

FINAL REPORT

Understanding the Dynamics for Utilization of Household Cooking Energy in Kyangwali Refugee Settlement



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EXECUTIVE SUMMARY

Over three billion people worldwide depend on solid fuels, including biomass (wood, dung and agricultural residues) and coal, to meet their most basic energy needs: cooking, boiling water and heating. The inefficient burning of solid fuels on an open fire or traditional stove indoors are have been reported to cause smoke that fills the air, with dire consequences such as difficult breathing, tears in the eyes and dangerous cocktail of hundreds of pollutants, primarily carbon monoxide and small particles, but also nitrogen oxides, benzene, butadiene, formaldehyde, polyaromatic hydrocarbons and many other health-damaging chemicals.

Access to Fuel and Energy among refugees and host communities is an important aspect according to the Global SAFE strategy. Kyangwali Refugees Settlement in Hoima district is experiencing a dual problem of firewood scarcity and over dependency on firewood and charcoal for cooking energy. Every day refugees in Kyangwali spend hours walking long distances to fetch firewood. Such high dependence on biomass for instance firewood and charcoal is unsustainable due to heavy reliance of forests that are being harvested at a high rate. This study was conducted to ascertain the current practices and dynamics for utilization of household cooking energy in Kyangwali Settlement to enable Action Africa Help (AAH) Uganda and partners design new interventions that promote adaptation of modern energy technologies for the households to conserve energy and explore alternative sources of cooking energy.

Objectives of the study: The specific objectives were to document the; (i) Current cooking-energy practices of the refugees; (ii) Demand and supply of modern cooking energy technologies; (iii) Factors that influence household's choice of cooking energy and (iv) Factors that facilitate utilization of modern cooking energy technologies in Kyangwali Settlement; and provide recommendations on appropriate interventions and strategies for reducing communities' over dependence on firewood in the Settlement. The following tasks were undertaken: (i) Reviewed literature for selected documents (ii) Developed data collection tools (iii) Recruited and trained research assistants/enumerators (iv) Travelled to Kyangwali (v) Collected and analyzed new data (vi) Prepared a draft report, presented and discussed the findings therein with stakeholders (validation) and (vii) Prepared the final report.

Data collection and analysis: Overall, there are sixteen (16) villages in Kyangwali settlement. Based on a representative sampling intensity of 50%, eight villages (Mukarange, Nyampindu, Munsisa, Kasonga, Kinakeitaka, Ngurwe, Kentomi and Malembo) were randomly selected from a list of the 16 villages provided by the Field Office of the Prime Minister Kyangwali settlement. Guided interviews were used to collect both quantitative and qualitative data from randomly selected 80 respondents using a questionnaire. Key Informant Interviews (KII) and Focused Group

Discussions (FGDs) were also used to triangulate the information acquired through the household survey. Descriptive statistics such as frequencies, percentages and cross-tabulations in SPSS version 18 were used to analyze data obtained during the household survey. Qualitative data from KIIs and FDGs were analyzed and presented as narratives. These data were triangulated by the information acquired from the household survey.

Findings: Results showed that most respondents were female youths that are engaged in the day to day cooking dynamics at household level in the settlement. Most respondents (over 30%) use bio-energy including firewood, crop residues and charcoal as the main fuel for cooking. Less than 2% of the refugees use electricity, paraffin, biogas, and briquettes for cooking energy. Firewood is generally preferred for cooking because it is cheap fuel that never requires special technologies for its use during the cooking process. About 55% of the households need a bundle of fire wood (approximately 10 pieces) to prepare a single meal. Charcoal is preferred for cooking due to the general perception that it is clean fuel compared to firewood; crop residues are preferred for their abundance during the harvesting season. Briquettes burn for over a long time and can be used to prepare three meals a day.

Rocket Lorena stoves and the traditional three stones are the most commonly used cooking technologies in the settlement; applied mostly with firewood and crop residues compared to briquettes. The factors that influence household's choice of cooking energy in Kyangwali settlement include availability, accessibility and affordability of cooking energy forms as well as the available cooking energy technologies and extension services support. Availability, accessibility, and affordability of cooking energy forms as well as the available cooking energy technologies and extension services support equally facilitate utilization of modern energy technologies in the settlement.

Conclusions and recommendations: Implementing a Public Private Partnership (PPP) arrangement and REHOPE can be vital strategies for reducing the over dependence on firewood and charcoal and reduce on the amounts being used in the settlement. Organized and carefully designed massive production of briquettes should be promoted. Such production could be implemented hand in hand with the promotion of affordable improved cooking energy saving technologies. AAH Uganda and other development organizations supporting energy initiatives in the settlement should carry out more sensitisations and trainings on improved energy saving technologies to enhance their adoption. Private companies dealing in the manufacture and sale of Eco-stoves should be brought on board and enabled to interact with communities to further help in awareness raising about clean cooking fuel and modern energy saving technologies. Refugees should also be encouraged to open up outlets for selling energy saving stoves within the settlement in partnership with the already existing groups of refugees previously trained and engaged in similar businesses.

ACKNOWLEDGEMENTS

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Lastly, we thank all the respondents from the refugees' community and some members of the host community that interacted with us during interviews and Focused Group Discussions (FGDs) for willingly and unreservedly sharing with us their experiences about the cooking energy situation in Kyangwali.

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TABLE OF CONTENTS

| | |
|--|-------------|
| EXECUTIVE SUMMARY | III |
| LIST OF ACRONYMS | VII |
| LIST OF TABLES | VIII |
| LIST OF FIGURES | 9 |
| BACKGROUND | 10 |
| 1.1. AAH UGANDA ENERGY AND ENVIRONMENT PROGRAMME | 11 |
| 1.2. COOKING ENERGY SITUATION IN KYANGWALI | 11 |
| 1.3. OBJECTIVES AND SCOPE OF THE ASSIGNMENT | 12 |
| 2.0 METHODOLOGY | 12 |
| 2.1 SAMPLING AND SAMPLE SIZE..... | 12 |
| 2.2 STUDY DESIGN | 13 |
| 2.3 DATA COLLECTION METHODS..... | 13 |
| 2.3.1 Household interviews | 13 |
| 2.3.2 Key informant Interviews (KIIs) and Focused Group Discussions (FDGs)..... | 13 |
| 2.3.3 Desk review | 13 |
| 2.3.4 Data analysis | 14 |
| 3.0 FINDINGS | 14 |
| 3.1 CHARACTERISTICS OF RESPONDENTS..... | 14 |
| 3.2 EXISTING SOURCES AND TYPES/FORMS OF ENERGY UTILIZED FOR COOKING | 14 |
| 3.2.1 Preferences for cooking energy | 16 |
| 3.3 COOKING ENERGY TECHNOLOGIES | 18 |
| 3.5 DEMAND AND SUPPLY OF MODERN ENERGY TECHNOLOGIES..... | 19 |
| 3.5.1 Preferences for cooking energy technologies..... | 19 |
| 4.0 DISCUSSIONS AND SYNTHESIS | 20 |
| 4.1 HOUSEHOLD’S CHOICE OF COOKING ENERGY | 20 |
| 4.2 HOUSEHOLD UTILIZATION OF MODERN ENERGY TECHNOLOGIES | 22 |
| 4.3 STRATEGIES FOR REDUCING OVER DEPENDENCE ON FIREWOOD AND CHARCOAL (FUEL) IN KYANGWALI SETTLEMENT | 23 |
| 5.0 CONCLUSIONS AND RECOMMENDATIONS | 24 |
| 5.1 CONCLUSIONS | 24 |
| 5.2 RECOMMENDATIONS | 24 |
| BIBLIOGRAPHY | 27 |
| APPENDICES | 28 |
| APPENDIX I: KEY INFORMANTS AND FOCUSED GROUP DISCUSSIONS CONSULTED | 28 |
| APPENDIX II: TERMS OF REFERENCE..... | 29 |
| APPENDIX II: PLATES | 34 |
| APPENDIX III: A MATRIX SUMMARIZING THE METHODOLOGY | 38 |
| APPENDIX IV: ATTENDACE FOR THE VALIDATION MEETING | 40 |

LIST OF ACRONYMS

| | |
|--------|---|
| AAH | Action Africa Help |
| ARC | American Refugee Council |
| FGDs | Focused Group Discussions |
| IPs | Implementing Partners |
| KII | Key Informant Interviews |
| NGO | Non Governmental Organization |
| OP | Operating Partners |
| OPM | Office of the Prime Minister |
| PPP | Public Private Partnerships |
| REHOPE | Refugee Host community Empowerment |
| SAFE | Safe Access to Fuel and Energy |
| UNHCR | United Nations High Commission for Refugees |

LIST OF TABLES

| | |
|-----------|--|
| Table 3.1 | Characteristics of the respondents |
| Table 3.2 | Existing forms of cooking energy in Kyangwali |
| Table 3.3 | Preferred forms of energy |
| Table 3.4 | Forms of energy and challenges associated with their use by refugees |

LIST OF FIGURES

| | |
|------------|---|
| Figure 3.1 | Forms of energy used in different seasons |
| Figure 3.2 | Sources of cooking energy in Kyangwali |
| Figure 3.3 | Overcoming challenges associated with cooking energy |
| Figure 3.3 | Cooking energy technologies utilized in Kyangwali refugee settlement |
| Figure 3.4 | Preferences for modern cooking technologies among refugees |
| Figure 3.5 | Strategies to increase demand and supply of modern cooking technologies |
| Figure 4.1 | Massive briquette production in Nakivale refugee settlement |

Background

Displacement of people as a result of conflict is not a new phenomenon – but today it represents an unprecedented global challenge. The gap between the needs of growing numbers of displaced people and the resources and political will to meet their needs is widening. For example, voluntary contributions met less than half the \$3.05 billion increase in the UNHCR's funding requirement between 2009 and 2013 (Lahn and Grafham, 2015). Energy is one critical area that illustrates this problem but also offers potential for practical redress. Energy services are essential for basic human protection and dignity, two of the core ethical aims of humanitarian assistance (Lahn and Grafham, 2015). Energy services provide cooking, lighting, heating and clean water, and underpin all but the most rudimentary income-earning activities. Yet millions of displaced people lack access to clean, safe and secure energy services, in part because funding for such services is inadequate. The lack of reliable data on energy use in the humanitarian field shows that it is a neglected area.

Worldwide, more than three billion people depend on solid fuels, including biomass (wood, dung and agricultural residues) and coal, to meet their most basic energy needs: cooking, boiling water and heating (WHO, 2006). The inefficient burning of solid fuels on an open fire or traditional stove indoors causes smoke that fills the air, making breathing unbearable and bringing tears to the eyes. creates a dangerous cocktail of hundreds of pollutants, primarily carbon monoxide and small particles, but also nitrogen oxides, benzene, butadiene, formaldehyde, polyaromatic hydrocarbons and many other health-damaging chemicals (WHO, 2006).

Refugees tend to use sources of energy for cooking, heating and lighting that are already familiar to them and readily available in the areas where they are temporarily settled. In most situations, particularly in developing countries, this means firewood and charcoal. High demand for these two fuels can lead to environmental degradation in areas that host refugees as supplies of dead wood are progressively exhausted and live trees are cut in an uncontrolled manner. Cutting trees for fuel often tends to be the most prominent of the environmental impacts associated with refugee camps and settlements. This can be a source of conflict with host governments and local communities who see their forests and woodlands as sources of livelihood (Longley and Maxwell, 2003). Utilization of biomass has been associated with negative environmental, social and economic impacts among the poor in the developing countries (Von Schirnding *et al.*, 2002).

From experience it is known that the sustainability aspect of energy needs is often not sufficiently addressed by those who provide assistance in humanitarian crisis response operations, in post-conflict and post-disaster situations (Van Dorp, 2009). Despite the fact that UNHCR and other emergency aid organizations have included substantial elements of sustainable energy supply in their policies and plans, implementation is often late or insufficient. The resulting long term humanitarian and

ecological effects can be dramatic. In addition, firewood collection poses security problems for women and children, who are forced to travel long distances at the risk of being attacked or raped. There are also significant negative health consequences: exposure to indoor smoke can cause acute respiratory infections which kill many people, especially women and children, in refugee camps (WHO, 2006).

The UNHCR Global SAFE strategy 2014-2018 envisions that “All refugees should be able to satisfy their energy needs for cooking and lighting in a safe and sustainable manner, without fear or risk to their health, well-being and personal security”. Firewood is a major source of fuel in sub-Saharan Africa, implying that communities depend on natural resources for biomass energy. Most of the natural resources such as forests and woodlands have been harvested for charcoal production and firewood. The population of refugees has over the years been increasing in different refugee settlements in Uganda, posing a big threat to the scarce tree resources in and around the refugee settlements.. Uganda currently hosts more than half a million refugees in different settlements. The high refugee population increase has led to increased pressure on the natural resources in settlements resulting into environmental degradation as refugees cut down trees for shelter construction, fire wood and opening new plots of land for crop farming (Nsamizi, 2015). Therefore there is a likelihood of tension between the refugees and host communities neighbouring various refugee settlements due to competition for the scarce resources. It is therefore important that refugees and host communities around the refugee settlements are supported to access safe and clean energy.

1.1. AAH Uganda Energy and Environment Programme

AAH Uganda is implementing a multi sectoral program in Kyangwali Settlement (Hoima District) with funding from UNHCR and in close collaboration with OPM. This program strives to improve the quality of life for refugees and nationals through supporting self-reliance and livelihoods, systematic integration of social services delivery with local government systems, which in turn strengthens social cohesion, foster economic self-reliance and enhance socio-economic growth. The key strategic sectors include: Community Services, Social Protection, Education, Health Care, Water, sanitation and hygiene, Livelihood, Environment and Energy as well as Logistics and infrastructure. AAH’s energy and environment sub sector is geared towards building Community Resilience (refugees and host community) in Disaster Risk Reduction, Climate Change Adaptation and Ecosystem Management and Restoration. This is done in Partnership with Local Government by promoting where practical and possible the adoption of sustainable natural resource management and climate change adaptation interventions including promoting access to Fuel and Energy (SAFE) among refugees and host communities

1.2. Cooking energy situation in Kyangwali

Kyangwali Refugee Settlement is located in Western Uganda in Hoima district. The 92 square mile settlement is subdivided into 22 villages and

hosts 34,048 refugees (UNHCR, 2013) from the Democratic Republic of Congo (DRC), South Sudan, Rwanda, Kenya, Burundi and Somalia. The settlement experiences dual problem of firewood scarcity and over dependency on firewood for cooking-energy (UNHCR/AGD, 2015). Every day the refugees in Kyangwali spend hours walking long distances to fetch firewood (UNHCH/AGD, 2015). This high dependency on biomass for firewood and charcoal is unsustainable due to heavy reliance on forest resources thus resulting in Environmental degradation in the settlement and surrounding areas.

The adoption of modern energy-efficient technologies in the settlement is still very low despite all existing interventions. Only about 6.0% of households use charcoal briquettes and 21% energy-saving stoves (AAH annual program report, 2015). In addition, no sufficient research has been undertaken to support the introduction of fuel saving technologies to guide Relief Agencies on what works best or does not work in the context of Kyangwali.

In view of the above, this study is intended to generate the information to enhance the understanding of the determinants of households' choice of cooking energy and current fuel saving technologies in respect of household energy (fuel) utilization practices for refugees in Kyangwali Settlement. The study will guide AAH, UNHCR and OPM in considering major investments in large-scale production of alternative sources of energy including briquettes and biogas as sources of cooking energy.

1.3. Objectives and scope of the assignment

The main objective of the study was to ascertain the current practices and dynamics for utilization of household cooking energy in Kyangwali Settlement to enable AAH and partners design new interventions that promote adaptation of modern energy saving technologies for households and help them explore alternative sources of energy.

The study specifically documented the;

- (i) Current cooking-energy practices of the refugees
- (ii) Demand and supply of modern energy technologies
- (iii) Factors that influence household's choice of cooking energy in Kyangwali Settlement
- (iv) Factors that facilitate utilization of modern energy technologies in Kyangwali Settlement and
- (v) Recommendations on appropriate interventions and strategies for reducing over dependence on firewood in Kyangwali Settlement.

2.0 Methodology

2.1 Sampling and sample size

The management system for Kyangwali settlement is based organized in blocks and villages. However, blocks are much smaller, highly variable and dynamic units used for administration purposes. For these reasons, it was

agreed with stakeholders that reliable information could be collected through sampling larger units such as villages. Overall, there are sixteen (16) villages in Kyangwali settlement. Based on a representative sampling intensity of 50%, eight villages (Mukarange, Nyampindu, Munsisa, Kasonga, Kinakeitaka, Ngurwe, Kentomi and Malembo) were randomly selected from a list of the 16 villages provided by the Field Office of the Prime Minister Kyangwali settlement. Random sampling was used to select both the villages and respondents for household interviews. In each of the eight villages selected, ten households with a total of 80 respondents were also randomly selected for household interviews. The overall, sample of 80 households was selected for the study based on the simplified Kirsh (1965), formula used to determine the sample size of proportions.

2.2 Study design

The study was basically used a cross-sectional descriptive study design. It involved collection of both quantitative and qualitative data using the following methods.

2.3 Data collection Methods

2.3.1 Household interviews

Guided interviews were used to collect data from 80 respondents using a questionnaire during the study. The questions sought to understand the forms or types of energy used for cooking in Kyangwali, the most commonly used, the most preferred, the least preferred as well as the reasons for the varied preferences. Respondents were also asked about the existing technologies for cooking and the associated preferences. Challenges encountered in using particular forms of cooking energy and technologies were also highlighted. Respondents were further asked to propose recommendations that could be used to overcome the specific cooking energy and technology related challenges.

2.3.2 Key informant Interviews (KIIs) and Focused Group Discussions (FDGs)

Purposive sampling was also used to select Key Informants from key institutions/organization in Kyangwali, AAH staff and Local Government leaders to participate in the study simply because they are knowledgeable and more informed on the cooking energy situation in Kyangwali and beyond. FDGs and KIIs were held within Kyangwali settlement and host community in the Kyangwali sub county in Kyarushesha village. The data collected using the FDGs and KIIs was triangulated by the information acquired through the household survey.

2.3.3 Desk review

A review of secondary information was also undertaken through the study. This method enabled the researchers to collect information on the past and current energy cooking practices and saving technologies in relation to

refugee situations, settlements and host communities as well as in assessment and comparison of different situations.

2.3.4 Data analysis

Descriptive statistics (E.g. Frequencies, percentages and cross-tabulations) in SPSS version 18 were used to analyze data obtained during the household survey. Qualitative data from KIIs and FDGs was triangulated by the information acquired from the household survey and presented as narratives. Detailed methods are presented in a matrix (Appendix 1).

3.0 Findings

3.1 Characteristics of respondents

Majority (75%) of the respondents were female youths aged between 20 – 29 years. Most of them were mothers (69%) in the households surveyed. It is such female youths that are mainly engaged in the day to day cooking dynamics at household level in the settlement.

Table 3.1: Characteristics of the respondents
[N=80]

| Characteristic | Frequency | % Responses |
|------------------|-----------|-------------|
| Sex | | |
| Male | 20 | 25.0 |
| Female | 60 | 75.0 |
| Age | | |
| 10-19 | 4 | 5.0 |
| 20-29 | 33 | 41.3 |
| 30-39 | 17 | 21.3 |
| 40-49 | 19 | 23.8 |
| 50-59 | 5 | 6.3 |
| 60+ | 2 | 2.5 |
| Position in a HH | | |
| Mother | 55 | 68.8 |
| Household head | 22 | 27.5 |
| Children | 3 | 3.8 |

3.2 Existing sources and types/forms of energy utilized for cooking

Most respondents (over 30%) use bio-energy including firewood, crop residues and charcoal as the main forms of energy for cooking in the refugee settlement surveyed (Table 3.2). The other forms of energy used include, crop residues particularly from maize, beans and cassava following harvesting. Less than 2% of the refugees use electricity, paraffin, biogas, and briquettes for cooking energy. Although fire wood is mostly used to cook food in all the seasons, refugees also use charcoal, briquettes, crop residues and paraffin to cook during the rainy season (Figure 3.1). Most of firewood and charcoal used to cook are majorly obtained from the already depleted

and scarce low quality forest and wood land resources within and out side the refugee settlements (Figure 3.2). Therefore it is evident that most of the refugees rely on biomass for their cooking needs.

Table 3.2: Existing forms of cooking energy in Kyangwali

| Forms of cooking energy | Responses |
|--------------------------------|------------------|
| Firewood | 76 |
| Charcoal | 31 |
| Crop residues | 51 |
| Briquettes | 3 |
| Paraffin | 1 |
| Gas (LPG) | 1 |
| Total responses | 163 |

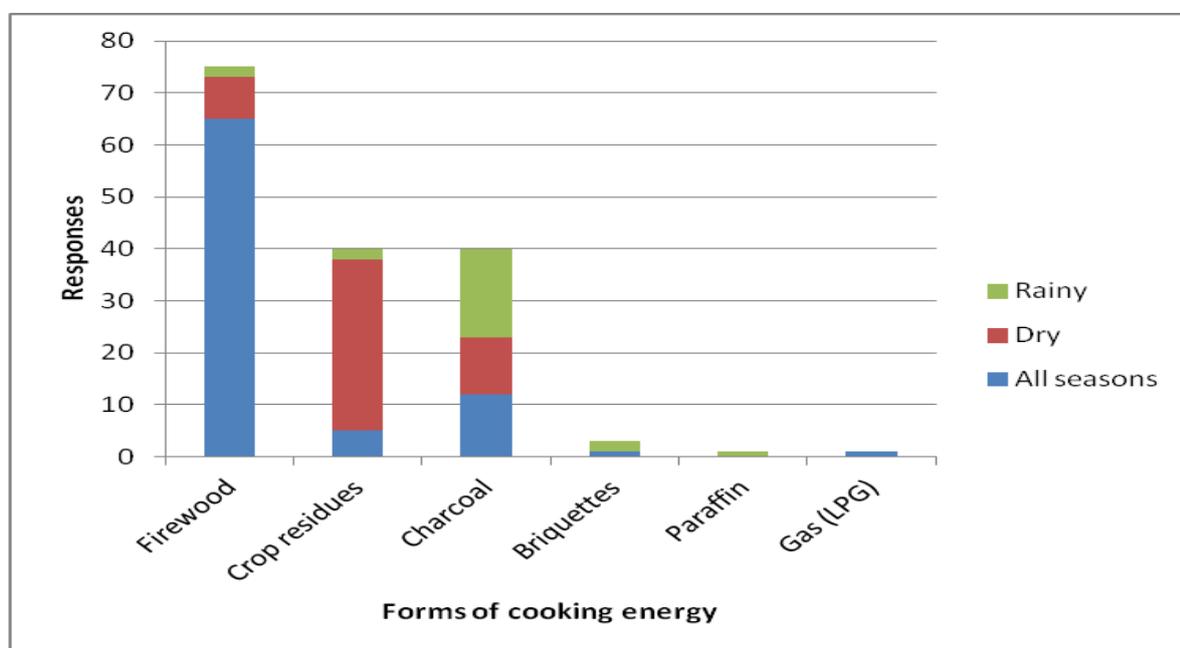


Figure 3.1: Forms of energy used in different seasons

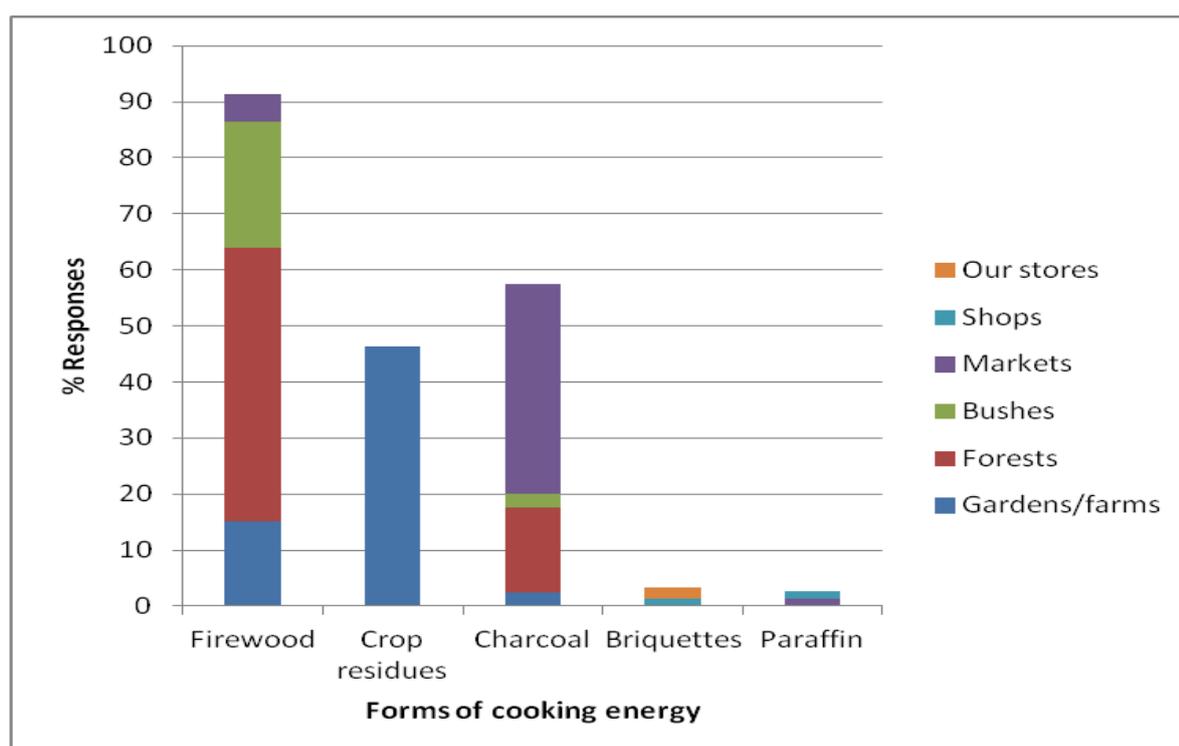


Figure 3.2: Sources of cooking energy in Kyangwali

3.2.1 Preferences for cooking energy

The respondents exhibited varying preferences for cooking energy forms (Table 3.3). Firewood is generally preferred for cooking because it is perceived as a cheap source of energy that never requires special technologies for its use during the cooking process. However, about 55% of the households need a bundle of fire wood (approximately 10 pieces) to prepare a single meal. Charcoal is preferred for cooking due to the general perception that it is clean compared to fire wood. Similarly, crop residues are preferred for cooking during the harvesting season due to their abundance. Although briquettes are preferred for cooking because they are perceived to be a clean form of cooking energy that can cook food for over a long time (Table 3.3) they were reported by very few respondents (3%) as being inaccessible and inadequate. The major challenges associated with the use of briquettes and other forms of cooking energy as detailed in Table 3.4.

Table 3.3 Preferred forms of energy

| Reasons | Firewood | Charcoal | Crop residues | Briquettes | Paraffin | Total responses |
|--|----------|----------|---------------|------------|----------|-----------------|
| It is cheap | 12 | 3 | | | | 15 |
| Is easily accessible | 13 | 7 | 2 | | 2 | 24 |
| Is traditional so does not require unique technology | 7 | | 7 | | | 14 |
| Cleaner form of energy compared to firewood | | 10 | | 3 | | 13 |
| Cooks for longtime | | | | 4 | | 4 |

| | | | | | | |
|--|----|----|----|----|---|----|
| Abundant especially during harvesting season | | | 9 | | | 9 |
| Can be produced at household level | | | | 3 | | 3 |
| Total responses | 32 | 20 | 18 | 10 | 2 | 82 |

Table 3.4: Forms of energy and challenges associated with their use by refugees

| Forms of energy | Challenges associated with their use |
|------------------------|---|
| Firewood | <ul style="list-style-type: none"> • Promotes much of the SGBV especially violence against women as sometimes they are raped as they collect fire wood. • People have to walk long distances because there are no specific gazetted places or areas for firewood collection. • Causes respiratory complications from smoke produced during cooking |
| Charcoal | <ul style="list-style-type: none"> • Inaccessible due to the ban by the OPM and • It is expensive. A bag of charcoal costs about UGX 40,000. • It encourages environmental degradation due to cutting of trees. |
| Crop residues | <ul style="list-style-type: none"> • They are seasonal • Poor quality fuel • They are a health hazard because they release a lot of smoke |
| Paraffin | <ul style="list-style-type: none"> • Causes respiratory challenges due to smoke from paraffin stoves • It is expensive • Inaccessible |
| Briquettes | <ul style="list-style-type: none"> • They are not readily available. • The amounts being produced are inadequate. • Technology being used for their production is rudimentally making the process cumbersome and less economical |
| LPG gas | <ul style="list-style-type: none"> • Both the Gas and the technology used are very expensive. Only used by staff of AAH, UNHCR and other organisations |

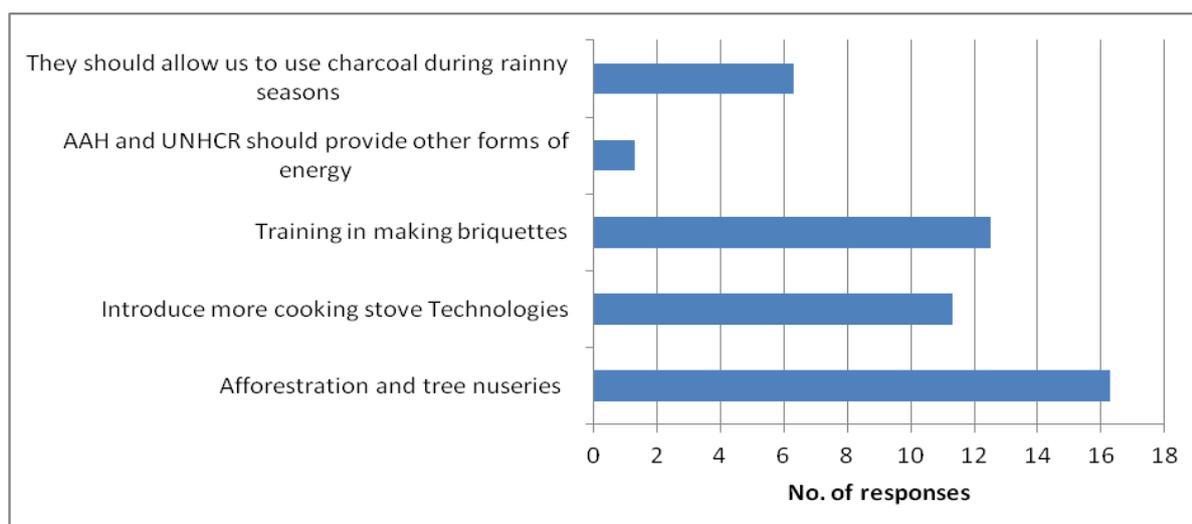


Figure 3.3: Overcoming challenges associated with cooking energy

3.3 Cooking energy technologies

Rocket Lorena stoves and the traditional three stones were mentioned as the most commonly utilized cooking technologies in the settlement (Figure 3.3). These major cooking technologies are used mostly with firewood and crop residues compared to briquettes. Other cooking energy technologies that are less often utilized in the settlement include trench/sub-surface stoves, clay made stoves and gas cookers. Briquettes are the least (1%) often utilized for cooking in rocket Lorena and smart stoves (Figure 3.3).

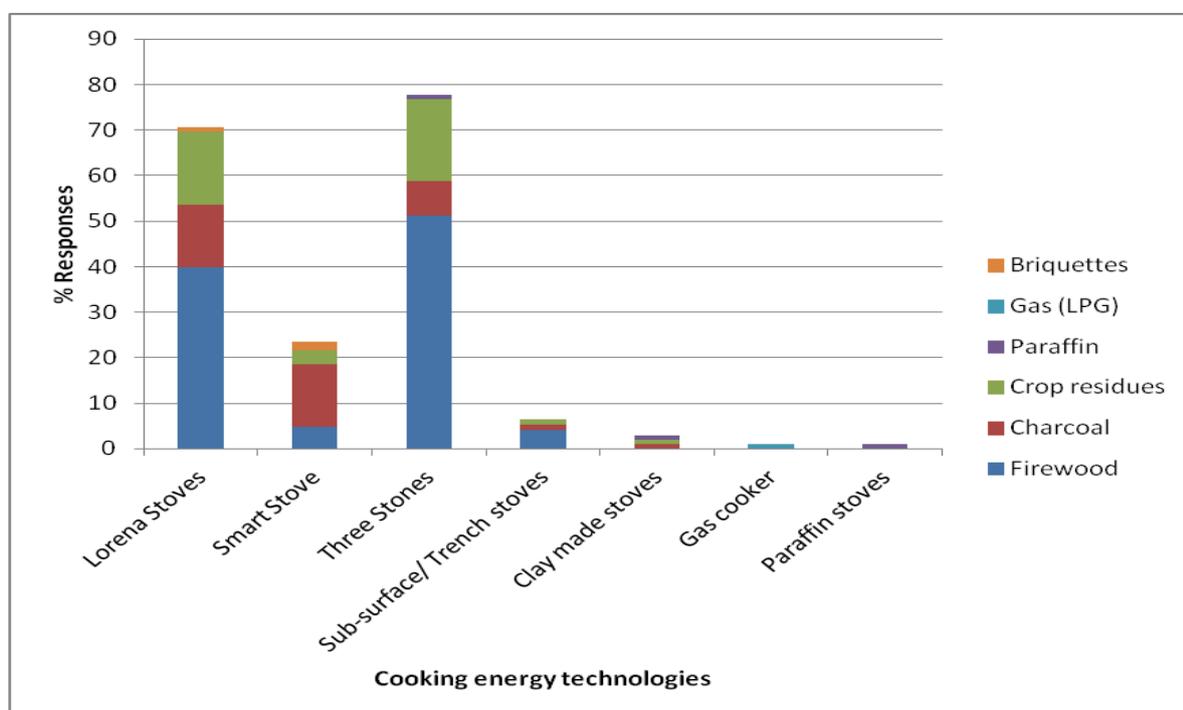


Figure 3.3: Cooking energy technologies utilized in Kyangwali refugee settlement

3.5 Demand and supply of modern energy technologies

The cooking energy technologies mentioned as modern technologies were rocket Lorena (46%), smart stoves (39%), paraffin stoves (10%) and gas cookers (1%). They are used to prepare all food stuffs (40%) including cereals, meat, fish and vegetables. Most of the modern cooking technologies mentioned were either purchased from the markets (71%), are home made by family members (13%) or acquired from training organizations such as AAH (14%). Smart soves (Eco-stoves) were reported to be very few (1%).

The most commonly used modern cooking energy technology is the Rocket Lorena. Its costs range between UGX 15,000 and 40,000= including labour and materials depending on the size it was mentioned that Rocket Lorena stoves are home made with the assistance of stove promoters/ extension workers that were trained by AAH. The stoves got from the markets are mainly clay stoves for charcoal that cost between UGX 8,000 and 12,000=. The cost of eco-stoves equally range between UGX 30,000 and 100,000= depending on the size. Households (58%) Restaurants (38%), Schools (4%) Staff members (5%) of different organizations in the settlement were reported to be using the modern energy technologies to cook foods such as dry beans, posho, bananas, potatoes, cassava, fish, meat, chicken and vegetables. Overall, the demand of modern cooking energy technologies is high though the supply is limited.

3.5.1 Preferences for cooking energy technologies

Rocket Lorena and smart stoves are the most preferred modern cooking energy technologies in the settlement. Most respondents preferred rocket Lorena stoves to other technologies majorly because their use saves energy and time, cheap to make and the technology is locally available and easy to maintenance (Figure 3.4). Training in making, using and maintenance of modern technologies was reported as the major strategy that can be used by AAH to improve on the demand and supply of modern cooking energy technologies in Kyangwali refugee settlement (Figure 3.5).

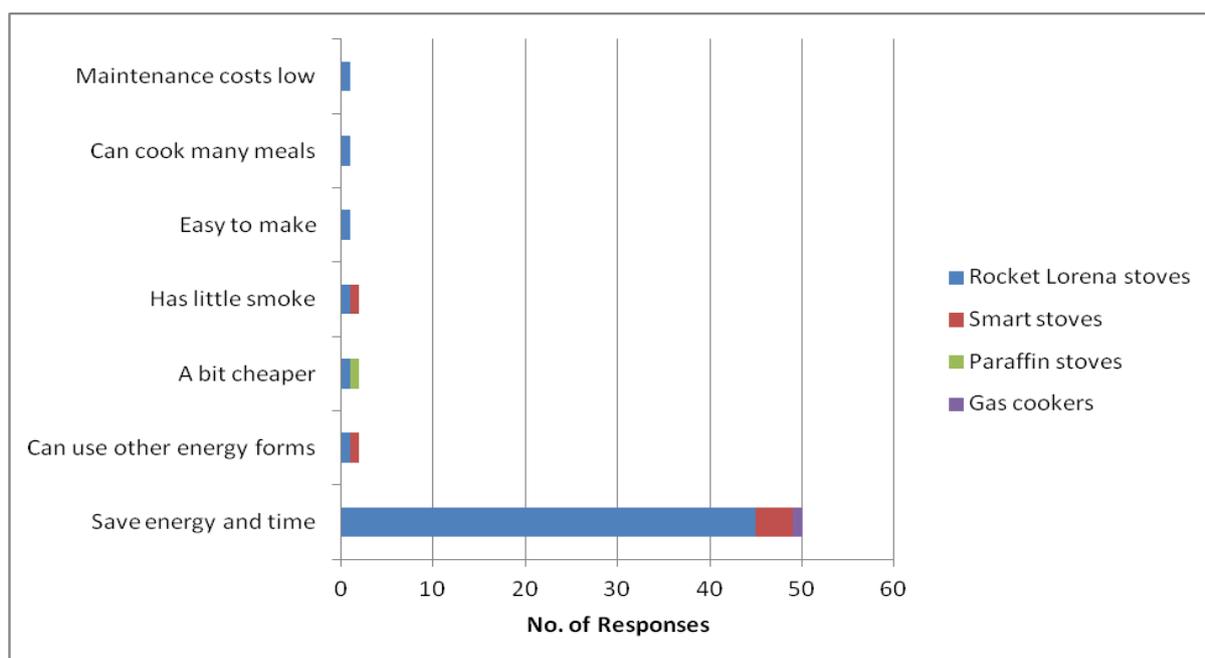


Figure 3.4: Preferences for modern cooking technologies among refugees

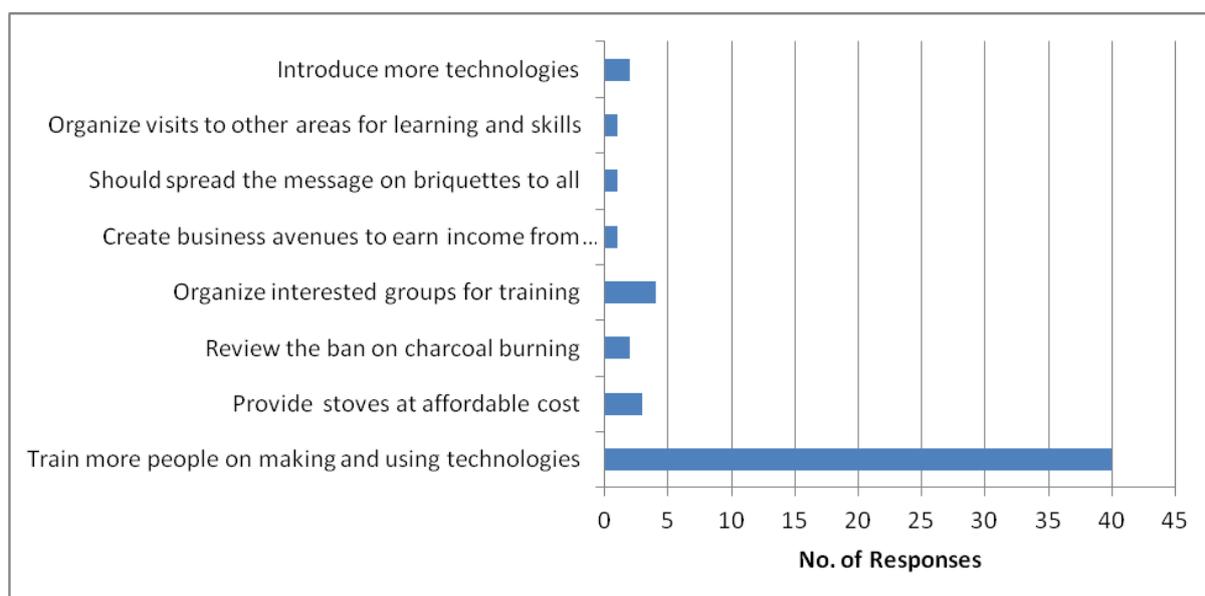


Figure 3.5: Strategies to increase demand and supply of modern cooking technologies

4.0 Discussions and synthesis

4.1 Household's choice of cooking energy

Overall, this study revealed that firewood, crop residues and charcoal are the main forms of energy utilized for cooking in Kyangwali settlement. Although refugees are aware of the many challenges associated with such

forms of cooking energy, they are unable to access their preferred alternative forms of cooking energy. The recent efforts of the OPM in protecting the scarce and already depleted forest resources by banning cutting down of trees for charcoal production and firewood are appreciated with much discomfort. Such a scenario presents AAH with an opportunity as an entry point into implementing safe and clean energy alternatives in Kyangwali refugee settlement. It is thus vital for AAH to critically consider the following factors that influence the choices of cooking energy in Kyangwali according to this study.

Availability and accessibility of cooking energy

Firewood is the most used form of energy not because it is the most preferred but mainly because it is readily available. Also currently the rate and number of households using briquettes would be higher if they were readily available. Briquettes are a much safer and cleaner form of energy if only they could be intensively promoted among the refugees and host communities. The few groups of households that use briquettes for cooking are knowledgeable about the production process. However, during the Focused Group Discussions (FGDs) it was noted that the current technology is too rudimentally and manual to bring about meaningful impact. Although generally, briquettes making machines are still manual in Uganda, there are improved forms of machines and accessories that can be introduced to increase the current production levels and briquettes of varying numbers and sizes. Small round or oval shaped briquettes could go a long way in competing with the illegally produced charcoal. If possible machines powered by Electricity for instance in Nakivale and Kyaka should be introduced (Figure 4.1).



Figure 4.1: Massive briquette production in Nakivale refugee settlement

Affordability of cooking energy

In the current situation, firewood and crop residues are the most affordable forms of cooking energy. In particular, crop residues are used for cooking not because they suitable for cooking but because they are available at little or no cost at all (i.e negligible cost). Most households would have preferred to use charcoal produced from forests but they are limited by the high cost coupled with arrests and prosecution from the OPM. One striking fact

though is that most of the restaurants in the settlement use such illegal charcoal to cook food with the knowledge of OPM, and AAH staff. . This is a challenge that requires a partnership arrangement especially with Local Government as an effort to discourage charcoal production and further depletion and degradation of forest resources.

Technology used for cooking energy

This study also reveals that the cooking technology available and utilized is another factor that influences the choice of household cooking energy. The use of improved forms of energy like briquettes requires the family to have either Lorena or smart stoves. Very few families have constructed rocket Lorena stoves in their kitchen and even a fewer number own smart stoves. In particular this has not only limited the use but also adoption of briquettes as a much safer and cleaner form of energy in the settlement.

Extension services and support

The household survey also revealed that more training in production and use of safer and cleaner forms of energy is required for their wide adoption and use. This finding is further complemented by the FGDs and KIIs discussions where the need for more training targeting well organized and interested groups was emphasized. Households need to be trained by the Extension workers in making and use of safer forms of energy. Not only should they be trained but also supported in acquisition of improved energy technologies such as smart stoves. This will determine the use of different cooking energy types especially briquettes that need improved technologies for use.

Marketing and wide usage

Most of the members participating in making of briquettes expressed the need to use briquettes as a source of income. It is important that in the process of intensive promotion of briquettes, the aspect of business within and without the refugee settlement be considered and emphasized for wide use and adoption. The groups should be supported in marketing their products.

4.2 Household utilization of modern energy technologies

The study also revealed that household utilization of modern energy technologies cannot be effected independent of the forms of cooking energy. The two should be intensively promoted together for wider usage, adoption and meaningful impact. The Factors that facilitate the utilization of modern energy technologies in Kyangwali include but are not limited to following.

Mode of training programmes

AAH with support from UNHCR has promoted the use of improved Lorena stoves in the settlement through community sensitisation meetings and trainings in construction of the stoves. In this case, some community members were selected and trained as stove promoters to help households

in construction of the improved stoves. We propose AAH staff could organise intensive refresher training for the previous teams.

Accessibility, availability and affordability

Accessibility, availability and affordability of cooking energy technologies are factors that influence household utilization of modern technologies. These should be promoted in combination with the cooking energy forms. The use of briquettes requires a household to either have a Lorena or a smart stove. AAH and more recently ARC trained selected Groups in making of briquettes and supported them with briquette making machines. These are and should be promoted concurrently with the use of improved energy technologies.

4.3 Strategies for reducing over dependence on firewood and charcoal (fuel) in Kyangwali Settlement

- i. Public Private Partnership arrangement to promote briquettes and modern cooking energy technologies, build capacity in cooking energy alternatives and technologies and protect forests from illegal harvesting. This can be achieved through developing Memoranda of Understanding (MoUs) with different Partners (Public and Private) with guidelines to guide promotion and/or implementation of cooking energy forms and technologies in Kyangwali. Such MoUs should stipulate clear roles and responsibilities for each party as well as mutual benefits for the whole chain of cooking energy and technologies.
- ii. Source for partners to provide machines for briquette making. It is important to make the process of selecting companies to partner with briquette production and supply groups more competitive such that the capable companies are selected. The current groups that make briquettes in Kyangwali could be supported to have shares in such ventures.
- iii. Building the capacity of the selected companies and groups of refugees interested in producing briquettes to make sure that they meet the expectations of other partners and proper performance benchmarks specified in the Memorandum of understanding. Female youths that are engaged in the day to day cooking dynamics at household level in the settlement should be targeted for engaging in the making of briquettes as a business.
- iv. It is important to implement the REHOPE strategy of allocating 30% of funds and programmes to host communities. This will help in reducing the misunderstandings of favouritism between host communities and the refugees thus creating a conducive environment for adoption of briquettes by both refugees and host communities and discouraging charcoal production both from within and outside the settlement in partnership with the local government.
- v. Fully engaging the District Political and technical Leadership in the implementation and popularization of use of briquettes and modern

cooking energy technologies. The District Natural Resources department should be facilitated to help in providing technical input especially through trainings and capacity building of refugees, extension workers and implementing partners.

- vi. Deliberately promoting use of briquettes in Restaurants and institutions. These should be promoted concurrently with the use of improved energy technologies.

5.0 Conclusions and Recommendations

5.1 Conclusions

The following conclusions can be drawn from the study

- i. The Current cooking-energy practices of the refugees are majorly based on unsafe cooking energy forms and traditional cooking energy technologies. The safe cooking energy forms and technologies are still at the low scale with heavy reliance of bio-energy from forests and crop residues.
- ii. The demand and supply of modern energy technologies is increasing due to previous training and sensitization about cooking energy forms and technologies conducted by AAH and other Implementing Partners in Kyangwali.
- iii. The factors that influence household's choice of cooking energy in Kyangwali Settlement include availability, accessibility, affordability of cooking energy forms as well as the available cooking energy technology and extension services support.
- iv. The factors that facilitate utilization of modern energy technologies in Kyangwali Settlement include availability, accessibility, and affordability of cooking energy forms as well as the available cooking energy technology and extension services support. Implementing a PPP arrangement and Rehope strategy can be vital strategies in reducing the overdependence of on firewood and charcoal (fuel) and reduce on the amounts being used in Kyangwali Settlement

5.2 Recommendations

- There is a need to produce briquettes massively if the energy challenges are to be overcome in the settlement. AAH should provide more briquette making machines. Several approaches are proposed. The currently available rudimentally technologies of briquette production should be supported by more modern machines that can produce many briquettes.
- AAH should organize intensive trainings on energy conservation particularly promoting briquettes production and Smart stoves. There is a need to establish particular demonstration sites for energy forms and technologies.
- Deliberately promote use of briquettes in Restaurants and institutions

The Capacity of the groups that have been supported to produce briquettes is very low. The technology being used is too manual and rudimentary and their production capacities are minimal. There is need to further train these groups in use and operation of motorised briquette making machines and further support them with these machines to enable them produce massively to meet the demand.

- In addition these groups should be supported to put in place mechanisms of ensuring that they produce high quality briquettes, establish a reliable distribution and marketing network and manage their groups for instance as cooperative societies.
- Deliberate efforts should be made and systems put in place to enable briquette making groups access feed stock on a sustainable basis.
- The promotion of massive production of briquettes should go hand in hand with the promotion of affordable improved energy saving technologies. AAH and other development organizations supporting energy initiatives in the settlement should carry out more sensitisations and trainings on improved energy saving technologies to enhance their adoption.
- Private companies dealing in manufacture and sale of Eco-stoves should be brought on board and enabled to interact with communities to further help in awareness raising. These could also be encouraged to open up outlets for selling stoves within the settlement in partnership with already existing groups dealing in similar businesses.
- In order to enhance the adoption of improved technologies there is need to subsidise them especially the eco-stoves. If possible development organizations should establish a cost-sharing scheme that can enable individual households and small businesses to acquire these technologies at affordable prices.
- Bringing on board other service providers in the settlement including those involved in the distribution of food and provision of health services in the promotion of cleaner forms of energy and associated technologies can also help in their promotion and adoption.
- In addition competitions on the best energy forms and technologies should be introduced among, villages groups and households and the best performers rewarded.
- To ensure long term energy efficiency communities should be supported to establish woodlots. These should be done at both household level and settlement level by the AAH or OPM with support from the development partners.

- For this to be done in an organised manner there a need to support the development of land use management plans for the settlement to guide on areas where these woodlots can be established without compromising other land use forms.
- The current efforts on the ban of cutting down plantations and burning and use of charcoal in the settlement should be coordinated with the local government and Agencies like NFA such that they are also replicated in the host communities for them to be successful as these communities are closely interlinked.

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Appendices

Appendix I: Key Informants and Focused Group Discussions Consulted

| No | Name | Designation |
|----|-------------------------|-------------------------------|
| 1 | Elias Katareiha | Livelihoods Coordinator AAH |
| 2 | Christopher Tusiime | Natural Resources Officer AAH |
| 3 | Mercy Dinah Amasio | Environment Educator AAH |
| 4 | Julius Kamuza | Assistant Commandant OPM |
| 5 | Pauline Akol | Settlement Commandant OPM |
| 6 | Andrew Lubwama | UNHCR Kyangwali |
| 7 | Nafiwe Kayenga | Member Wandeleo Group |
| 8 | Saverina Wanajidanganya | Member Wandeleo Group |
| 9 | Mutuyimania Barebeleho | Member Wandeleo Group |
| 10 | Habakurama Emmanuel | Member Wandeleo Group |
| 11 | Nyirabukara Erizabeti | Member Wandeleo Group |
| 12 | Ndikusheya Emmanuel | Member Wandeleo Group |
| 13 | Opoka Leopold | Extension Worker/Ngurwe |
| 14 | Mbuyi Marcel | Extension Worker/Nyamuganda |
| 15 | Bonane Gakuru | Extension Worker/Kagoma |
| 16 | Munyazesha Ronald | Extension Worker/Mukarange |
| 17 | Bizimana Joseph | Extension Worker/Kagoma |
| 18 | Hakim James | Extension Worker/Wainrea |
| 19 | Twishime Nzababanira | Extension Worker/Kyeibitaka |
| 20 | John Nzaborirapa | Extension Worker/Kagoma |
| 21 | Tumwikiniza Anebo | Kyarushesha Farmers' Group |
| 22 | Tumwine Edirisa | Kyarushesha Farmers' Group |
| 23 | Busesire -Amos | Kyarushesha Farmers' Group |
| 24 | Gakyaro Sylvano | Kyarushesha Farmers' Group |
| 25 | Twashaba C | Kyarushesha Farmers' Group |
| 26 | Mulindwa Augustino | Kyarushesha Farmers' Group |
| 27 | Omolo Denis | Research Assistant |
| 28 | Aminata Mpeti | Research Assistant |
| 29 | Mwisa Willy | Research Assistant |
| 30 | Chimpaye Mary | Research Assistant |
| 31 | Gideon Bahati | Research Assistant |

Appendix II: Terms of Reference

Action Africa Help (AAH) Uganda

Terms of Reference (TOR) for technical assistance to conduct a study for understanding the dynamics for utilization of household cooking energy in Kyangwali Settlement

INTRODUCTION

1.1. AAH Uganda Energy and Environment

AAH Uganda is implementing multi sectoral program in kyangwali Settlement (Hoima District) with funding from UNHCR and in close collaboration with OPM. This program strives to improve quality of lives for refugees and nationals through supporting self-reliance and livelihoods, systematic integration of social services delivery with local government systems, which would in turn strengthen social cohesion, foster economic self-reliance and enhancing socio-economic growth. The key strategic sectors include: Community Services, Social Protection, Education, Health Care, Water, sanitation and hygiene, Livelihood, Environment and Energy, Logistics and infrastructure. AAH's **energy and environment** sub sector is geared towards on building Community Resilience (refugees and host community) in Disaster Risk Reduction, Climate Change Adaptation and Ecosystem Management and Restoration, in Partnership with Local Government by steepening where practical and possible adoption of sustainable natural resource management towards climate change adaptation.

1.2 What is the rationale?

Kyangwali Refugees Settlement in Hoima district is experiencing dual problem of firewood scarcity and over dependency on firewood for cooking-energy (UNHCR/AGD; 2015). Every day the refugees in Kyangwali spend hours walking long distances to fetch firewood (UNHCH/AGD; 2015). This high dependency on biomass (like fuelwood, or charcoal) is unsustainable due to heavy reliance of natural forests. Utilization of biomass has been associated with negative environmental, social (health) and economic impacts among the poor in the developing countries (Schirnding et al. 2002). The adaption of modern energy-efficient technologies is still very low in Kyangwali despite all existing interventions. For example only 6.0% of households in Kyangwali use Charcoal briquettes while 21% use energy-saving stoves (AAH annual program report, 2015). We have noted with great concern that most of the current interventions for promotion of alternative/renewable energy in Kyangwali are not embedded in sufficient research of what works OR does not work in the context of Kyangwali.

Currently AAH, UNHCR and OPM are considering a major investment in large-scale production of charcoal briquette and biogas for cooking energy.

Obviously these cleaner energy technologies would greatly reduce dependency on firewood; save trees/forests and positively contribute to health and social economic development of the refugees. But we are not sure whether introduction of such technologies would automatically result into increased demand for them. May be “YES”. May be “NO”. This is because there has never been any research studies regarding household energy (fuel) utilization practices for refugees in Kyangwali Settlement. It is therefore more crucial now to conduct a study for understanding determinants of household’s choice of cooking energy in Kyangwali Settlement. This study (activity) is in-line with the 2016 tripartite agreement with clear budget and timeline under the objective of “*Population has sufficient access to energy*”.

AAH-Uganda now seeks the service of a distinguished and experienced researcher to undertake this study. The consultant will be required to propose an appropriately methodology with clear sampling procedure for determining the primary participants of the study.

2.3 What is the purpose?

The study will aim to ascertain the *current practices and dynamics for utilization of household cooking energy* in Kyangwali Settlement. Specifically the study will document:

- The current cooking-energy practices of the refugees.
- The demand and supply of modern energy technologies.
- Factors that influence household’s choice of cooking energy in Kyangwali Settlement.
- Factors that facilitate utilization of modern energy technologies in Kyangwali Settlement.

The study will also provide recommendations on appropriate interventions and strategies for reducing over dependency on firewood in Kyangwali Settlement.

The study will enable AAH and partners to design new interventions that promote adaptation of modern energy technologies. This would enable households to climb the energy ladder and shift to more advanced energy sources. This will reduce dependency on firewood and usage forest resources as less of firewood and charcoal are required. Indoor and outdoor pollution that leads to respiratory acquired diseases is reduced or eliminated. This will consequently lead to social economic transformation

2.4 What are major tasks?

The major tasks of this consultancy are as listed below:

- Conduct literature review for selected documents.
- Preparation of data collection tools.
- Recruitment and training of enumerators.
- Field travels to the project sites (in Kyangwali).
- Conducting data collection in Kyangwali.
- Data Management (data entry, cleaning and analysis).
- Preparation of the report for the study.

AAH Uganda will provide the consultant with all the support required to execute these tasks.

2.5 What are major deliverables?

The major deliverables of this consultancy are as presented below:

- Well-written systematic methodological approach.
- Well-designed study tools for data collection
- Well-designed data management structure
- Databank with all the information collected.
- Photographs of key events during the study
- The report for the study

2.6 What is the timeframe?

The study should be completed within 20 calendar days starting from **4th week of July 2016**. The Consultant is required to provide a detailed timeline on how s/he will execute the assignment within the stipulated time frame.

3.0: REQUIREMENTS AND EVALUATION

3.1 What qualifications are required?

The team to perform this consultancy should possess a minimum of the following qualifications

- | | | |
|----|--|---|
| a) | Master's degree (or equivalent) in the fields of Statistics, Energy or environmental Studies, Social Sciences, Development Studies, among others. | M |
| b) | Minimum of ten (10) years of progressively working experience in designing and coordinating surveys or assessments or research studies in health, livelihoods, women/gender issues | M |
| c) | Experience of undertaking similar assignments with International NGOs is essential. | E |
| d) | Experience in working with district officials, community leaders and women's groups. | E |
| e) | Thorough understanding of research methods like qualitative and quantitative is essential | T |
| f) | Excellent knowledge of research related software for like SPSS, Epi Info, STATA is essential | E |

- g) E
xcellent analytical skills to review and provide substantive feedback on documents.
- h) E
xcellent communication skills – oral and written – pertinent to all elements of work.
- i) H
igh degree of computer proficiency in Microsoft Word and Excel.

3.2 Which format and documents are required?

The consultant is expected to submit his/her proposal in the following format.

Part 1: Technical Proposal

This should be in Arial 11, normal page margin and 1.0 line spacing. It should have two (02) pages maximum and should restrict provide responses to the following questions:

- Which the methodology will be adapted to accomplish this assignment?
- Which tools will be used for data collection?
- What are profiles of the key personnel for this assignment?
- What is your experience in undertaking similar assignments?
- How will you undertake the various tasks for this assignment?
- What is the cost of undertaking this assignment?

Your responses to these questions should not exceeding **1000 words** and two pages as said above. Feel free to include your log or graphics or contact information as a header.

Part 2: Attachments

The consultant should also submit the following documents as attachments

- Detailed budget or cost proposal (in excel). Include all costs associated with the assignment.
- Detailed timeline or work plan (in excel or word). This should be in **days**.
- Resumes of the key personnel (2 persons -Max). Each Resume not exceeding **3 pages**.
- Recommendation Letters (at least two and on headed paper). Also include contacts of the focal person. Alternatively you can attached past contracts.
- Data Collection tools. These should be designed for both quantitative and qualitative data.

ALL proposals which does not meet the above format will not be considered for further evaluation.

3.3 What is the evaluation criteria?

The proposals will be evaluated based on the criteria below.

| Criteria | Weight |
|--|---------------|
| Well-written systematic methodological approach | 15 |
| Well-designed study tools for data collection | 20 |
| Excellent qualifications of the key personnel (Resumes) | 15 |
| Evidence of similar assignments (Reference & past contracts) | 10 |
| Well-resourced and realistic time line (work Plan) | 10 |
| Appropriate and cost efficient budget (cost proposal) | 30 |

4.0: RESOURCES FOR SUPPORT

4.1 Who are the key personnel?

The following personnel will be helpful during the consultancy

- AAH Uganda; Country Director
- AAH Uganda; Head of Programmes
- AAH Uganda; Program Area Manager – Kyangwali
- AAH Uganda; Livelihoods Coordinator – Kyangwali

The consultant will be required to work very closely with Program Area Manager on day to day operations while reporting to the Head of Programmes for any administrative matters.

5.0 APPLICATION PROCESS

5.1 How to submit?

The competent consultant(s) will be sourced locally through available database and network of known consultants. ALL interested qualified applicants should submit their proposals based on the guidelines in section 3.2 above. Applications should be submitted via e-mail with relevant attachments to tendersug@actionafricahelp.org.

5.2 What is the deadline?

The deadline for receipt of the applications will be Wednesday, **20th July 2016 latest 5:00pm**. Any applications that do not include the above details or arrive after the closing date will not be considered.

5.3 Who is the contact person?

For any queries (**not submissions of applications**) regarding this TOR and/or assignment should be directed to.

Cankwo Paul (Mr) – Procurement Officer

Action Africa Help Uganda, P O Box 10501, Kampala (Uganda)
Plot 72, Ntinda Road, Off. Phone +256 (0) 392 787780 & +256 (0) 414 287786. Mobile: +256 776 498007. E-mail: pcankwo@actionafricahelp.org

Appendix II: Plates



Plate 1: Focused Group Discussion with Extension Workers and Forest Guards



Plate 2: A tree nursery in Mukarange village



Plate 3: A Research Assistant conducting a household interview in Ngurwe village



Plate 4: Drying rack used to dry Briquettes produced by Wandaleyo Group



Plate 5: Charring Drum for briquettes



Plate 6: FGD with Wandaleyo Briquette Group



Plate 7: A kitchen with two stoves: One that uses firewood and one that uses Briquettes

Appendix III: A matrix summarizing the methodology

| Specific objective of the Study | Method of data collection | Source of Data/Information | Remarks |
|--|--|--|--|
| 1. Document the current cooking-energy practices of the refugees. | Household survey questionnaire Focus Group Discussion (FGDs) Key Informant Interviews (KIIs) Document Review Photography | Refugee Households in the settlement Host communities Leaders in the settlements and Host communities IPs | The following aspects will be examined. <ul style="list-style-type: none"> • Methods of cooking • Types of fuel energy • Sources of fuel energy • Challenges of the different methods • Suggestions for improvement |
| 2. Establish and document the demand and supply of modern energy technologies. | Household survey questionnaire Focus Group Discussion (FGDs) Key Informant Interviews (KIIs) Document Review | Refugee Households in the settlement Host communities Leaders in the settlements and Host communities IPs NFA District Forestry Officer District Environmental Officer | The following aspects will be examined. <ul style="list-style-type: none"> • Types of technologies • Challenges of the different technologies • Suggestions for improvement • Costs of the different technologies • Convenience |
| 3. Establish and document factors that influence household's choice of cooking energy in Kyangwali Settlement. | Household survey questionnaire Focus Group Discussion (FGDs) Key Informant Interviews (KIIs) Document Review | Refugee Households in the settlement Host communities Leaders in the settlements and Host communities IPs | The following aspects will be examined. <ul style="list-style-type: none"> • Most commonly used forms of energy • Reasons why • Least used forms of energy • Reasons why |
| 4. Establish and document factors that facilitate | Household survey questionnaire | Refugee Households in the settlement | The following aspects will be examined. |

| | | | |
|--|---|---|---|
| utilization of modern energy technologies in Kyangwali Settlement | Focus Group Discussion (FGDs) Key Informant Interviews (KIIs) Document Review | Host communities Leaders in the settlements and Host communities IPs | <ul style="list-style-type: none"> • Current modern energy technologies used in the settlement • Advantages • Disadvantages |
| 5. Provide recommendations on appropriate interventions and strategies for reducing over dependency on firewood in Kyangwali Settlement. | Household survey questionnaire Focus Group Discussion (FGDs) Key Informant Interviews (KIIs) Document Review | Refugee Households in the settlement Host communities Leaders in the settlements and Host communities IPs District Forestry Officer District Environmental Officer | <p>The following aspects will be examined</p> <ul style="list-style-type: none"> • Amounts of firewood used • Sources of the fire wood • Challenges in accessing the firewood • Available alternatives • Affordability of alternatives |

Appendix IV: Attendance for the Validation meeting

Kyangwali
Refugee
Programme



Action Africa Help Uganda

P.O. Box 10501, Plot 72 Ntinda Road, Ntinda
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ATTENDANCE LIST

VALIDATION OF THE ENERGY ASSESSMENT REPORT IN KYANGWALI

DATE: 29th / 09 / 2016.

| S/no. | Name of participant | Agency | Designation | Signature |
|-------|-----------------------|--------------|---------------|-----------|
| 01. | Amasio DINAH MERCI | AAHU | Envt Educator | |
| 2 | Abino polye Iron | Opin | Settlement | |
| 3 | MUHERE SALIKI | UAVU | KENTEM | |
| 4 | KIKARAMU - BATEZANA | C/MAA | NYAMIGANDA | |
| 5 | KATONGO GEORGE | HDLA | NET OFFICER | |
| 6 | TUSHIME Christopher | AAHU | NRO | |
| 7. | KARUBANDA BENIS | Kooperatives | Production | |
| 08 | Kamusungu Deo | eperson | Mukaranga | |
| 09 | OKELLO MICHAEL AYOK | ELWA | Nzoumunda | |
| 10 | MATABARO JOHN Claude | Chowm. | MUKARANGA | |
| 11 | TUSHIME - NZABANIRA | CBEW/AAHU | Envi-Educator | |
| 12 | MUHENDA Julius | UAVU | Snr. CSA | |
| 13 | Innocent Lawoko Nuno | AAHU | EDO | |
| 14 | Joseph Buzimang | AAHU | Kagoma | |
| 15 | MUYANDA FAHAD KASONGA | King fir | KAMPALA | |
| 16 | HILSA George Nyangale | AAHU | Kasonga | |
| 11 | JOHN NABONKIMPA | AAHU | Forest guard | |
| 18 | AYINKAMUJE ANASTASIA | AAHU | vice Union | |
| 13 | NUMILYA VALENTINA | Makoma | Mukonye A | |

Action Africa Help Uganda supports livelihood challenged communities to sustainably improve their standards of living through empowerment approaches in partnership with stakeholders

Kyangwali
Refugee
Programme



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ATTENDANCE LIST

VALIDATION OF THE ENERGY ASSESSMENT REPORT IN KYANGWALI

DATE...../...../2016.

| S/no. | Name of participant | Agency | Designation | Signature |
|-------|-------------------------|-----------|-------------|-------------|
| 01 | MURRAY EMERY .P. | RWCI | KAROMA | [Signature] |
| 02 | AMANI - TIBAMWENGA | RWCI | RWENYAKWA | [Signature] |
| 03 | NZABONIMPA Samuel | RWCI | Malenbo | [Signature] |
| 04 | JOSEPH SAFALI | RWCI | MUKUNYU | [Signature] |
| 05 | MBUYI MBOLELA MARCEL | CBEW | MUKUNYU B | [Signature] |
| 06 | TULUBUA LUKA | RWCI | MUKUNYU B | [Signature] |
| 07 | Ogwoya Toubisid | ch RWCI | Kabunga | [Signature] |
| 08 | Nzirotera-Bimengimana | Rw. CI | MUNYISA 'A' | [Signature] |
| 09 | MUNYAZIZA - PETER. | RWCI | KINAKYETA | [Signature] |
| 10 | Oyet Albert | CBEW | KYAMBOGO | [Signature] |
| 11 | MUNYAZESA RONALD | FOREST | MUKARANGA | [Signature] |
| 12 | HAKIM JAMES | CBEW | R/WAKWA | [Signature] |
| 13 | OKENY JACKSON NTOI | RWCI | KYAMBOGO | [Signature] |
| 14 | David MUSAFA | AATHU | PAM | [Signature] |
| 15 | BAHATI-MUSEKURA | RWCI | MUKUNYU 'A' | [Signature] |
| 16 | Kansime Resty | RRC | P.D | [Signature] |
| 17 | Kahunde Judith Irene | AAH-U | CSG | [Signature] |
| 18 | BUSINGE W. FUELWE | KYANGWALI | s/c S/S | [Signature] |
| 19 | Lawrence S.B. ORUKIRIZA | Max. Umw. | Consultant | [Signature] |

Action Africa Help Uganda supports livelihood challenged communities to sustainably improve their standards of living through empowerment approaches in partnership with stakeholders