

Safe Access to Fuel and Energy in Burundi

An Appraisal Report





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1. Overview

Burundi is a developing, low-income and food deficit country, affected by one and a half decades of conflict. Population growth together with rapid depletion of natural resources have put additional pressure on the country's economy and there is a time demand to understand and explore better energy conservation systems and alternative and renewable energy sources. The country greatly depends on biomass for the energy needs at household level that are currently not being met.

To better meet these needs a small scale feasibility study was conducted as part of the community based participatory planning (CBPP) exercise at household level with a focus on energy access and income generation. The aim of the study was to provide recommendations on the types of Safe Access to Fuel and Energy (SAFE) interventions that will address people's cooking fuel needs and build their resilience against food insecurity from poor access to energy resources.

The feasibility study was conducted mainly in Colline de Rushanga (Bugendana). The objectives of the mission focused on: risk and challenges people face when sourcing and using fuel, identifying vulnerable people; type of cooking used from where is wood collected/provided, its cost and its environmental degradation; identifying existing fuel interventions and their impact.

The primary findings revealed some energy access challenges and risks comprising of: the access to firewood for cooking, heating and lightning; the time spent in collecting firewood by women who instead could spend it on childcare or income generating activities and children who sometimes are taken from schools to collect. The pressure on natural resources led to deforestation resulting in heavy erosion damaging their agriculture practices, income and food security; cooking on open fire and poor quality fuels can lead to many health issues, especially eye irritation, and the people in the commune have little to no income as their means to generate income are limited.

After conducting the assessment analysis, some effective solutions were proposed. These solutions consisted of fuel efficient stove training and production, briquette production, community forestry and tree seedlings, community capacity building through education and training on SAFE topic of interest, distribution and production of Wonderbags, and establishing SAFE centres.

As partnerships are an important component of SAFE interventions, various meetings with different actors were conducted. A number of implementing partners such as FAO, IFAD, BQS, World Vision, Concern, SCAD, AVEC and GIZ were identified and listed to collaborate with the SAFE initiative.

The WFP's SAFE programme's long-term goal is to have an integrated approach to assure the continuity of its activities. As the programme works on a variety of objectives, different ministries were consulted to best integrate SAFE programme into existing government policies and objectives.

The key next steps for Burundi's SAFE programme were discussed as follows:

- 1) Appoint or hire one staff member to oversee and coordinate SAFE activities
- 2) Consultation with WFP asset creation experts (OSZPR) for the resilience programme plan
- 3) A technical mission to assess the quality and technical feasibility and expertise of proposed solutions and partners
- 4) Select implementing partners for clay fuel-efficient stoves (FES) and briquette production, tree

nurseries, community forest, agroforestry and trainings

5) Consult local authorities for market access and land use for SAFE Center / Community Forests.

2. Mission

SAFE

Access to cooking fuel plays a crucial role in helping food-insecure, crisis-affected populations. WFP recognizes that the delivery of food assistance cannot be separated from the numerous safety, health, and environmental risks associated with properly cooking this food. Through SAFE, WFP works with food insecure people to support their long-term food security and sustainable livelihoods. SAFE addresses the protection dangers people face when collecting and using firewood and combines solutions to also address environmental degradation, health issues and livelihood threats related to energy access. These include:

- 1) Reducing gender-based violence towards women and children through sensitization programmes and providing alternative fuel sources that minimize peoples' exposure time when collecting firewood;
- 2) Reducing indoor air pollution through education and the use of fuel-efficient cookstoves and alternative cleaner fuel options;
- 3) Mitigating the negative environmental impacts of deforestation from firewood collection and cookstoves emissions, by promoting fuel-efficient stoves and sustainable natural resource investments such as planting tree seedlings and community forests;
- 4) Creating alternative livelihood opportunities by educating women and vulnerable communities in building fuel-efficient cookstoves, producing alternative fuels, and other income-generating activities.

Objectives

In February 2016, a small scale feasibility study was conducted for SAFE alongside a community-based participatory planning (CBPP) exercise in Colline the Rushanga, Burundi. The focus of the mission was to assess the feasibility to implement SAFE at household level as a possible Income Generating Activity (IGA) within the resilience programme, and address firewood shortage challenges in Burundi. As SAFE programmes should be based on a sound understanding of people's cooking needs and stove/energy options in the context of WFP's planned operations in Burundi, key information assessed to test the feasibility of SAFE included:

- 1) Risks and challenges people face when sourcing and using fuel, the population most at risk, and other uses of fuel (such as to generate income);
- 2) Types of cooking fuels used, where fuel is sourced, how much is available, and whether obtaining it from the current sources cause environmental damage/degradation; and
- 3) Types of fuel interventions that are currently implemented and their impact.

Methodology

The information was gathered through participatory methods, including the CBPP and focus group discussions with communities, alongside interviews with government ministries of Environment, Agriculture and Livestock and Energy, cookstove and fuel producers, and partners including NGO's and

UN agencies as demonstrated in table 1.

Research method	Description
CBPP	Community participatory discussions that include SAFE-specific questions
Direct observation	Monitoring and examining the cooking practices, cooking fuel collection, purchasing practices and other fuel and environment related issues through direct observation in each village.
Focus Group Discussions	Additional FGDs with communities and fuel sellers and producers
Meetings and interviews	Meetings with Government, WFP country office, partners and other stakeholders at national level to understand context, challenges, regulations and opportunities for SAFE and SAFE IG activities. Meetings with village representatives of each of the selected villages (three in total), local WFP staff, and local implementing partner focal points and stakeholders (e.g. UN, NGOs, etc.). Meetings with local fuel and stove producers and market sellers to understand the current cooking fuel landscape and identify gaps that could be addressed through SAFE interventions.

Table 1: research methods

3. Cooking fuel situation in Burundi

Background Burundi

Burundi is emerging from twelve years of socio-political conflict and it continues to face severe food security and nutrition challenges. Burundi is one of the most resource poor, low income and food deficit countries worldwide and according to the 2014 Global Hunger Index report, is also experiencing the highest levels of hunger in sub-Saharan Africa, with a global index score of 35.6.¹ The 2014 UNDP Human Development Report ranked Burundi 180 out of 187 countries with widespread poverty and 90–95 percent of the population living on less than USD 2 per day, especially in rural areas. Due to the increasing population density (2,8 % population growth in 2012) there is inflated pressure on land in the African continent with 310 inhabitants per km².²

To understand the pressure on the natural resources, the energy situation, and its possible implications on WFP's projects and activities in Burundi, a rapid situational analysis was conducted in 2014. The assessment mapped the complex situation in Burundi related to energy sources and usages, its impact on households and specifically its economical aspect affecting food security. The report demonstrated the increasing gap between the demand and supply of firewood, resulting in even further rapid exploitation and depletion of firewood sources causing.

Energy usage and firewood deficiency

In Burundi, largely 96% of energy requirements are met through traditional biomass of which 70 % is the usage of wood fuel, 18.35% agriculture residues, 5.82 % charcoal and 0.98% bagasse. The high population

¹ SAFE Mission Report Burundi, Amit Singh, 2014

² EAC Strategy to Scale Up Access to Modern Energy Services, 2008

density in Burundi in combination with inefficient use of firewood makes wood fuel increasingly scarce and places reforestation efforts in competition for land with agricultural production.

Between 1990 and 2010, Burundi lost an average of 5,850 ha or 2.02% of forest per year. In total, between 1990 and 2010, Burundi lost 40.5% of its forest cover, or around 117,000 ha with the crisis starting in 1993 functioning as a major contributor.³ In 2010 only 6.7% or 172,000 ha of Burundi was forested making it one of the most highly deficit country for firewood resources (Figure 1).

Given the large dependency of Burundi's households and communities on firewood for cooking, the energy technologies used are putting additional pressure on the scarce availability of firewood as the majority of respondents of the household survey (86%) are using the traditional three stone fire to prepare food and boil water. This method has very low efficiency, meaning 85-90% of the energy is lost in the atmosphere. An additional 7% of households and communities are using a traditional mud stove and another 7% have access to an improved stove.

Given the large dependency of Burundi's households and communities on wood fuel and charcoal, with firewood consumption accounting for 96 % of total consumption (rural—76 %; urban—24%), there is a severe fuel wood deficit due to poor energy resource management. As the use of biomass energy will likely persist as the primary source of energy for the rural areas, understanding the technologies used, and examine the introduction of energy-related and wood fuel efficient solutions is necessary.

4. Findings from Colline de Rushanga

Area of analyses and demographics

To address the energy issues in Burundi, a small scale SAFE feasibility study was conducted in Burundi, with a specific focus on income generating activities, alongside the CBPP exercise conducted by OSZPR. The inclusion of SAFE and additional research in parallel to the CBPP exercise aimed to support the design of the resilience programme with possible SAFE interventions in response to livelihood, environmental and energy. The study was conducted in the Gitega province in Burundi in the commune Bugendana, Colline de Rushanga (zone Mugeru). The Colline existed of four sub-collines; Rushanga, Kimuna, Migezi and Gasunu with a total of 947 and 3708 inhabitants⁴. Participants for interviews and focus group discussions in the community were selected through a general meeting that was held to inform the Rushanga population of the approach of the CBPP exercise. Here 32 representatives were selected consisting of 5 people per sub-Colline with a well-balanced representation of women, men, youth and different vulnerability and livelihood groups.

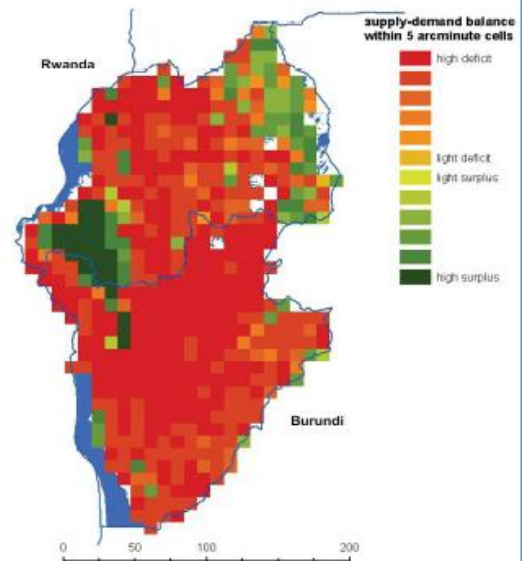


Figure 1: WISDOM Report, FAO, 2005

³ FAO, Global Forest Resources Assessment, 2005 & 2010

⁴ Planification Communautaire Participative (PCP) pour la création d'actifs et des interventions complémentaires, OSZPR, 2016

Local household energy and cooking practices

With few exceptions, women and children are the ones responsible for preparing meals together with the firewood collection for the purposes of obtaining cooking fuel. Both cooking and gathering firewood is culturally seen as a women's task, however due to limited time and availability of firewood, a large part of the responsibility is passed onto the children who are expected to help with both firewood collection, during or after school, and food preparation when the women are working on the field.

In Colline de Rushanga, food security is poor, especially between March and April, and which increasingly becomes worse with a peak towards October to November. On average families tend to prepare two meals a day, however in some periods that can scale down to one depending on food availability or none if there is no apt amount of dry available firewood to prepare any meal. When food is available, families in the Colline cook twice a day; once between 7 and 10:30 AM in the morning and once at 4 PM, taking on average 3 hours per session depending on the type of food. If pulses are not available and only vegetables are eaten, the time spent cooking is reduced to 15-30 minutes.

Meals are prepared inside the house in small, barely ventilated areas over the traditional three stone fire fueled with small branches, leafs and grass. They use ceramic pots with lids to reduce the amount of energy needed, however metallic pots would be desired as that will increase the cooking speed and reduce both the time spend cooking and collecting firewood.

Collecting firewood for cooking is a very labor intensive activity due to the limited availability. In the Colline, trees are either on people's land or in the government forest about an hour walking up the hill, after which they collect for about 2-3 hours and about 4kg a day. The community is allowed to collect fallen branches but not cut down any trees. When trees are located on someone's land, people often offer their labor in return for firewood to cook. The extreme shortage makes it necessary for people and families to seek firewood for food preparation on a daily basis as they cannot find enough in one trip to cover for more than one day. Most of the families use only very small branches, leaves and grass to cook, making it very difficult to achieve a long high heat source to cook rice and pulses. Especially in the wet seasons between October to November and February till May, firewood collection is burdensome due to the inability to obtain dry wood, leaves, branches or grass.

SAFE concerns on protection, environment, livelihoods, health and nutrition

The very limited availability of firewood and appropriate energy and cooking solutions have a number of corresponding challenges:

Environmental: The pressure on the natural resources for cooking has been damaging the fragile environment in the Colline, gradually depleting the area of trees and with that wood fuel. The misuse of local wood resources due to heavy use without reforestation activities has led to significant deforestation⁵. The loss of trees, which anchor the soil with their roots, is contributing to the widespread erosion throughout the Colline that is damaging their agriculture practices, and thus affecting income and food security.

Health: The local cooking practice on the traditional three-stone-fire combined with poor quality fuels can lead to severe health implications. The women in the focus group discussions as well as during the house

⁵ Planification Communautaire Participative (PCP) pour la création d'actifs et des interventions complémentaires, OSZPR, 2016

visitation indicated some health issues related to the smoke released while cooking. Due to the lack of sufficient dry firewood, damp leaves and grass are often used, especially during the two rainy seasons. Especially then, women and children reported irritation to the eyes and lungs. However the population is not aware that breathing in the toxic smokes are causing more damaging health issues and contribute to respiratory diseases as there is a lack of access to healthcare to assess such complications.

Nutritional: The community in the Colline indicated that occasionally there is access to food but no energy to cook it, resulting in skipping meals, reported as much as five times a month. Another coping strategy includes undercooking food and risks of getting sick. With this, the acute shortage of firewood to meet the households' energy needs can lead to impaired or poor nutritional intakes.

Protection: The severe lack of access to firewood for cooking, but also heating and lightning, results in competitiveness over firewood in their resourced-scarce environment. Although little reported, this pressure can and has led to tensions between households, specifically amongst children as all are dependent on the same limited resources. No gender-based violence issues or protection needs were raised as risks in the Colline, although a limited number of women participated in the focus group discussions and it is a sensitive topic to discuss freely.

Livelihoods: The people in the community have little to no income as their options to generate income are limited. All money received from selling crops is immediately spent at the market to buy food. There are almost no energy related income generating activities. Fuel wood in the rural areas is collected freely from rangelands and government forests which requires an hour of uphill walking. As cutting trees in the government protected forest is prohibited, firewood consists of fallen branches and leaves which limits commercial trade. The time invested in firewood collection especially refrains women from alternative income generating activities due to time constraints.

Education: Women and children are spending hours collecting firewood to prepare meals, time that can't be spend on childcare or other income generating activities. For children this can impact their education as a large part of the firewood collection are taken up by children in the hours directly after school, or sometimes even during school in periods when firewood collection is more strenuous, mostly so during the rainy seasons.

Fuel and FES market analyses and opportunities

The lack of access to firewood creates a number of serious challenges for the community of Colline de Rushanga as listed above. Market analyses of fuel efficient stoves (FES) and fuels were conducted in both Colline de Rushanga and Gitega, the nearest city for trade, to understand the energy solutions available and identify gaps in supply as well as livelihoods opportunities for the community in energy-related activities to ensure that proposed interventions will not take away existing livelihoods.

In the Colline most men and women work on small patches of land to provide food for their families by either benefitting from their own produce or selling crops at the local market to buy additional food items. Only three families were involved in charcoal production as a part-time income generating activity due to the lack of demand. Within the Colline there are no households with the financial means to purchase firewood, let alone charcoal.

Firewood is only traded and sold if a tree falls, or if material from old houses are sold. In the community none of the families indicated to ever have seen or used a fuel-efficient stove for cooking or alternative energies to firewood, leaves or grass. There are two locations that are visited for trade:



GIZ supported Stove, 12000 BIF, made from purchased steel from Buiumbura

Locally produced stove, 1500 BIF, made from old sheet metal taken from houses

Local market in the Colline de Rushanga – open every Sunday: No firewood or charcoal is sold on a regular basis as people have little to no income to actually buy fuel or stoves with the exception of some local teachers who purchase charcoal. Stoves are not sold on the local market and most families have not even heard of the existence or benefits of fuel-efficient stoves. To potentially sell energy-related products in the local market, a stall can be rented. To do this one must go through the local market administration. It was indicated that in order to be given a spot in the marketplace, the stove sellers would need to form an association.

Gitega market, 18 kilometers from Colline de Rushanga – Open Daily: The market in Gitega counts over 20 stove sellers focused solely on charcoal stoves and currently no firewood stoves are being sold in the market. The stoves vary in quality and price catering to different range charcoal stove users. Depending on the stove and seller, the prices vary between 1500 BIF to 12000 BIF (0.96 USD – 7.70 USD). The latter is a product developed by a local association, supported by GIZ and produced with professional equipment, and sold with a 3000 BIF profit of which they sell around 200 a month. Retailers from the cheaper models around 1500 BIF indicated they sold around 300 a month with a profit of 300 BIF. Regardless the competition, the demand for stoves is high. Although at the moment, the people from surrounding areas who cook on firewood are not catered to. A stall in the market in Gitega can be rented for 25,000 BIF a month for half a stand. Briquettes or alternative fuel solutions besides charcoal are not sold in Gitega or Rushanga. The market is not often frequented by the community of the Colline as they currently have little products to sell and lack the financial means to purchase products here.

Intervention suggestions

To reduce people's exposure in the community to the numerous health and nutritional risks, to mitigate environmental degradation and to support the promotion of sustainable, safe and environmental friendly energy-related income generating opportunities, an integrated SAFE approach was discussed with both members of the community and relevant stakeholders. Energy related activities were identified through the CBPP exercise as a priority activity based on the most urgent needs of the community to be incorporated within the resilience programme. Building on the opportunities and with a view to addressing the complexities and energy-challenges outlined above, WFP proposes the adoption of three-pronged approach aimed at:

- **Creating alternative livelihood opportunities** through an increased investment in asset creation (food-for-assets and -work) activities targeted to women and men including the production of fuel-efficient stoves, briquettes, Wonderbags (non-fuel slow cookers) and income generating trees for both men and women. The FGD indicated that there is a strong desire to jointly share responsibilities between

men and women when it comes to SAFE activities and a divide in roles and responsibilities can be made jointly with the community itself.

- **Reducing dependency on firewood in households and exploring and piloting innovative fuel-related technologies** through the introduction of fuel-efficient technologies, including fire-fuel briquettes and the use of fuel-efficient stoves and Wonderbags as well as training on fuel-efficient cooking practices.
- **Mitigation of environmental degradation and erosion** through the planting of a community forest and tree seedlings, establishment of tree nurseries, agroforestry practices and training on efficient firewood collection techniques.

These solutions were identified and discussed as appropriate interventions with the community and CO to mitigate and address the energy-challenges people face in Colline de Rushanga. The activities aim to stimulate community empowerment and ownership, and focus on community capacity building, and sustainable asset and livelihood creation.

5. Existing cookstove and fuel-related responses and opportunities

In Colline de Rushanga currently no energy-interventions are implemented and there are no NGOs reported on the ground. When looking at expertise and actors on a national level that can provide support in fuel-related responses, a number of potential partners for WFP's SAFE programme have been identified and demonstrated interest in potential collaboration:

Organization	Experience
GIZ	Has been involved with cookstoves for charcoal and charcoal production in Burundi since October 2010 and is looking to start with the production of wood-fuelled stoves. The current project in collaboration with Endev, is focused on stove production training and market scale-up and are jointly hosting a workshop in Rwanda for a selected number of persons in communities in Burundi to teach the skills of fuel-efficient stove production. The programme runs for three years until 2018 and will reach 20.000 households.
AVEDEC	Has a household cookstoves project in four communes in Burundi for both female and male participants and have expertise is setting up a production chain.
SCAD	Develops associations to address agriculture practices, financial services and health concerns with a trainer of trainer component. Currently 231 associations throughout Burundi have been formed. THE SCAD programme has experts in agriculture, microfinance and nutrition.
Concern	Concern is not currently involved with energy related interventions however has capacity for training people on related SAFE activities. Their main focus areas are health and nutrition, livelihoods, education, HIV/AIDS as well as a DDR programme. Concern has 87 staff on a national level whom are selected from communities in Bujumbura, Cibitoke and Kirundo.
World Vision	World Vision is an accredited partner of WFP and works on food security, WASH and resilience and livelihood security. They are currently assessing local NGOs to expand capacity to coordinate activities and would be ready to start supporting with SAFE activities in Colline de Rushanga. There is some internal expertise on stove projects within World Vision staff as they have implemented a successful combination of fuel-efficient stoves and the Wonderbag in Tanzania. Additionally they have nutrition and tree nurseries experts.

FAO	FAO in Burundi is involved in soil and water conservation, linking in with some of the activities in the resilience programme/SAFE related to erosion and work on agroforestry. Currently they are considering growing bamboo to address erosion issues which could also be used for firewood. They have an integrated approach on food security and climate change resilience and work with several NGOs as well as IFAD on these issues. FAO is supported through the Global Environment Fund. They have expertise in agriculture, agroforestry and deforestation.
BQS	Is a high-density briquettes manufacturer in Burundi, who can produce between 30 and 60 tons of briquettes per day made of coffee and rice husk mixed with wood buck and animal dung. Costs are 400 Burundian Francs per kilo, estimating their product would cost a household about 800 Burundian Francs per day.
IFAD	IFAD is currently exploring a collaboration with BQS with their Burundian Rice programme. The rice programme focuses on scale-up of rice production and the use of surplus available rice husk to be used for briquette making. This bio-mass waste can be used to support BQS' briquette programme through which new livelihood opportunities arise as jobs will be created with BQS. IFAD also collaborates with GIZ and FAO on soil and water management programmes at community level in Gitega and other communes. They have experts on soil and water management, livestock and agroforestry.

To integrate the SAFE programme with existing initiatives and policies, several government consultations were conducted with the following ministries, both during the CBPP exercise and in separate conversations in which the outcomes of the feasibility study were discussed:

Ministry / Department of Government of Burundi	Experience
Ministry of Energy and Mines / Directorate General of Water and Energy	<ul style="list-style-type: none"> • Electricity development is one of the main objectives for the Ministry. • The Ministry is supportive of SAFE activities being implemented to support Burundi with the energy access issues they face • The Ministry supports the GIZ project for fuel-efficient cookstoves • There is need for knowledge building on fuel-efficient stoves and briquette production • There is interest in exploiting the Jatropha plant to quell deforestation in Burundi and potentially produce bio-energy, albeit this is in the beginning stages to explore • There is a strong support for SAFE activities in Colline de Rushanga and would like to see it move beyond that area to expand at national level • A diagnostic study of the Energy sector in Burundi was conducted as part of the UN Secretary Generals Initiative on Sustainable Energy for All⁶

⁶ Etude diagnostique du secteur de l'Énergie au Burundi dans le cadre de l'Initiative Énergie Durable pour Tous (SE4ALL) 2013

<p>Ministry of Environment</p>	<ul style="list-style-type: none"> • A representative of the Ministry of Environment took part in the focus group discussion with the women in the community and expressed support for activities to restore their fragile environments • For the use of clay to make the mud stoves, it would be essential to go through the local Environment office for permission as there are set rules for using soil. Often this has to be counter balanced by soil improving activities such as planting trees. For SAFE this would likely be a short process that can be resolved at local level, for example through the hill authorities • The Ministry has a rubbish management law that should be consulted before briquette activities start • There is a strong support to start SAFE activities in the Colline and preferably expand throughout more areas in the future. Given the environmental damage a strong focus on building <i>courbes de niveau</i>, agroforestry and wood dependency reducing activities would be desired through implementing through the community via associations
<p>Ministry of Agriculture and Livestock</p>	<ul style="list-style-type: none"> • The Ministry would be interested in training people on how to cook to achieve maximum nutritional intake. More expertise in this area is sought and training from WFP on nutrition would be desired • Currently there is an initiative, SUN (Scaling up for Nutrition), on which the Ministry of Agriculture and Livestock will closely collaborate with the Ministry of Health • The possibility of using agricultural waste for briquette production was discussed
<p>Key findings from the consultation process:</p> <ul style="list-style-type: none"> • There is a high need for SAFE interventions. The Government is supportive and looks forward to expanding this programme to multiple areas in Burundi. • Given the multitude of stoves and fuels that are being used or explored in this region, it is recommended that a technical mission assesses the appropriate cooking fuel and technology to be pursued. • For support on the SAFE programme, there is a need to build institutional capacities and find adequate funds. The consulted Ministries indicated a strong interest to receive training on SAFE and energy challenges. • A second, technical SAFE mission should assess the appropriate cooking fuel and technologies introduced in the above findings to understand which are most suitable and feasible to be implemented in the Colline. 	

6. Options for an integrated approach to cookstoves and fuel response in Burundi

The SAFE programme in Colline de Rushanga has to be designed to allow for duplication in a wider set of communities in Burundi's homogenous populations facing similar energy-challenges due to nationwide deforestation, erosion, firewood deficiency and limited income generating opportunities. The following recommendations were discussed with the country office, which indicated that their priority with SAFE will be on promoting an interrelated set of energy linked activities at household level with a strong focus on income-generation to support food security.

- (1) Promotion of fuel-efficient stoves at household level through training and production of mud stoves:** fuel-efficient stoves usage will greatly reduce the need for firewood, minimize negative impacts of firewood usage on their vulnerable environment, and promote new income generating possibilities and helps save time for household. Natural resources are available near the river and plateau in the

Colline although forming associations would be needed to be granted access for use. This intervention should be accompanied where possible with tree planting to restore the soil after winning clay. A technical SAFE mission should assess the appropriate cooking fuel and technology.

- (2) **Promotion of fire-fuel briquettes at household level through training and production of briquettes made from agricultural waste:** briquettes made of agricultural residue will further reduce the need of firewood and can support the community with income generation while keeping communities clean. It was observed that agricultural waste is now burned to promote soil fertility, which actually has a negative impact. Briquette production will stimulate to avoid this practice and promote better management of agriculture residue. A technical SAFE mission will assess the viability of this activity and the appropriate mixture of waste and briquette pressing techniques.
- (3) **Community forestry and planting of tree seedlings through food-for-asset programmes:** Tree planting and tree seedling interventions would support in mitigating the environmental depletion, sensitise communities on more sustainable forest management and provide opportunities for income generation through promotion of multi-purposes trees such as fruit trees.
- (4) **Community capacity building through education and training:** With training and education in energy-related health, nutrition, livelihood and gender issues together with fuel-efficient cooking and firewood collection practices, communities become more resilient to firewood deficiency issues. An additional activity under SAFE that overlaps with the resilience programme design is agro-forestry. This element could be included under the educational component of SAFE.
- (5) **Distribution or production of Wonderbags:** The Wonderbag⁷ functions as a non-fuel required slow-cooker that can be distributed or produced at local level, or produced locally for household use and as an income generating activity. A technical SAFE mission can assess the viability and appropriate resources and techniques available.
- (6) **Integrate into analysis and M&E tools** additional questions on access issues, tensions within the community, selling or bartering of food ration to access cooking fuel etc. to further monitor and evaluate the need for SAFE in Colline de Rushanga and neighbouring areas.
- (7) **SAFE Centres:** The above activities focus on livelihoods diversification and increased sustainability while improving the limited availability of cooking fuel. This integrated approach can be efficiently introduced through establishing a SAFE Centre which would house SAFE activities such as stove- and briquette workshops, training and promotional purposes, while also serving as an office for associations which are formed to assist the above activities while increasing community ownership. The SAFE Centre can be created in a readily available building that has not yet been identified by the community or can be created in a mobile storage unit available from the WFP country office. The community agreed on the quarry as the ideal location in terms of distance from each sub-colline, as this location is between 5 and 20 walking minutes and has easy access to both water and clay⁸. Permission would need to be requested with the landowner.



Quarry Colline de Rushanga

⁷ <http://nb-wonderbag.com/International>

⁸ Communautaire Participative (PCP) pour la création d'actifs et des interventions complémentaires, OSZPR, 2016

7. Recommendations and next steps

As preliminary steps prior to the final design of the SAFE intervention, it is recommended that:

a) A technical mission examines the most appropriate fuel-efficient stove and fuel technologies within the community based on cultural practices and available fuel/stove materials, the technical stove/fuel options, along with available technical capacity of identified partners to design, build and train beneficiaries. Possible partners to help carry out this technical assessment include ILF, GIZ, or freelance technical experts HQ can help guide in.

b) A part of the technical assessment can be to test the selected stoves and fuel for quality and efficiency to reduce firewood needs and emissions. A best practice is to then continue to monitor the stoves and fuels for quality and efficiency during the programme and to understand the communities' willingness to adopt new cooking technologies, techniques and behaviours.

As part of the project design:

c) A baseline survey in the commune will provide an overview of the demographics, food security situation, energy access status and related challenges (including in livelihoods) in the commune and will help provide a means to later measure the actual impact and results achieved through the SAFE project. As the CO is interested to use the programme in Colline de Rushanga as a best practice for further scale-up, a well-established M&E framework will be valuable for further implementation in new regions in Burundi. Also further consultation with OSZPR would be recommended to align SAFE programme elements with the resilience programme (including in M&E practices), to assess and design sustainable income generating activities for the target beneficiaries, and the Seasonal Livelihood Planning calendar for timing of activities. During the dry season more time will be available for SAFE activities, as opposed to the sowing and harvest season.

d) Based on other countries' best-practices as well as in line with the recommendations from International Lifeline Fund ^[1] it is highly advised that WFP hires a full time staff to lead the SAFE program as there are numerous technical and programmatic elements which are both time consuming and require expertise and knowledge of SAFE implementation, energy technologies and solutions. If there are limited resources, the incorporation of the SAFE activities into the ToRs of staff implementing resilience activities would be recommended; strong management oversight in SAFE implementation (especially at the start up level) would help ensure the activity is given the attention needed by WFP staff, including in support areas such as Procurement.

e) Further consultation with the consulted Ministries and potential partners of the project regarding the programme design and training elements (in stove/fuel use but also IGAs) is highly recommended. It may also be of interest to introduce the idea for a National SAFE Working Group to facilitate and help coordinate information about energy-related interventions in the country. Exploring a wider collaboration with identified partners and linking SAFE with existing energy-related initiatives prevents duplication, promotes efficiency and can strengthen existing initiatives. Furthermore, these partnerships can open up new funding and co-financing opportunities.

As part of implementation:

f) During the implementation of the programme, the following components should be a focus of consideration:

- Training, sensitization and monitoring of stove and fuels practices and usage to allow the community to fully understand the interventions, and WFP to adjust activities and training components where needed and relevant. This can be accompanied by the development of a sensitization plan for the surrounding communities to help facilitate awareness, interest, scale-up and adoption of fuel efficient cooking practices;
- Consultation with local authorities for market access and land use for the location of SAFE center, the community forest, and tree nurseries. Possibly, associations have to be formed for gaining access to markets.

Funding:

g) HQ is developing communications materials to support donor relations and fundraising efforts in and outside Burundi. Other activities could include: mapping out donor possibilities within Burundi and examining joint activities with partners. It may also be necessary to outline the core budget needed to implement the suggested SAFE activities to explain different programme elements that would require funding.

h) Exploring the potential to submit a proposal to the Green Climate Fund will provide WFP an opportunity to support Burundi in its efforts to address the adverse impacts of climate change with focus on climate adaptation. WFP has been accredited as Multilateral Implementing Entity of the Green Climate Fund (GCF) in March 2016 for project management with low project risk and a value of up to \$10 million per project. When capacity is not sufficient, a consultant can be appointed if budget allows, or a budget to develop the proposal can be acquired through the GCF readiness programme.

Through SAFE, the World Food Programme (WFP) creates a clean cooking value chain to reduce risks and challenges linked with cooking food. Hunger is the greatest threat to global health, affecting close to a billion people on our planet. WFP is the world's largest humanitarian agency fighting hunger and promoting food security worldwide. Every day, WFP works towards providing the poorest and most vulnerable people access to safe food.