0.03	40.40	8749.00	0.71	35,932.00	2.92

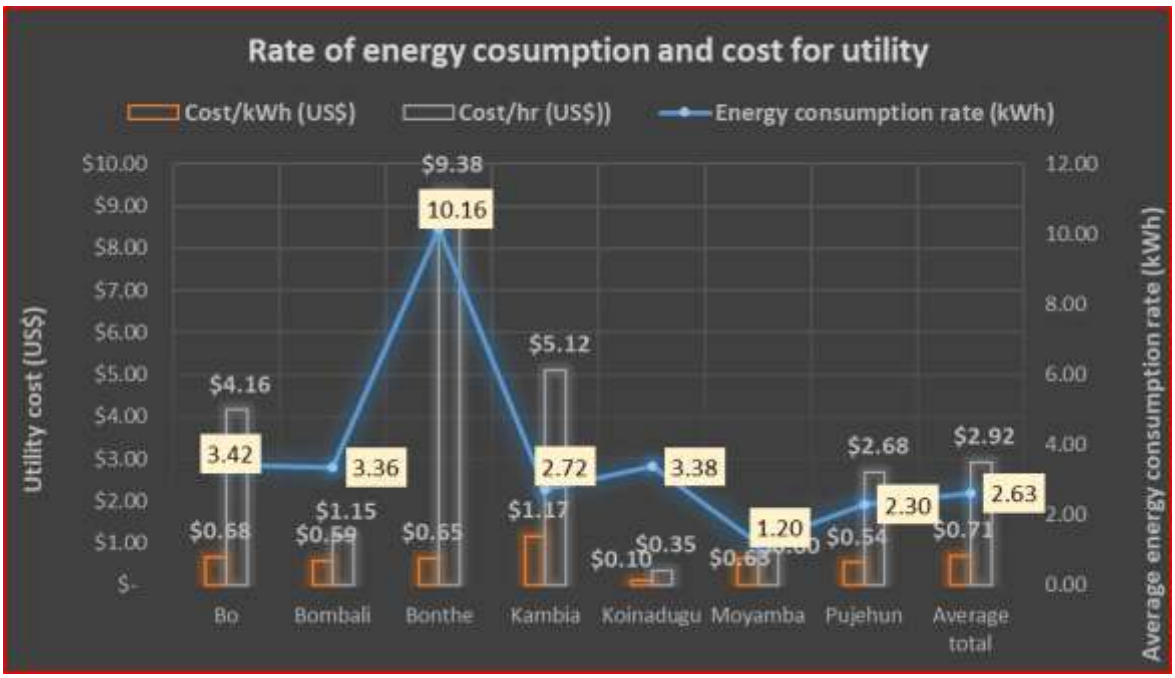

Figure 24: Rate of energy consumption and cost for utility in the project locations

3.5.4 Community perceptions, attitudes and understanding of existing solar opportunities

Business entrepreneurs engaged in the focus group discussion sessions argued that mini-grid power supply has been observed as part of the opportunities provided to boost their businesses and provide security in their homes. Accordingly renewable energy is advantageous as set out:

- Sales increase for retail/wholesalers when the connect cold storage appliances to mini-grids

[16] See UNOPS community survey report at: https://www.seforall.org/system/files/2021-05/Energy-Access-SierraLeone-SEforALL.pdf

[17] Exchange rate at the time of the assessment was 1US$=12,302 as at 16.04.2022 using Ouanda at: https://www.oanda.com/currency-converter/en/?from=EUR&to=USD&amount=1

- It helps them preserve their food stuff
- In some instances, money is saved by using mini-grid when it replaces other alternative sources such as running generator for business purpose
- Connecting to mini-grid power supply reduces labour and enhances business expansion.

'One of the main advantages of using mini-grid power supply is that, it reduces labour. Another advantage is that it enhances the expansion of our business as we invest more in our businesses to buy more appliances. This in turn increases the profit margin (although not as speculated) because the more we buy appliances the more the tendency for us to embark on different businesses that are using electricity and the more we make profit.' **Woman entrepreneur, Kychom, Kambia District**

'Ideally, the use of the community mini-grid has boosted our profit to some extent and has also reduced the cost of labour. Those products that took us a day to be processed can now be processed within few hours and that has made us to have a constant supply of such products in the market. For instance, before this time we used to send for ice blocks to Freetown for our fish, but now we have ice abundantly in the community.' **Female Entrepreneur, Mambolo, Kambia district**

'Even though we suffer from high tariff, it is still better as compared to using generator. One cannot use for eg Le 10,000 on fuel for the rest of the night to light even a bulb, but you can with solar power (mini-grid).' **Female Entrepreneur, Mano Gbojeima, Pujehun district**

Perceptions about affordability, reliability and sustainability of mini-grid power supply

In spite from the quantitative findings on affordability of the mini-grid power supply, entrepreneurs engaged in the focus group presented mixed perceptions about affordability, reliability and sustainability of power supply in their respective communities. In most communities, entrepreneurs had claimed that the mini-grid power supply is not affordable thereby claiming high cost and introduction of fast burning meters.

'There is willingness among women entrepreneurs to connect to the mini-grid power supply in this community, but we can consider it as not easily accessible because it is costly with fast-burning metering supply.' **Woman entrepreneur, Sinkunia, Koinadugu district**

Meanwhile, entrepreneurs agreed that the possibility is high for women to come together as a group, which will provide them the power to influence the senior management of renewable energy suppliers for reduced tariff for their households and businesses.

Challenges faced by women entrepreneur to use mini-grid power supply

It is reportedly obvious that the mini-grid power supply is not effective during the rains, and the power supply has also proven useless for most commercial heavy appliances/ equipment.

`...we struggle to provide light in the community during the rainy season due to insufficient sunlight. That is why we have requested for a thermal generator- a request that has not been granted by the company.' **Community technician, Mambolo, Kambia district**

In some communities, accessing local artisans and suppliers to provide solar power services/connections when needed is reportedly very difficult. At some points, even mini-grid operators are not always available to provide technical supports to service users when needed.

Furthermore, communities using pre-paid metering mini-grid power service claimed lack of access to meter which is fixed to electricity poles in their communities. This provokes suspicions and lack of trust in the billing services; and had reportedly ignited tensions between service providers and users. Meanwhile, mini-grid power operators claimed the meters use telecommunication signals, and therefore need to be placed at higher altitude. In

addition, entrepreneurs who are connected to mini-grid claimed they have no idea about the tariff cost. Accordingly, they constantly pay for recharge when the credit exhausts. This had meant, there is no form of understanding between service providers and users on the tariff..

'We are facing so many challenges with regards the use of the Mini-grid electricity. One among them is the fact that we don't understand the operation of the meters. We don't know how to check the balance on the meters which means we normally don't know when they run out of credit. This has been our major issue between us and the service provider because whenever we go to buy token for our meters, they would say we having outstanding debt in our meter and that amount is normally deducted first from the amount we take to buy the credit and the balance is what they will send to us. Another serious challenge is the fact that some of us normally buy credit and it would take up to two days without receiving any message from the service provider. We have heard complaints from some of colleagues that the credit they did not receive any message for the token they bought for the use of the light.' **Female Entrepreneur, Mambolo, Kambia district**

On the other hand the mini-grid power operators had also reportedly faced challenges in the provision of power supply in their respective communities. One of the major challenges is the low capacity of most of the power stations to supply the respective communities they serve.

`One of the challenges is that, the people have bought heavy appliance that the station can no longer able to supply light to the community as propsed. About 40% of the household in the community have a fridge or freezer and other heavy appliances like electric iron which has made the light not to last for long as they are expecting. There was no sensitization on the type of appliances they should buy for this l ight and so they just buy whatever appliances they want to buy.'
Community Solar Technician, Kychom, Kambia district

This claim has been confirmed as previous findings from the personal interviews suggest that most heavy commercial equipment such as rice mills and other processing equipment are not connected to mini-grid. Meanwhile, mini-grid power supply has not yet been commissioned in one of the project target communities namely Rokupr.

Furthermore, participants complained significant delay in reactivating their meters after payment. This also applies to maintenance response when faced with connection or other technical issues. For instance, the mini-grid in Rokonta has been reportedly faulty such that it has not provided power supply to the community for a couple of weeks. In addition, the Rokonta Renewable Energy (WINCH) has often experienced unexpected power cut without prior notice.

'One of our major challenges is that of the high cost of using the light. We pay exorbitantly for the use of the light in a way that we never expected. No sooner we are connected, there is a daily tariff of le9000 that we pay whether we use the light or not. Another challenge is that, when we go to buy top up, we always meet outstanding in our meters especially when it takes one more than a day without buying credit for their meters.' **Female entrepreneur, Kychom, Kambia**

Similar challenge of power shutdown due to low capacity of the mini-grid has been reported for other communities covered by the assessment. Also, mini-grid operators are less motivated due to low remuneration, further leading to increased charges and ineffective service to the communities.

'Power Gen was used to paying its agent who was stationed at the community, but that has stopped for a while now. In fact, the agent left and was replaced by a resident of the village. Since he is not paid by Power Gen, he devised a strategy to pay himself by imposing a 20% extra fee upon every top-up purchase. I.e. Le 2,000 extra fee for every Le 10,000 meter top-up bought; and that goes to his pocket as token.' **Woman Entrepreneur, Mano Gbojeima, Pujehun District**

The high tariff charges are also considered by entrepreneur as a negative factor that will undermine future sustainability of the mini-grid power supply in the project locations.

‘Access and use of mini-grid electricity is generally not a problem for women in this community. The problem everyone is facing, not just women, is the tariff. The way our monies go into purchasing units for lighting and other purposes is so exorbitant. We are afraid that, if the tariff remains the same, the sustainability of mini-grid electricity plant will be seriously undermined. We are yet continuing because we are now used to electricity, but this sort of trend in tariff might just be another “poverty support strategy”.’

Entrepreneur, Mano Gbojeima, Pujehun distirct

3.6 **Specific Objective 4:** Strengthening enabling environment and sustainability

The SHE proposal argues that economic gains are not sustained unless discriminatory social and gender norms are reduced. To this end, the project therefore intends to promote behaviour change towards more supportive enabling environment for energy-enabled women’s entrepreneurship, and also help promote household appliances that reduce women’s burden of household labour and can enable women to spend more time on entrepreneurship

3.6.1 Indicator 4.1- Relations: percent of women who have meaningfully participated in economic decision-making in the household and their workplace/community (CARE Global Indicator for WEE)

The assessment revealed low level of women’s meaningful participation in economic decision-making in their households and/or community. As depicted in Figure 25, only an approximated 8 percent of women claimed to have meaningfully participated in economic decision making; and comparison across gender revealed significant difference in the level of participation between men (12.4%) and women (7.5%).

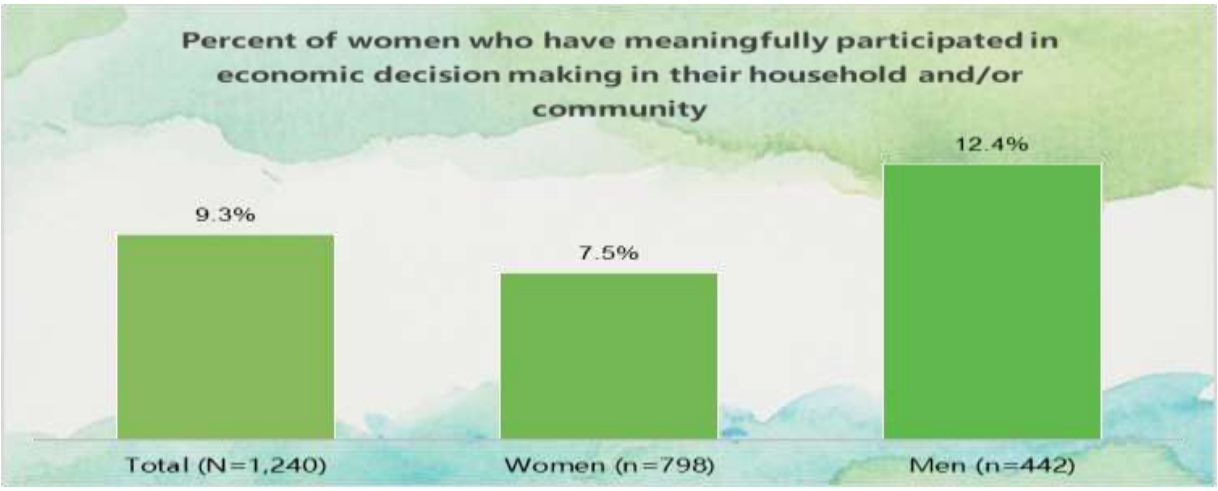

Figure 25: Percent of women who have meaningfully participated in economic decision-making in their household and/ or commuity

At district level, the assessment observed marked gender disparity in economic decision making in Bombali, Bothe, Moyamba and Pujehun districts (see Table 23).

Table 22: Indicator 4.1: Percent of women who have meaningfully participated in economic decision-making in their household and/ or commuity by district

Indicator	Disaggregation	Baseline value	Bo	Bombali	Bonthe	Kambia	Koinadugu	Moyamba	Pujehun
Indicator 4.1:: Relations: percent of women who have meaningfully participated in economic decision-making in a) the household and/or b) their workplace/community **(CARE Global Indicator for WEE)**	Total (N=1,240)	9.3%	0.0%	10.2%	4.7%	5.0%	10.1%	8.3%	17.2%
	Women (n=798)	7.5%	0.0%	10.8%	2.7%	4.4%	12.9%	6.0%	13.1%
	Men (n=442)	12.4%	0.0%	19.7%	8.0%	6.9%	5.5%	13.3%	24.7%

3.6.2 Indicator 4.3: percent women entrepreneurs reporting time saved in a) enterprise and b) household due to increased energy use

It is noteworthy that one of the key learning questions for the project's implementation is to investigate if/how reducing household chores/ drudgery correlates to uptake in women's participation in the labour market. Considering, this as a baseline assessment, the study compared time used in both enterprise and home for entrepreneurs connected to mini-grid and those not connected. The difference in average daily time used was therefore considered to computed the percent time saved as a result of increased used of energy. This computation showed that, mini-grid power supply can help women to save 20 percent on time used in the home and engage more in their business activities (see Figure 25).

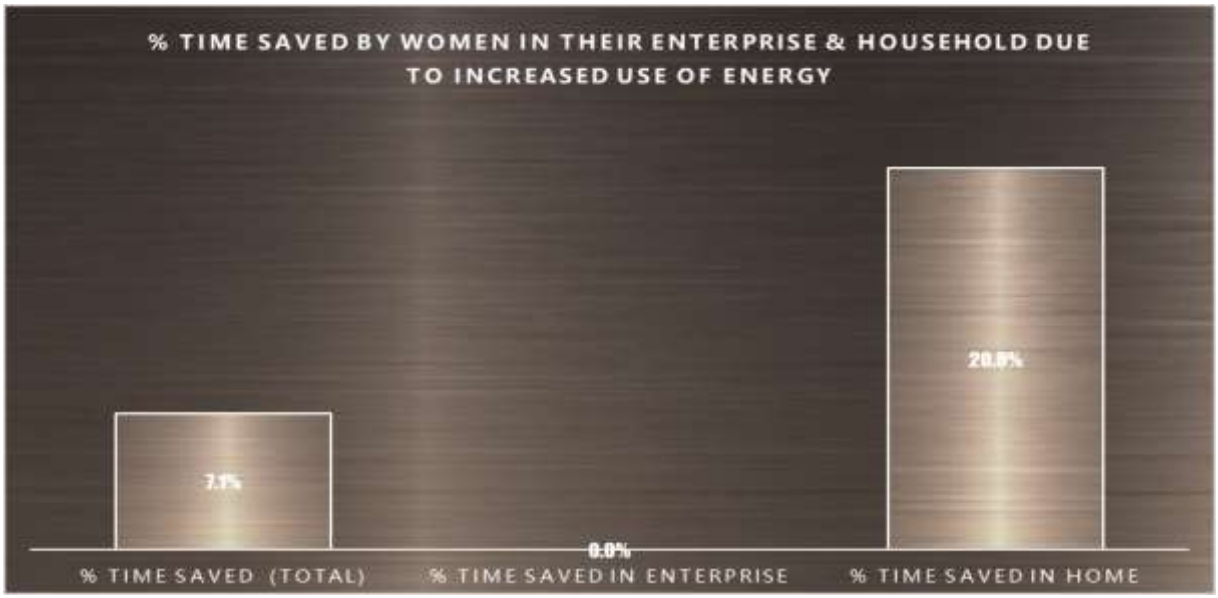

Figure 26: Percent of time saved in their enterprise and household due to increased use of energy

On average, percent time saved by women entrepreneurs markedly varies between household activities and business activities. While time remains constant in business activities, about 20 percent of time used in the home will be saved by women entrepreneurs in the project areas due to increased use of energy (see Table 24).

Table 23: Indicator 4.3: Percent of time saved by women entrepreneurs in their enterprises and households due to increased energy use

Indicator	Disaggregation	Connected to RE (n=285)	Not connect to RE (n=271)	% time saved
Indicator 4.3: % time saved by women entrepreneurs in their a) enterprise and b) household due to increased energy use	Total (N=556)	6.5	7.0	7.1%
	Women (n=338)	6.5	7.0	7.1%
	Men (n=218)	7.0	7.0	0.0%
Indicator 4.2.1: % time saved by women entrepreneurs in their enterprise due to increased energy use	Total (N=556)	9	9	0.0%
	Women (n=338)	9	9	0.0%
	Men (n=218)	10	10	0.0%
Indicator 4.2.2: % time saved by women entrepreneurs in their household due to increased energy use	Total (N=556)	4	5	20.0%
	Women (n=338)	4	5	20.0%
	Men (n=218)	4	4	0.0%

3.6.3 Indicator 4.4: percent of women entrepreneurs who are using their capacities for resilience and adaptation to the effects of climate change

The assessment showed that as high as 44 percent of entrepreneurs are engaged in the crop value chain, including production and processing sector. Capacity assessment on climate change and resilience is therefore crucial at the project inception phase. However, the findings are anecdotal and may not present the actual status of entrepreneurs on climate change and resilience building. It turned out though, that a high proportion of women

entrepreneurs (71.3%) demonstrated low capacity and adaptation to climate. Comparatively, the percent of male entrepreneurs (46.8%) who demonstrated using their capacities and adaptation to climate change almost doubled those of women entrepreneurs (28.7%). This had meant increased effort is required to prepare women entrepreneurs in the food crop value chain for climate change resilience.

Figure 27: Percent of women enterprises who are using their capacities and adaptation to climate change

3.6.4 Indicator 4.5: percent of women entrepreneurs and their partners that are demonstrating gender equitable attitudes

Figure 28 presents the percent of women entrepreneurs and their partners demonstrating gender equitable attitudes across the project areas. However, the analysis was not exhaustive, and only present part of the indicators identified to analyse gender equitable attitudes in the project areas. One of the indicators analysed was the percent of entrepreneurs who agreed women independently make decisions regarding borrowing or what to do with loan received from lenders/ creditors/ financial institutions. The findings revealed that women are less likely to involve in economic decision making with their partners in approximately 90 percent of households across the intervention districts. Meanwhile, ddistrict comparisons showed that gender equitable practice is lower in Bo (1.7%) and Moyamba (4.1%) the other districts

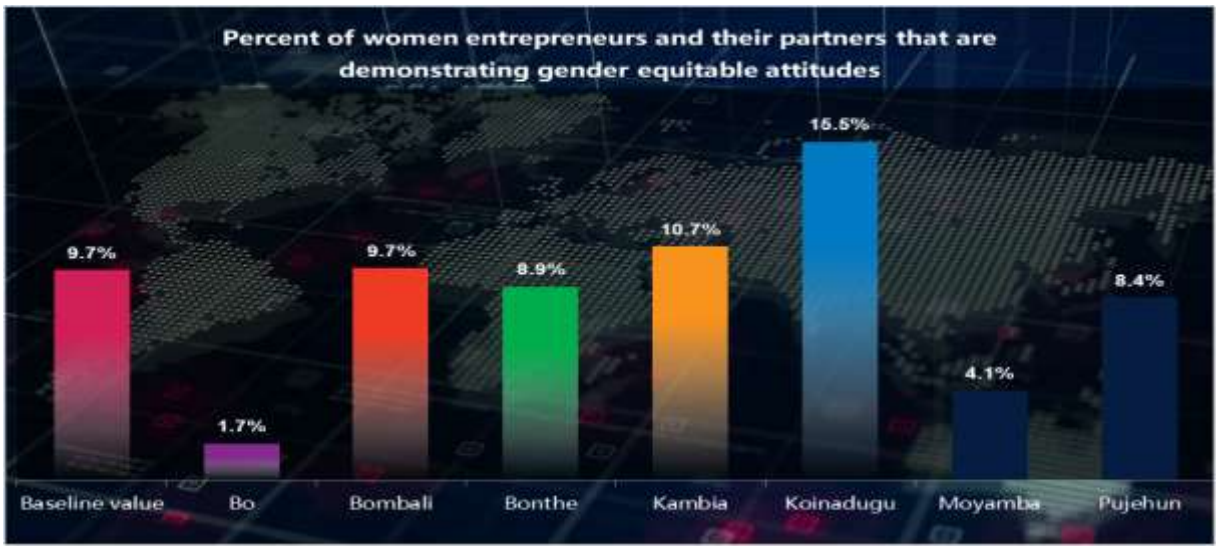

Figure 28: Percent of women entrepreneurs and their partners that are demonstrating gender equitable attitudes

4. CONCLUSION AND RECOMMENDATIONS

Findings from the assessment confirmed to a larger extent, the strategic relevance of the Solar Harnessed Entrepreneurs (SHE) project in Sierra Leone. The contextual analyses regarding the situation of solar-enhanced business showed that very few female entrepreneurs showed readiness to grow- where majority of them are notably concentrated in the micro-enterprise business categories and mostly in the informal business without legal registration status. Interestingly, there is high demand for distributed renewable energy, but the effectiveness and sustainability of the energy supply have been questioned with low power supply capacity, spontaneous power cut, perceived high tariff and lack of service users' understanding of the metering/billing process across the project intervention communities. However, the business environment of the project areas is conducive- presenting a couple of business, networking, and market opportunities. In particular, there are potentials of profitable businesses with high returns on investment that can be connected to mini-grid for growth. Meanwhile, the assessment observed that the project strategies/ approaches were well articulated in a way that these findings could be addressed over the implementation period.

4.1 Recommendations

Although the project design was well planned to address the gaps observed, there are key recommendations that may require urgent attention for redesign of the program. The key gaps/findings and recommendations were aligned to the project approaches adapted from globally tested strategies for productive use of energy.

#	Strategy/ approaches	Gaps/ key findings	Key recommendations	Programme response
1	Improve access to finance	▪ The findings revealed that access to finance is crucial for business expansion and transitioning within the MSME categories. Majority of women entrepreneurs lack access to formal credit opportunities. Notably, distance to the financial service providers, high interest rates, stringent loan repayment policy and lack of collateral are critical issues preventing access to credit facilities. ▪ Limited access to digital financial services also inhibit access to available opportunities	▪ Increased advocacy and strategic partnership with financial service providers will increase the chances of accessing available credit opportunities. The loan guarantee fund could be a convincing strategy for women entrepreneurs to gain easy access to available loan. ▪ Promoting financial inclusion and resilience strengthening through digital financial inclusion (DFI) is critical for sustained access to loan facilities. It is important to note that digital banking is gaining prominence in rural communities, and effort to tap into this opportunity is important. ▪ Implementing gender transformative strategy can give equal opportunity to all types of loans. ▪ Group-run business should be encouraged- considering that this serves as a major requirement for many MFIs to disburse micro enterprise group loans (MEGAL).	▪
2	Provide energy management training & promoting availability of appliances and suppliers	▪ The assessment noted growing interest in DRE mini-grid power supply, but the electricity service providers face numerous challenges to meet the needs of the service users. High tariff, unreliable power supply, low capacity to supply increased connection of energy enabled appliances, and poor knowledge of the metering/ billing process were noted as critical challenges that may undermine the relevance and sustainability of the DRE mini-grid installations and operations in the project communities. ▪ The local mini-grid artisans/ artisans and energy enabled appliances in and around the project communities are critical challenges reported by services users, and eventual decrease interest in the use of the service. ▪ Mini-grid operators/ technicians are bot financially motivated . which condones corruption and undermine service effectiveness	▪ Train local artisans/technicians and if possible include service users in the installations and maintenance of appliance. ▪ Negotiating for flexible tariff and building service users knowledge on meter reading and billing process is critical for sustainability of the DRE initiative. ▪ Increasing the power output capacity is urgently needed- otherwise the relevance of the SHE project would be undermined. ▪ Mapping out available providers of appliances is critical for continued support for energy-enabled businesses in the project communities.	▪

3	Increase provision and uptake of education and training		Promote the formalisation of beneficiary enterprises especially those in the medium enterprise business category. There need for business management, literacy and numeracy training among beneficiary. Business plan development and availability of inventory remain crucial for tracking business growth over time.	

Annexes

Annex I: Terms of Reference

TERMS OF REFERENCE SOLAR HARNESSED ENTERPRENEURS PROJECT – BASELINE CONSULTANCY

1. BACKGROUND

CARE works around the globe to save lives, defeat poverty, and achieve social justice. As an international non-profit organization, we are known everywhere for our unshakeable commitment to the dignity of people. Knowing that we cannot overcome poverty until all people have equal rights and opportunities, CARE works with local partners to create local solutions to poverty and inequality as we seek to improve lives for everyone every day and during times of crisis. Our staff live where they work, to better understand the challenges communities face to ensure our effectiveness in addressing these. CARE International in Sierra Leone has been operational in Sierra Leone for 60 years and has developed strong partnerships with government through line Ministries, donors, NGOs / CSOs and other development partnersThe development of renewable energy and mini-grids in Sierra Leone (SL), though nascent, offers growth and development opportunities for Sierra Leonean women. Women's low social and economic status puts them at a disproportionate disadvantage in benefitting from economic and entrepreneurship opportunities presented by off-grid power. These challenges have been exacerbated by the COVID-19 pandemic which have increased women's un-paid care burden and gender-based violence (GBV). Recent donor investments in the mini-grid sector, as well as Sub-regional (ECOWAS) and Government of Sierra Leone's (GoSL) commitment to renewable energy represent an unprecedented opportunity for rural women entrepreneurs to benefit from off-grid power.

CARE has been awarded a grant by the Rockefeller Foundation to implement the solution, Solar Harnessed Entrepreneurs (SHE) which will support **7,120 women** living in Sierra Leone's mini-grid locations to launch **over 330** profitable and sustainable energy enabled businesses. To address the significant divide in productive use of energy (PUE) between men and women,[18] CARE will bolster opportunities for women by addressing underlying challenges such as access to assets, finance, markets, infrastructure, skills and gender and social norms and also strengthen their networks and linkages to productive resources. The project will be implemented in seven districts in Sierra Leone including Bo, Moyamba, Bonthe, Pujehun, Kambia, Koinadugu and Bombali.

CARE is therefore sourcing the services of a competent individual or consulting firm to conduct a baseline studies for this intervention taking in to consideration control site, which will serve as a benckmark for the project.

2. Objectives of the Baseline

The objective of the baseline study is to provide contextual analysis of the project's target population, while also capturing initial data against selected indicators in the project results framework. This work will be completed in addition and in parallel to the mapping and feasibility studies being implemented by the SHE roject.

The consultant will determine the baseline values for indicators selected to capture the SHE project's objectives and outcomes. These indicators will be shared with the consultant prior to the start of the assignment.

The baseline should also identify and map the participants and stakeholders that will be involved in the project (government actors, SMEs, supplier and local communities).

[18] https://www.sciencedirect.com/science/article/pii/S2214629619306000

Finally, the baseline should provide contextual analysis to inform the project's M&E framework and recommend any adaptations or improvement. The baseline will, in addition to collecting data to measure the indicators, seek to answer the following key research questions:

5. What is the situation of solar business, particularly as it relates to women?
6. What are the community perceptions, attitudes and understanding of existing solar opportunities ?
7. What is the current community eletricity consumption and behaviour ?
8. What are the key enabling factors which promote greater sustainability within the solar businesses? What are the key disabling factors which hinder it?

5. How are key cross-cutting themes, gender equality and child rights/protection, understood and practiced across the business sector?

The key tasks that the consultant will be responsible for include:

- Work closely with the project team and partners (CARE, Rockefeller)
- Literature/document review of relevant project documents (log-frame, M&E framework, project proposal,) and other relevant research/publications;
- Develop the baseline survey methodology, including the data collection methods/tools:
- Identify and map the stakeholders and participants involved in the project (with input from CARE);
- Design interview questionnaires and surveys for key target groups ;
- Outline the baseline design in a succinct Inception Report, including but not limited to: instructions for data collection, data entry, data cleansing, data processing, data quality assurance and data analysis;
- Review and analyze data, including statistical analysis of survey results;
- Consolidating, cleaning and delivering baseline data in a specific format (e.g. Excel, SPSS);
- Drafting and finalizing the baseline report, including analysis and update of the baseline values of the projects' M&E framework and any recommendations for adaptation/improvement;
- Facilitate a workshop to present the key findings of the baseline to the project team and partners.

3. Methodology

The consultant will develop a detailed methodology for data collection, data management and analysis in their proposal. This methodology should be in direct response to the project indicators and other baseline research questions. This methodology will be laid-out in greater detail in the Inception Report provided by the consultant once the baseline is underway. Any method proposed must be in-line with CARE MEL Standards – including ethical considerations as well as the needs and wellbeing of any respondents involved.

4. Deliverables and timeline

The Consultant must deliver the following within the timeframe of this assignment:

- Inception Report: to be submitted within 4 days of commencement of assignment.
- Draft Report: to be submitted within 17 days of commencement of assignment.
- Final Report: to be submitted 2 days after receiving feedback from the Program Director and team.

5. Profile of Consultant

The prospective Consultant must satisfy the following minimum requirements:

- Holds at least a Master's degree in statistics, Development Studies,Business Administration, Renewable energy etc.
- Minimum 5 years of relevant experience at national level in conducting research studies.
- Proven experience in conducting similar assignments in Sierra Leone or similar developing country context.
- Experience in qualitative and quantitative data collection, management, analysis and reporting.
- Strong research and programming experience in renewable energy, agriculture value chains, market assessments, and stakeholder analysis etc

- Excellent command of written and spoken English and report writing skills.
- Demonstrated understanding of gender dynamics in Sierra Leone and the energy context
- Knowledge of Sierra Leone development context.
- Ability to work with tight deadlines.
- Work experience in the target Districts is an asset.

6. Reporting Lines

The Consultant will report directly to the Project Director and work closely with the Head of Programs and the Monitoring and Evaluation Manager of CARE Sierra Leone.

7. Duration of the Consultancy

The duration of the consultancy is expected to last for a total of 21 days, over a period between November 19, 2021 and January 7, 2022.

Annex II: Tools for the assessment

Attached

Annex III: Database for the assessment

Attached

Annex IV: Stakeholders/ beneficiaries interviewed

No	Name	Sex	Age	Business Type	Community	District	Contact
1	Abu Bakarr Conteh	M	35	Retail And Wholesale Business Shop	Bumpe Ngao	Bo	075079260
2	Sundie Gandy	M	38	Retail Shop	Bumpe Ngao	Bo	076326674
3	Mariama Simbo	F	28	Retail Business	Bumpe Ngao	Bo	073491217
4	Kadiatu Lahai	F	41	Producer [Farmer]	Bumpe Ngao	Bo	
5	Sara Samba	F	24	Retail Business	Bumpe Ngao	Bo	078999093
6	Gbassay Janina	F	36	Retail Business	Bumpe Ngao	Bo	076333448
7	Mammie Labour	F	40	Retail Business	Bumpe Ngao	Bo	075157248
8	Brima Lukulay	M	34	Retail Business	Bumpe Ngao	Bo	076366134
9	Mohamed Lusaine	M	27	Retail Business	Bumpe Ngao	Bo	075913389
10	Patrick M Saffa	M	42	Retail Business	Bumpe Ngao	Bo	076739452
11	Panda Somolia	M	34	Retail Business	Bumpe Ngao	Bo	078626699
12	Sandi Alfoglawa	M	55	Retail Business	Bumpe Ngao	Bo	076298876
13	Joseph Brima Ngoniyo	M	34	Retail Business	Bumpe Ngao	Bo	078355336
	Name	Sex	Age	Business Type	Community	District	Contact
1	Mohamed M. Kamara	M	53	Retail And Wholesale Business	Gbanbatoke	Moyamba	078523458
2	Memunatu Sheriff	F	34	Lumor Market	Gbanbatoke	Moyamba	076749094
3	Maseria Lavallie	F	26	Retail Business	Gbanbatoke	Moyamba	030838980
4	Hawa Moriba	F	30	Retail Business	Gbanbatoke	Moyamba	075773436
5	Humu Yambasu	F	38	Retail Business	Gbanbatoke	Moyamba	088308619
6	Saffie Bangura	F	31	Retail Business	Gbanbatoke	Moyamba	078561819

7	Mary Gbala	F	25	Retail Business	Gbanbatoke	Moyamba	075767744
8	Hassan Fofanah	F	33	Retail Business	Gbanbatoke	Moyamba	080789204
9	Andrew Berewa	M	41	Retail Business	Gbanbatoke	Moyamba	077053070
10	Mohamed Kamara	M	36	Retail Business	Gbanbatoke	Moyamba	076992108
11	Dennis Banda	M	31	Retail Business	Gbanbatoke	Moyamba	030818795
12	Abdul Manseray	M	41	Retail Business	Gbanbatoke	Moyamba	076422044
13	Foday K Jalloh	M	34	Retail Business	Gbanbatoke	Moyamba	077668097
14	Mariama Sheku	F	46	Retail Business	Gbanbatoke	Moyamba	076822890
15	Karim Yambusu	F	35	Retail Business	Gbanbatoke	Moyamba	073180235
16	Jane Gboke	F	35	Retail Business	Gbanbatoke	Moyamba	078523458
	Name	**Sex**	**Age**	**Business Type**	**Community**	**District**	**Contact**
1	Musa Kargbo	M	52	Retail Business	Bradford	Moyamba	075130651
2	Isata Conteh	F	32	Whole And Retail	Bradford	Moyamba	075772805
3	Musu M Kamara	F	28	Retail Business	Bradford	Moyamba	075442424
4	Anna Cole Mawoi	F	35	Retail Business	Bradford	Moyamba	076653079
5	Osman Kamara	M	29	Retail Business	Bradford	Moyamba	076395371
6	Mohamed Fofanah	M		Retail Business	Bradford	Moyamba	075780376
7	Abdul P Bangura	M		Welder	Bradford	Moyamba	
8	Samuel R Sparan	M		Retail Business	Bradford	Moyamba	076110021
9	Alhaji M. Kabba	M		Solar Operator	Bradford	Moyamba	078807128
10	Abu Bangura	M		Retail Business	Bradford	Moyamba	
11	Saidu Sesay	M		Retail Business	Bradford	Moyamba	079315452
12	Emmanuel Abass Kargbo	M		Retail Business	Bradford	Moyamba	074022498
13	Ndanema Mathiew	M		Retail Business	Bradford	Moyamba	076947459
14	Ahmed Yawo Turay	M		Retail Business	Bradford	Moyamba	075130651
15	Mohamed Osman Bangura	M		Retail Business	Bradford	Moyamba	
	Name	Sex	Age	Business Type	Community	District	Contact
1	Ya Alimamy Sesay	F	50	Producer And A Processor	Kychom	Kambia	
2	Mohamed Sillah	M	55	Farmer And A Processor	Kychom	Kambia	076568520
3	Alhaji S Kamara	M	21	Tailor	Kychom	Kambia	077661880
4	Abdul Kamara	M	53	Famer And Processor	Kychom	Kambia	078735050
5	Fatmata Kargbo	F	28	Retailer	Kychom	Kambia	099355193
6	Abibatu H Kamara	F	23	Retailer	Kychom	Kambia	080902689
7	Kadiatu Sumah	F	39	Retailer, Cold Storage And	Kychom	Kambia	

				Farmer			
8	Aminata S Kamara	F	65	Farmer	Kychom	Kambia	030315617
9	Emmah P Kamara	F	38	Retailer, Farmer	Kychom	Kambia	076568520
	Name	**Sex**	**Age**	**Business Type**	**Community**	**District**	**Contact**
1	Ya Mabinty Sherrif	F	55	Producer And A Retailer	Rokupr	Kambia	
2	Hawa Sankoh	F	35	Retailer	Rokupr	Kambia	088460808
3	Abu Bakarr Kamara	M	40	Retailer	Rokupr	Kambia	099703224
4	Haja Fatmata Turay	F	40	Retailer	Rokupr	Kambia	088945838
5	Usman Conteh	M	35	Timber Sales	Rokupr	Kambia	079249601
6	Alusine Morris Kamara	M	26	Charging Station	Rokupr	Kambia	078166791
7	Fatu Sorie	F	50	Assorted	Rokupr	Kambia	077272331
8	Isatu Kamara	F	27	Retailer	Rokupr	Kambia	073285028
9	Alhaji F. Kofoir	M	34	Charging Station, Cold Storage	Rokupr	Kambia	076501266
	Name	**Sex**	**Age**	**Business Type**	**Community**	**District**	**Contact**
1	Abu-Bakr Sufian Kamara	M	40	Entertainment Center	Mambolo	Kambia	077929057
2	Alimamy Limpa Kamara	F	40	Farmer And A Processor	Mambolo	Kambia	088638827
3	Pa Morlai Konko Kamara.	M	50	Fisher Man And Rice Processor	Mambolo	Kambia	
4	Mohamed Ibrahim Kargbo	M	52	Famer And Processor	Mambolo	Kambia	076522173
5	Mariama Bah.	F	35	Retailer	Mambolo	Kambia	077998093
6	Isatu Kamara.	F	61	Farmer	Mambolo	Kambia	077431773
7	Emmah Bundu.	F	33	Retailer	Mambolo	Kambia	088818332
8	Lionel Bai Kamara	M	45	Retailer	Mambolo	Kambia	077423674
9	Pa Issa Tailor Kamara	M	50	Tailor	Mambolo	Kambia	075502150
	Name	**Sex**	**Age**	**Business Type**	**Community**	**District**	**Contact**
1	Makprie Kamara	F	32	Cassava And Potato Processor	Rokonta Bi-Shary	Bombali	-
2	Maseray Serry	F	28	**Livestock Processor**	Rokonta Bi	Bombali	077-986-563
3	Samuel Fornah	M	47	Rice Processor And Livestock	Rokonta Bi	Bombali	030-404&733
4	Fatu Sesay	F	51	Ground Nut Processor And Rice Processor	Rokonta Bi	Bombali	073-512-461
5	Samuel Alie Sesay	M	43	Rice Processor	Rokonta Bi	Bombali	077-599-612
6	Pst Samuel S. Bangura	F	54	Livestock Processor	Rokonta Bi	Bombali	075&802-215
7	Hassan Y. Fornah	M	45	Rice Processor And Livestock Processor	Rokonta Bi	Bombali	075-316-361

8	Albert Kamara	M	40	Mix Trade And Rice Processor	Rokonta Bi	Bombali	-
9	Marie Fornah	F	36	Cassava Flour Processor	Rokonta Bi	Bombali	088-140-865
10	Fatmata Koroma	F	39	Retail Sales	Rokonta Bi	Bombali	030-394-871
11	Fatmata Tarawalie	F	33	Livestock Processor	Rokonta Bi	Bombali	-
12	Isata Fullah	F	35	Livestock Livestock Processor	Rokonta Bi	Bombali	-
13	Hawa Kamara	F	27	Pepper And Ground Processor	Rokonta Bi	Bombali	-
14	Aminata Kargbo	F	41	Chicken Proeso Hi	Rokonta Bi	Bombali	-
15	James L. Conteh	M	45	Rice Processor.	Rokonta Bi	Bombali	072-745-747
	Name	**Sex**	**Age**	**Business Type**	**Community**	**District**	**Contact**
1	Malaga Jawara	F	51	Rice Farming	Musai	Koinadugu	099-651-058
2	Dusu Kuyateh	F	38	Rice And Groundnut Processor	Musai	Koinadugu	079-643-258
3	Gbulu Koroma	F	47	Mix Sales Trade	Musai	Koinadugu	076-888-778
4	Abdulia Jawara	M	41	Rice Mill Processor	Musai	Koinadugu	-
5	Madusu Musa	F	38	Pity Trader	Musai	Koinadugu	-
6	Fatmata Kamara	F.	36	Vegetable Processor	Musai	Koinadugu	-
7	Ballah Jawara	M	43	Rice Mill Processor	Musai	Koinadugu	078-806-668
8	Tallah Jawara	M	40	Carpenter	Musai	Koinadugu	074-573-716
9	Musa B. Jawara	M	49	Whole Sales And Retail Sales	Musai	Koinadugu	078-493-956
10	Marian Jawara	F	34	Mix Trade And Groundnut Processor	Musai	Koinadugu	-
11	Zainab Jalloh	F	39	Vegetable And Fruit Pepper Producer.	Musai	Koinadugu	-
12	Alimatu Sawaneh	F	28	Rice Processor	Musai	Koinadugu	-
13	Fatmata Kondeh	F	41	Swamp Farming- Producer	Musai	Koinadugu	-
14	Ramatulia Conte	F	39	Ginger And Mix Vegetable Processor	Musai	Koinadugu	-
15	Hassanatu Samura	F	41	Rice Processor	Musai	Koinadugu	-
	Name	**Sex**	**Age**	**Business Type**	**Communty**	**District**	**Contact**
1	Bambeh S. Mansaray	F	39	Ground Nut Processor	Sinkunia	Koinadugu	
2	John Conteh	M	40	Livestock Processor	Sinkunia	Koinadugu	
3	Sirah Kamara	F	41	Tailoring And Mix Trading	Sinkunia	Koinadugu	
4	Simithy Kamara	F	35	Tailoring	Sinkunia	Koinadugu	075-715-391
5	Musa Mansaray	M	42	Rice And Cassava Processor	Sinkunia	Koinadugu	076-737-204
6	Ballah Jum	M	35	Welder	Sinkunia	Koinadugu	076-737-204

7	Kumba Kamara	F	39	Mix Sales Trade And Groundnut Processor	Sinkunia	Koinadugu	079-081-955
8	Wudia Kamara	F	31	Potato Seller And Mix Food Trade	Sinkunia	Koinadugu	033-781-710
9	Momodu Koroma	M	35	Filter And Retail Sales	Sinkunia	Koinadugu	073-898-749
10	Isata Kamara	F	31	Entertainment Bar Trader	Sinkunia	Koinadugu	075-279-554
11	Isata Kamara	F	41	Palm Oil And Rice Processor	Sinkunia	Koinadugu	073-924-554
12	Feremusu Kamara	F	35	Rice Processor	Sinkunia	Koinadugu	‘’’
13	Demoh Kabia	F	34	Mix Trade	Sinkunia	Koinadugu	‘’’
14	Nenneh Sonnah	F	42	Livestock Processor	Sinkunia	Koinadugu	‘’
15	Fatu Dumbuya	F	41	Ground Nut Processor	Sinkunia	Koinadugu	‘’
	Name	**Sex**	**Age**	**Business Type**	**Batkanu**	**Bombali**	**Contact**
1	Pa Santigi Koroma	M	52	Rice Processor	Batkanu	Bombali	099-713-493
2	Mohamed C.Jalloh	M	39	Retail Processor	Batkanu	Bombali	076-515-231
3	Imama Sesay	F	40	Retail Mix Trading	Batkanu	Bombali	099-868-897
4	Aminata Kamara	F	33	Ground Nut Processor And Mix Trading	Batkanu	Bombali	080-617-070
5	Sallamatu Sesay	F	38	Rice Processor And Pity Trader	Batkanu	Bombali	077-661-816
6	Adama M. Kanu	F	39	Ground Nut Processor	Batkanu	Bombali	076-050-677
7	Yabom Kamara	F	43	Pepper Producer And Processor	Batkanu	Bombali	-
8	Mabinty Kuyateh	F	39	Cassava Producer	Batkanu	Bombali	078-402-142
9	Alpha Tunkara	M	50	Entertainment Center, **Retailer.**	Batkanu	Bombali	088-184-127
10	Kadiatu Kanu	F	38	Retail Supplier	Batkanu	Bombali	030-858-733
11	Mary Kargbo	F	55	Rice Producer And Pity Trader	Batkanu	Bombali	099-696-448
12	Abass Tarawali	M	53	Pepper Producer And Retailer	Batkanu	Bombali	080-734-067
13	Maso Kargbo	M	46	Rice Processor, Fisherman And Retail Sales	Batkanu	Bombali	080-078-362
14	Alie Bangura	M	41	Palm Oil Processor And Mix Sales Trade	Batkanu	Bombali	077-219-368
15	Binta Bah	M	29	Mix Trade	Batkanu	Bombali	088-731-081
	Name	**Sex**	**Age**	**Business Type**	**Community**	**District**	**Contact**
1	Mbayo Mammy	M	43	Town Chief	Tihun	Bonthe	075-722-655
2	Peter Gassimu	M	40	Pastor	Tihun	Bonthe	078-860-288
3	Joseph Michael	M	34	Town Youth Leader	Tihun	Bonthe	076-478-144
4	Sheik Joe Kekura	M	40	Imam	Tihun	Bonthe	075-837-229

5	Mark F. Soloku	M	29	Teacher	Tihun	Bonthe	074-447-474
6	Brima Gassimu	M	28	Chiefdom Youth Leader	Tihun	Bonthe	076-185-495
7	Foday Hindovei	M	42	Town Speaker	Tihun	Bonthe	075-567-987
8	Boizzie Lemoh	M	44	Regent Chief	Tihun	Bonthe	078-545-189
9	Andrew M Fandewo	M	24	Electrician	Tihun	Bonthe	078-516-557
10	Sarah Dongboi	F	39	Chairlady	Tihun	Bonthe	076-379-829
11	Nancy Baryon	F	34	Member	Tihun	Bonthe	079-298-498
12	Amie Dauda	F	37	Member	Tihun	Bonthe	080-101-022
13	Rebecca Gassimu	F	40	Member	Tihun	Bonthe	074-162-979
14	Moiyatu Yanguba	F	36	Member	Tihun	Bonthe	078-345-983
15	Janet Senesie	F	41	Member	Tihun	Bonthe	078-231-589
	Name	**Sex**	**Age**	**Business Type**	**Community**	**District**	**Contact**
1	Mohamed Pujeh	M	35	Rice, Cassava, Palm Oil Farming	Madina	Bonthe	078-247-069
2	Mohamed Sarmah	M	42	Tailoring, Groundnut And Rice Farming	Madina	Bonthe	078-578-459
3	Mamie Kallon	F	45	Rice, Vegetable, Pety Trading, Cassava Farm	Madina	Bonthe	078-465-133
4	Jeneba Sesay	F	40	Groundnut, Vegetable, Prtty Trading, Cassava Farm And Palm Oil	Madina	Bonthe	075-837-610
5	Vandi Allieu	M	37	Rice, Vegetable, Petty Trading And Palm Oil	Madina	Bonthe	076-300-112
6	Adama Alpha	F	28	Rice, Vegetable, Petty Trading, Cassava And Palm Oil	Madina	Bonthe	079-275-264
7	Amie Bull	F	42	Rice, Vegetable, Petty Trading, Cassava And Palm Oil	Madina	Bonthe	072-984-443
8	Moinya Kawa	F	32	Fishing, Rice, Vegetable, Petty Trading, Cassava And Palm Oil	Madina	Bonthe	075-542-358
9	Seinya Maligie	F	43	Tailoring	Madina	Bonthe	075-126-221
10	Mamie Koroma	F	26	Rice, Vegetable, Petty Trading, Cassava And Palm Oil	Madina	Bonthe	076-101-917
11	Adama Musa	F	34	Rice, Vegetable, Petty Trading, Cassava And Palm Oil	Madina	Bonthe	079-298-498
12	Daddy Koroma	M	33	Welding, Rice And Palm Oil	Madina	Bonthe	088-695-317
13	Mohamed Fofana	M	29	Petty Trading, Groundnut, Cassava And Palm Oil	Madina	Bonthe	076-234-879
14	Seibatu Mattia	F	41	Fishing, Rice, Vegetables, Petty Trading	Madina	Bonthe	078-357-521
15	Munda Bockarie	M	39	Rice, Vegetable, Petty Trading, Cassava And Palm Oil	Madina	Bonthe	074-589-443
	Name	**Sex**	**Age**	**Business Type**	**Community**	**District**	**Contact**

1	Morray Koroma	M	43	Section Chief	Gbap	Bonthe	075-722-655
2	Ibrahim Musa	M	40	Dept Speaker	Gbap	Bonthe	076-225-591
3	Isaac P. Tucker	M	45	Speaker	Gbap	Bonthe	079-697-751
4	Prince Sellolo	M	40	Member	Gbap	Bonthe	075-837-619
5	Vandi Kemo	M	37	Member	Gbap	Bonthe	076-343-112
6	Saidu Tucker	M	28	Member	Gbap	Bonthe	073-443-768
7	Amie Foday	F	42	Member	Gbap	Bonthe	072-984-443
8	Theresa Tucker	F	32	Member	Gbap	Bonthe	075-449-900
9	Seinya Maligie	F	43	Member	Gbap	Bonthe	075-126-221
10	Mamie Koroma	F	26	Member	Gbap	Bonthe	076-101-917
11	Adama Musa	F	34	Member	Gbap	Bonthe	079-298-498
12	Sattu Tucker	F	37	Member	Gbap	Bonthe	080-101-022
13	Mohamed Fofana	M	29	Member	Gbap	Bonthe	076-234-879
14	Paul I. Lewis	M	36	Member	Gbap	Bonthe	078-345-983
15	Koroma Amadu	M	41	Member	Gbap	Bonthe	078-231-589
	Name	**Sex**	**Age**	**Business Type**	**Community**	**District**	**Contact**
1	Sombo Rogers	F	35	Gari Processor And Rice Retailer	Mano Gbonjema	Pujehun	
2	Watta Sama	F	45	Gari And Palm Oil Processor	Mano Gbonjema	Pujehun	
3	Fatmata Benya	F	22	Fish And Gari Processor	Mano Gbonjema	Pujehun	
4	Betty Konowa	F	45	Cassava And Gari Processor	Mano Gbonjema	Pujehun	
5	Nancy Fawundu	F	48	Cassava And Gari Processor And A Petty Trader Of Assorted Goods (Slippers, Shoes, Locally Made Clothing)	Mano Gbonjema	Pujehun	
6	Lucia Fawundu	F	35	Fish, Gari And Palm Oil Processor	Mano Gbonjema	Pujehun	
7	Fatmata Kemmoh	F	28	Cassava, Fish And Pepper Processor	Mano Gbonjema	Pujehun	
8	Fatmata Kamara	F	50	Cassava Processor And Bread Baking	Mano Gbonjema	Pujehun	
9	Mary Sombi	F	50	Pepper, Cassava Processor And Retailer Of Used Clothing	Mano Gbonjema	Pujehun	
10	Margaret Fawundu	F	59	Gari Processing And Bread Baking	Mano Gbonjema	Pujehun	
11	Hawa Kemoh	F	27	Gari And Fish Processor	Mano Gbonjema	Pujehun	
12	Mamie Fawundu	F	50	Gari And Fish Processor	Mano Gbonjema	Pujehun	
13	Jitta Tarawallie	F	30	Gari Processor And Bread Baking	Mano Gbonjema	Pujehun	
14	Amie Bah	F	40	Pepper And Cassava Processor	Mano Gbonjema	Pujehun	

15	Hawa Koroma	F	27	Fish Processor And Bread Baking	Mano Gbonjema	Pujehun	
16	Lahai Sitta	M	40	Gari Processor And Rice Farmer	Mano Gbonjema	Pujehun	
17	Mohamed K. Fawundu	M	45	Gari Processor	Mano Gbonjema	Pujehun	
18	Mohamed Fawundu	M	55	Gari Processor And Tobacco Planter	Mano Gbonjema	Pujehun	
19	Moina Makemoh	M	45	Gari Processor	Mano Gbonjema	Pujehun	
20	Lahai Tarawallie	M	35	Fisherman, Palm Oil And Gari Processor	Mano Gbonjema	Pujehun	
	Name	**Sex**	**Age**	**Business Type**	**Community**	**District**	**Contact**
1	Amie Kpando	F	41	Palm Oil Processor	Futa Peje	Pujehun	
2	Agness Kaikai	F	79	Retailer Of Assorted Goods	Futa Peje	Pujehun	
3	Jeneba Koroma	F	45	Petty Trader	Futa Peje	Pujehun	
4	Margaret T. Koroma	F	27	Petty Trader	Futa Peje	Pujehun	
5	Fatmata Jalloh	F	60	Palm Oil And Fish Processor	Futa Peje	Pujehun	
6	Foday Kamara	M	47	Retail Shop Owner	Futa Peje	Pujehun	
7	Betty Koroma	F	30	Palm Oil And Gari Vendor	Futa Peje	Pujehun	
8	Mohamed Bah	M	41	Retailer (Retail Shop) And Also Cashew Nut Farmer	Futa Peje	Pujehun	
9	Alhaji Ansumana	M	25	Charcoal And Stick Vendor	Futa Peje	Pujehun	
10	Salamatu Koroma	F	40	Palm Oil Processor And Cooked Food Vendor	Futa Peje	Pujehun	
11	Tenneh Koroma	F	56	Rice Farmer And Pepper Processor	Futa Peje	Pujehun	
12	Jebbeh P.M Koroma	F	35	Groundnut Processor And Vegetable Gardener	Futa Peje	Pujehun	
13	Watta Kamara	F	65	Gari And Palm Oil Processor	Futa Peje	Pujehun	
14	Kadiatu Jalloh	F	50	Cassava And Palm Oil Processor	Futa Peje	Pujehun	
15	Tenneh Koroma	F	30	Cassava, Palm Oil And Groundnut Processor	Futa Peje	Pujehun	
	Name	**Sex**	**Age**	**Business Type**	**Community**	**District**	**Contact**
1	Fatmata Kamara	F	35	Petty Trader	Bandajuma Sowa	Pujehun	
2	Zainab Gandi	F	30	Gari Processor	Bandajuma Sowa	Pujehun	
3	James Taylor	M	25	Manufactures (Tailor)	Bandajuma Sowa	Pujehun	
4	Maju K. Sowa	F	50	Tailor	Bandajuma Sowa	Pujehun	
5	Brima Amadu	M	34	Gari Processor	Bandajuma Sowa	Pujehun	
6	Rashid Bawo	M	36	Gari Processor	Bandajuma Sowa	Pujehun	
7	Mustapha Koroma	M	30	Cassava Processor	Bandajuma Sowa	Pujehun	

8	Baindu Kamara	F	36	Petty Trader	Bandajuma Sowa	Pujehun	
9	Alfred Mbogba	M	50	Palm Oil Processor	Bandajuma Sowa	Pujehun	
10	Hawa Mansaray	F	30	Palm Oil Processor	Bandajuma Sowa	Pujehun	
11	Adama Turay	F	29	Gari And Palm Oil Processor	Bandajuma Sowa	Pujehun	
12	Mustapha Kposowa	M	41	Palm Oil Processor	Bandajuma Sowa	Pujehun	
13	Mohamed Swaray	M	48	Retail Shop Owner	Bandajuma Sowa	Pujehun	
14	Mohamed Kallon	F	45	Guesthouse Manager	Bandajuma Sowa	Pujehun	
15	Adama Sheriff	F	33	Retail Shop Owner And Petty Trader	Bandajuma Sowa	Pujehun	
16	Mariatu Duatie	F	28	Cold Drinks Vendor	Bandajuma Sowa	Pujehun	
17	Francis Alie	F	45	Garie And Palm Oil Processor	Bandajuma Sowa	Pujehun	