"We Have No Choice"

Safe Access to Firewood & alternative Energy in Eastern Democratic Republic of Congo

Appraisal Report

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Cover photo: firewood porter, South Kivu

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List of Acronyms

CDF	Congolese Franc (national currency)
CSB	Corn-soya blend
DRC	Democratic Republic of Congo
EFSA	Emergency Food Security Assessment (WFP)
FARDC	Forces Armées de la République Démocratique du Congo
FDLR	Forces Démocratiques de Liberation du Rwanda
FES	Fuel-efficient stoves
FFT	Food for training
FFW	Food for work
FGD	Focus group discussion
GBV	Gender-based violence
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Society for Technical Cooperation)
IAP	Indoor air pollution
IASC	Inter Agency Standing Committee
IDP	Internally displaced people
IGA	Income-generating activities
JAM	Joint assessment mission
LPG	Liquefied petroleum gas
MONUSCO	UN Organization Stabilization Mission in the DRC
NFI	Non-food item
NGO	Nongovernmental organization
RDC	République Démocratique du Congo
SAFE	Safe Access to Firewood and alternative Energy
SEA	Sexual exploitation and abuse
SV	Sexual violence
UN	United Nations
UNDP	United Nations Development Program
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WFP	World Food Programme
WHO	World Health Organization

Executive Summary

In 2007, the World Food Programme (WFP) agreed to co-chair the Inter-Agency Standing Committee (IASC) Task Force on Safe Access to Firewood and alternative Energy in Humanitarian Settings (SAFE) together with the UN High Commissioner for Refugees (UNHCR) and the Women's Refugee Commission (which worked under the authority of InterAction). Participation in the SAFE Task Force triggered a global analysis of the protection challenges associated with the collection, provision and use of fuel for cooking – activities closely related to WFP's core mandate. As a result, WFP strengthened its commitment to work in partnership with other relevant actors to promote safe access to cooking fuel in humanitarian settings.

Following the launch of the SAFE guidance material in April 2009,[1] WFP decided to undertake a series of feasibility studies in countries where fuel scarcity is negatively affecting WFP beneficiaries. The purpose of these studies is to better understand how beneficiaries, particularly displaced populations, are coping with fuel scarcity and the related consequences, to take stock of existing responses by both WFP and partners, and to propose a comprehensive approach that addresses human and environmental protection, livelihoods, food and nutrition. To date, missions have been conducted in North Darfur (Sudan), Uganda, Haiti, Sri Lanka, Kenya, Ethiopia, Chad and the Democratic Republic of Congo (DRC).

1.1 Main Findings

The following is a brief summary of the main findings of the report. This summary has been kept to the essentials for ease of consultation and reading, while further elaboration can be found in the respective sections of this report.

1.1.a The Current Situation

In all regions visited, the majority of cooking is done by women, and women are by far the most affected by all concerns related to firewood and household energy in general, including protection, health and safety risks. Nearly all beneficiaries interviewed reported using firewood and charcoal prior to displacement; since displacement, the majority use only firewood. There are few to no fuel-efficient stoves (FES) in use in the IDP sites, though there is awareness about them; lack of physical space and materials appear to be the key reasons for the limited use of fuel-efficient stoves.

Charcoal is preferred to firewood because it is considered a higher-status fuel, produces less smoke and keeps cooking pots cleaner, saving time. However, it is more expensive than firewood, and thus firewood is the fallback option. Even firewood is not always available, however, due to security concerns, and many interviewees report either having to buy firewood (using their very limited resources), using waste materials gathered from the immediate vicinity of their houses or having to skip meals.

1.1.b Protection

Firewood collection, along with any other activity that requires the population to leave the relative safety of their settlement or host family, such as collecting water, tending to fields or manufacturing charcoal, are key protection risks in all regions of the east. As the main firewood collectors, women and girls are the most at risk.

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[1] The SAFE guidance consists of a Matrix (http://www.womensrefugeecommission.org/reports/doc_download/221-iasc-tf-safe-matrix) on agency roles and responsibilities for developing a coordinated fuel strategy, and Decision Tree Diagrams (http://www.womensrefugeecommission.org/reports/doc_download/220-iasc-tf-safe-decision-trees) on factors affecting the choice of fuel strategy—recognizing, for example, the difference in staple foods and cooking habits across different settings.

Charcoal manufacture, on the other hand, is done mostly by men, and they are at risk of attack when making the charcoal out in the bush as well as – along with women – when transporting it to the markets or when returning home after having sold it.

The specific reasons for attacks on firewood collectors and charcoal manufacturers and the perpetrators of these attacks, however, vary by territory, including attack and abduction by elements of the Lord's Resistance Army (LRA) in Haut-Uélé; by the various militias that have "inundated" the forests of Ituri; and by militias – particularly those engaged in the illegal charcoal trade – in the Kivus.

1.1.c Environment

Environmental degradation – as well as projects aimed at addressing it – is much more apparent in the Kivus than in Ituri or Haut-Uélé. This is largely due to the massive population increase in the Kivus that began with the influx of refugees following the Rwandan genocide in 1994. The ongoing cycles of displacement have inhibited rehabilitation.

Protecting the forests in eastern DRC is complicated by the fact that an increasing number of people are living on the edge of the national parks and are dependent on the forest for their livelihoods and survival, including for securing domestic energy. Since few alternatives to biomass as the key source of energy in the region yet exist, firewood and charcoal will remain necessary at least in the near future and thus access to the forests must be allowed. The government of DRC does not currently have the will or capacity to fully implement measures aimed at sustainable use of forest resources.

1.1.d Livelihoods

The most common income-generating activity (IGA) for displaced persons, both men and women, throughout all regions of the east, is working as day laborers in the agricultural fields of non-displaced and/or host populations. Relationships between the displaced and non-displaced land owners who hire them vary from location to location; in some areas interviewees reported working alongside the landowners without problem; in other places interviewees reported tenser relationships; being given the toughest plots to farm; and periodically not being paid as agreed.

Firewood collection and sale is another key form of income generation for the IDPs, though this is considered only women's work and men do not engage in it. Much of this firewood collection is illegal, putting firewood collectors at risk not only of attack and abduction, but of being harassed or jailed by government authorities.

Many interviewees reported being engaged in charcoal manufacture and sale prior to displacement, though the vast majority were no longer engaged in this work since displacement, largely due to insecurity and/or lack of tools. Charcoal manufacture is almost unilaterally considered men's work.

Women are very commonly engaged as porters, particularly in South Kivu, carrying heavy loads of produce, charcoal, firewood, construction materials or other items from the bush into smaller towns and/or to Bukavu to be sold in the markets. As a result of this tradition, and throughout all regions of the east, women are incredibly overburdened both at the household and the field level. Despite all this work, women do not have rights to the land they farm or to the income they earn; men typically make all decisions regarding expenditure of household income.

1.1.e Food, Nutrition and Health

The most notable food security, nutrition and health concerns related to cooking fuel (and the lack thereof) in eastern DRC stem from two main problems: lack of access to land/land poverty and skipping meals. The majority of interviewees now only cook one meal per day, rather than the three meals per day they typically cooked prior to displacement.

Prior to displacement, most women cooked in outdoor shelters that protected the fire from rain, but were ventilated enough to allow smoke to dissipate. In the sites for the displaced, there is rarely enough space available for such shelters, and thus during the rainy season women are often forced to either cook indoors, increasing their risk of respiratory infections, or skip meals altogether.

1.2 Proposed Approach

All of the multi-sectoral concerns that are key to WFP's engagement with the SAFE process are clearly evident in DRC: protection risks associated with firewood collection; deforestation and environmental degradation caused by unsustainable firewood harvesting – negatively impacting long-term food security; and negative health consequences resulting from the coping strategies employed by beneficiaries to deal with insufficient cooking fuel – including skipping meals or improperly or inadequately cooking WFP rations.

Therefore, it is recommended that a holistic approach be used to develop programming that will target all of these concerns. Broadly speaking, the goal of SAFE programming in DRC, as elsewhere, is to ensure that displaced populations have safe access to appropriate cooking fuel, via targeted activities that improve overall protection by accomplishing the following:

- Decrease the amount of biomass-based fuel that is needed/consumed;
- Increase the supply of cooking fuel that can be safely accessed (whether through collection, distribution and/or purchase);
- Diversify income sources for those households that are dependent on woodfuel-intensive activities for their livelihoods (e.g., collection of wood to sell; brick-making; charcoal production); and
- Reduce the negative health consequences associated with indoor air pollution and skipping/undercooking meals.

Specific recommendations include the following (please see full report for additional details):

Decrease consumption

- **Promote the use of FES at the household level** after testing for fuel efficiency and emissions. Generally speaking, any stoves promoted will need to be dual-fuel (firewood and charcoal) and either fixed in place under a rain-resistant shelter or portable. Detailed participatory assessments must be undertaken with each targeted population in order to determine the specific needs and preferences. Given the capacity and raw materials that exist in the region, it is likely that FES can be produced locally, including as an IGA.
- **Promote the use of FES in institutional feeding programs**, including school feeding programs and therapeutic feeding centers.
- **Provide cooking demonstrations** when distributing foods with which beneficiaries are not familiar, in order to reduce waste of both food and cooking fuel; promote fuel-efficient cooking techniques, etc.
- **Distribute rations that require less cooking time**, as possible.

Increase supply

- **Promote reforestation/woodlots**, including as Food for Work (FFW)/Food for Training (FFT) activities. Particularly in the Kivus, deforestation is a key concern and a priority of the government. The promotion of woodlots can help to reverse the trend of deforestation and increase the supply of firewood/timber available to displaced and host populations, among other benefits.
- **Promote the manufacture, distribution and use of waste-based briquettes** as a substitute for charcoal and as an IGA. In order to ensure acceptability, briquettes must be thoroughly tested among the beneficiary population *prior* to scale up and distribution or sale.
- Undertake a feasibility study on the possibility of **using vouchers to obtain cooking fuel** via non-food item (NFI) fairs.
- Undertake research on and support pilot testing of possible **new fuels and energy technologies**, including biogas, liquefied propane gas (LPG) or even methane from Lake Kivu.

Diversify livelihoods options

- Undertake **agroforestry initiatives as food security interventions**.
- Work with the Shelter cluster to develop and promote the use of **alternative shelter construction materials** as an FFW activity, to reduce reliance on wood and fired mud bricks.

- Consider **providing additional rations to offset the cost of purchasing cooking fuel** in regions where collection is unsafe/impossible due to restrictions on accessing the forest and where alternatives do not yet exist.

Reduce negative health consequences

- **Consider providing rations to host families,** to offset the amount of rations that displaced families must give away.
- **Promote the construction of outdoor cooking shelters as an FFW activity**, to reduce meal-skipping and the negative health consequences of cooking indoors.

Overall, interviewees agreed there would be a positive reception to the introduction of new sources of household energy. However, awareness-raising, particularly regarding the household-level benefits of the new fuels and stoves, is key to long-term success and sustainability.

1 Introduction

1.1 Background

The World Food Programme (WFP), the Women's Refugee Commission (working under the authority of InterAction) and the UN High Commissioner for Refugees (UNHCR) co-chaired the InterAgency Standing Committee Task Force on Safe Access to Firewood and alternative Energy in Humanitarian Settings (IASC Task Force SAFE) from 2007 to 2009. The purpose of the task force was "*to reduce exposure to violence, contribute to the protection of and ease the burden on those populations collecting wood in humanitarian settings worldwide, through solutions which will promote safe access to appropriate energy and reduce environmental impacts while ensuring accountability*."

WFP's interest and involvement in ensuring safe access to appropriate cooking fuel has many facets: protection and safety of beneficiaries; effectiveness of food and nutrition interventions through limiting undercooking to save on fuel and exchange of food for fuel; environmental protection, including natural resource management and climate change adaptation and mitigation; and creation of livelihood opportunities.

To address these challenges, WFP decided to undertake a series of feasibility studies in countries where fuel scarcity is negatively affecting WFP beneficiaries. The purpose of these studies is to understand how beneficiaries are coping with fuel scarcity and the multiple implications on their lives and livelihoods; to take stock of existing responses by both WFP and partners; and to propose a comprehensive multi-sectoral strategy to cooking fuel needs that addresses human and environmental protection, livelihoods, food and nutrition, as well as the health problems that derive from the use of solid fuel for cooking.

1.2 Methodology

The current assessment was a follow-on to a rapid SAFE assessment conducted by WFP in North Kivu in July 2010. Because this earlier mission covered the North Kivu region in detail, emphasis was placed during the current mission on other regions in the eastern part of the country: Haut-Uélé, Ituri and South Kivu. For additional information on the 2010 North Kivu assessment, please see the internal report from that mission.[2]

For the current assessment, a preliminary desk review was conducted from January to March 2011 to first assess challenges related to access to cooking fuel for internally displaced, conflict-affected and host populations in eastern DRC and the extent and effectiveness of interventions aimed to address them. This included a thorough review of WFP project documents and of assessments, reports and analyses by both WFP and others.

[2] WFP (Annarita Marcantonio), "Evaluation rapide sur l'accès au bois de chauffe et aux sources alternatives d'énergie au Nord Kivu: Rapport," August 2010.

Findings from the review and from interviews with the country office in Kinshasa informed the selection of the sites for field visits and of key informants. Though recognizing that access to cooking fuel is an issue of concern throughout the country, this study focuses primarily on displaced populations in four regions: Haut-Uéle (Dungu); Ituri (Bunia); South Kiva (Bukavu); and, to a lesser extent,[3] North Kivu (Goma).

During the mission, meetings were held with WFP country office and sub-office staff as well as with a wide range of relevant stakeholders, including UN agencies, international and national NGOs with experience implementing projects for displaced and host communities focused on protection, gender-based violence (GBV) prevention and response, environmental protection and rehabilitation, food security and cooking/cooking fuel. Key organizations interviewed included the UN Children's Fund (UNICEF); the UN Development Program (UNDP); the UN High Commissioner for Refugees (UNHCR); the UN Office for the Coordination of Humanitarian Response (UNOCHA); the UN Population Fund (UNFPA); Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ); Oxfam; Cooperazione Internationale (COOPI) and others.

The mission also involved extensive consultations with beneficiaries in all four regions. More specifically, in-depth focus group discussions were held with both women and men in each of the sites; and several brief, unannounced household interviews were conducted with displaced women (the individual households were selected arbitrarily based on who was present at the time of the visit). Throughout, reference was made to the SAFE framework of analysis and guiding questions developed in the initial stage of the project.

Finally, further studies and reports, as well as technical data gathered during the mission, complemented the information contained in this study. An assessment of gender-based violence (GBV) in relation to food insecurity and food assistance was undertaken simultaneously with the SAFE assessment. A separate report on that topic was written by WFP.

1.3 Context Analysis[4]

DRC is Africa's second-largest country and has a population of 71,712,867 million (July 2011 estimate) and a gross domestic product (GDP) per capita of US$300 (2010 estimate).[5] DRC has extraordinary agricultural and mineral resources and has potential to be one of the drivers of economic growth on the African continent. Nonetheless, 17 years of armed conflict have stalled and hampered socio-economic development and consequently DRC's Human Development Index declined by 0.4% annually from 0.267 in 1980 to 0.239 today, which gives the country a rank of 168 out of 169 countries with comparable data.[6] The World Health Organization (WHO) estimates the *healthy* life expectancy at birth at 35 for males and 39 for females.[7] The under-5 mortality rate in DRC is 200 deaths per 1,000 live births and there has been no reduction in child mortality from 1990 to 2009 while – in comparison – Afghanistan, with the same level of child mortality, had a 20 percent reduction in the same period.[8]

Despite its fertile soil, the nation has a food deficit estimated at between 30 and 40 percent. Seventy percent of the population lives below the poverty line. High food prices have exacerbated the struggle

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[3] Only one focus group discussion with beneficiaries was conducted in North Kivu, as opposed to multiple discussions and household interviews in the other three regions, due to the fact that a rapid SAFE assessment was conducted in Goma in July 2010. For additional information on SAFE in North Kivu, please see that report.

[4] This section was largely written by Pia Skjelstad, Policy Officer, WFP.

[5] CIA The World Factbook: https://www.cia.gov/library/publications/the-world-factbook/geos/cg.html (accessed on 13 May 2011)

[6] UNDP: Human Development Report 2010: http://hdrstats.undp.org/en/countries/profiles/COD.html (accessed on 11 May 2011)

[7] World Health Organization (WHO): http://www.who.int/countries/cod/en/ (accessed on 13 May 2011). Life expectancy is rated at 53.9 years for males and 56.8 years for females (2011 est.). Source: https://www.cia.gov/library/publications/the-world-factbook/geos/cg.html

[8] Save the Children (2011): *Champions for Children. State of the World's Mothers 2011*. P. 3. http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/SOWM2011_FULL_REPORT.PDF (accessed 15 May 2011)

to maintain food security. Malnutrition rates remain high in Kasai occidental and oriental provinces, as well as in Katanga, Maniema and Equateur, with acute malnutrition rates between 10 and 18 percent in 53 out of 87 territories. The already precarious food security situation has been aggravated by years of armed conflict, resulting in population displacement, looting of crops and livestock, people being unable to plant or harvest on time and poor road infrastructure.[9]

The main economic activities in the eastern portion of the country include mineral and timber extraction and agriculture (manioc, plantains, groundnuts). The majority of the study's interviewees identified themselves as farmers, transporters (of agricultural products or construction materials, primarily) or small business owners (selling basic goods).

Conflict and displacement 1994 - present: The Rwandan genocide in 1994 caused a massive influx of 2 million refugees into mainly the Kivus in Eastern DRC, amongst them *interahamwe*[10] militia members and soldiers of the Rwandan Armed Forces who took part in the genocide. They settled in the refugee camps and managed to regroup and launch attacks against the now Tutsi-led Rwandan government. In 1996, a rebellion under the leadership of Laurent Kabila managed to dismantle the camps, progress towards Kinshasa and oust then-President Mobutu in 1997.

War recommenced in 1998 when the new president Kabila ordered all Rwandan military to leave the country, after which Rwandan and Ugandan forces invaded DRC. During a violent war from 1998-2003, an estimated 5 million people died, mainly as a result of starvation and war-related disease. A ceasefire was signed in 1999 and the UN mission MONUC established. Shortly thereafter, Kabila was assassinated and replaced by his son Joseph. Ugandan and Rwandan troops withdrew in 2002 following peace negotiations; however, elements remained active in DRC. After a peace agreement was signed in 2003, conflict continued in the eastern part of DRC where rebel forces and militias continued to fight for control over land and resources, amongst them the Rwandan Hutu rebellion of the Democratic Forces for the Liberation of Rwanda (FDLR).[11]

In 2005, the Lord's Resistance Army (LRA), which has been fighting Ugandan authorities for the past 20 years, left their base in Sudan and ventured into DRC in Haut Uélé and Ituri — which since then has endured insurgency and extremely violent attacks on the civilian population.[12] The conflict has been mainly concentrated in the eastern part of DRC.

The eastern regions are still plagued with violence and with targeting of civilians by the numerous armed groups. Fighting and loss of the basic means to survive have forced people to flee from one place to another. In many parts of the DRC, civilians are still victim to rape, kidnapping, looting, intimidation, harassment and physical and psychological trauma. Moreover, the many years of particular brutal violence have had a severe impact on society that faces increased levels of civilian violence and rape. In particular in rural areas, hospitals and clinics are often targeted and destroyed during attacks and a large proportion of the population lives outside the reach of health services.

According to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), more than 1.7 million people were internally displaced due to attacks and armed confrontations at the end of October 2010.[13] Most of the internally displaced people (IDPs) are located in North and South Kivu provinces. The situation also dramatically deteriorated in Bas and Haut Uélé (Province Orientale) in 2010, due to an increase in attacks by the LRA.

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[9] WFP (2010): *Protracted Relief and Recovery Operation – Democratic Republic of the Congo 200167. Targeted Food Assistance to Victims of Armed Conflict and other Vulnerable Groups*: http://one.wfp.org/operations/current_operations/project_docs/200167.pdf (accessed on 13 May 2011)

[10] The *interahamwe* (Kinyarwanda) is a Hutu paramilitary organization that was backed by the Hutu-led Rwandan government, leading up to and during the genocide in 1994 and after.

[11] The International Crisis Group (updated February 2010): *DRC Conflict History*: http://www.crisisgroup.org/en/key-issues/research-resources/conflict-histories/dr-congo.aspx (accessed on 13 May 2011)

[12] Human Rights Watch (2009): *The Christmas Massacres. LRA attacks on Civilians in Northern Congo*: http://www.hrw.org/en/reports/2009/02/16/christmas-massacres-0 (accessed on 25 March 2011)

[13] UN Office of the Coordination of Humanitarian Affairs: *Plan d'Action Humanitaire Republique Democratique du Congo:* http://ochaonline.un.org/humanitarianappeal/webpage.asp?Page=1920 (accessed on 13 May 2011).

Consequently, although conditions for peace have been said to improve since early 2009, the situation is extremely fragile.[14]

1.4 Overview of WFP's Assistance in DRC[15]

WFP has been present in the country since 1962 and has four coordination offices: in Goma, covering Beni (logistics), Bukavu, Uvira, and Kindu sub-offices (SO); in Bunia, covering Ango, Dungu, and Aru (logistics) SOs; in Lumbumbashi, covering Kalemie, Kabalo (with FAO/P4P), Moba (warehouse) SOs; and in Kinshasa, which is the Country Office and also covering Mbandaka, Kemena, Bozene (warehouse) and Mbuji Mayi SOs.

Current WFP operations in DRC are[16]:

- Emergency support to populations affected by insecurity in Haut and Bas-Uélé Districts in Oriental Province of the DRC;
- Protracted Relief and Recovery Operation — Food Aid for Victims of Armed Conflict and other Vulnerable Groups;
- Provision of Aviation Services to the Humanitarian and Donor Community in DRC;
- DRC Logistics Cluster and Common Transport and Storage services.

WFP's core project is the relief operation that targets people affected by armed conflict. The key activities are to contribute to improving the nutritional status of groups identified as severely or moderately at risk through interventions such as therapeutic and supplementary feeding centers, mother and child health programs and school-feeding; assistance to the internally displaced, refugees and returnees; assistance to vulnerable groups among the affected population (the elderly, orphans and the chronically sick); support to people affected by HIV & AIDS; rehabilitation of rural infrastructure such as roads, schools and other public buildings through FFW; capacity building for women farmers' groups through FFT; support to demobilization of child soldiers and adult combatants, including reunification with their families. Particular attention is given to women, many of whom are survivors of sexual violence perpetrated by armed groups.

An emergency operation is ongoing in Haut Uélé, in the northeast of the country to reach people displaced by LRA attacks. As Cluster lead for logistics, WFP is helping other UN agencies and NGOs to transport humanitarian supplies to remote areas.

2 Overview of the current situation with regard to cooking and cooking fuel in DRC, including existing fuel-related responses

2.1 Cooking Habits and Preferences

In all regions visited, the majority of cooking is done by women, and women (and girls) are by far the most affected by all concerns related to firewood and household energy in general – they are at risk when collecting it[17]; they endure the time, labor and health burdens associated with collecting and carrying it; and they suffer the most from indoor air pollution because they spend the most time by the cooking fire.

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[14] WFP (2010): *Protracted Relief and Recovery Operation – Democratic Republic of the Congo 200167. Targeted Food Assistance to Victims of Armed Conflict and other Vulnerable Groups*: http://one.wfp.org/operations/current_operations/project_docs/200167.pdf (accessed on 13 May 2011).

[15] This section was largely written by Pia Skjelstad, WFP.

[16] Details on the various WFP operations in DRC can be found at: http://www.wfp.org/countries/Congo--Democratic-Republic-Of/Home.

[17] As discussed in more detail below, women are typically responsible for firewood collection, whereas men are typically more responsible for charcoal production.

Before displacement and in non-displaced communities, cooking is most often done outside, under a basic shelter with a roof (to protect against rain) but no walls (to allow more ventilation). However, in the IDP sites, few households have the space or the resources to construct such a shelter, so they often cook in the open (or inside their shelters if they are large enough, which they are most often not). Cooking indoors increases the risk of respiratory infection, eye irritation and other health concerns, but cooking outdoors without a cooking shelter is often not possible because of rain and wind.

> *"I have to cook inside because I don't have enough materials to build a roof for an outdoor cooking shelter. I had an outdoor kitchen before I was displaced and it was much better because there wasn't as much smoke. I have lots of problems with smoke – it gets in my eyes and bothers me a lot. But there is nothing I can do here."* Displaced woman interviewed in Komanda IDP site, Ituri, 3 April 2011.

In these instances, women report not being able to cook (and therefore to eat) at all, sometimes for a day or more at a time.

> *"When it rains here in Komanda, we just can't cook or eat. We can't cook indoors because our shelters are too small; we don't have any outdoor cooking shelters, so if it rains we just have to do without. Sometimes we have to go a whole day without eating."* Displaced woman interviewed in Komanda IDP site, Ituri, 3 April 2011.

Most women use an open, three-stone fire "because that's the tradition," though there is a firewood-charcoal *four* (*four* is Congolese French for "stove") made at the household level – that is, not purchased – of clay bricks that was also observed in several homes, mostly among the non-displaced or host families (see section 2.4, below).

2.2 Firewood and Charcoal

Charcoal being sold along the road between Bunia and Komanda, Ituri, April 2011.

By far, the most common and popular forms of cooking fuel throughout all four regions visited by the team are firewood and charcoal. No other sources of cooking fuel were reported by any of the beneficiaries interviewed; none were observed in use; and only a few (biomass briquettes, LPG, electricity – see below) were mentioned by partner agency staff during interviews – and the latter two were only discussed in the context of urban areas.

Generally speaking, charcoal is the most common cooking fuel used in towns such as **Bunia, Goma** and **Bukavu**. **Dungu** is the exception; as firewood is the most common cooking fuel there even in town, because, according to women interviewed, it is "easier because it does not have to be made." Firewood is more commonly used in the rural areas throughout all regions of the east, and certainly more by the displaced populations overall.

According to most women interviewed, charcoal is the preferred fuel because it produces less smoke than firewood, which is less bothersome for them and keeps their pots cleaner, saving time needed for cleaning. However, charcoal is more expensive than firewood, and most IDPs cannot afford it. One benefit of firewood noted by interviewees is that is cooks faster than charcoal.

Again generally speaking, women are largely responsible for firewood collection throughout all regions of the east, whereas men are the main producers of charcoal. Charcoal is typically made far in the bush;

intermediaries[18] collect it at the production points and deliver it to women who then sell it in the towns. Charcoal may also be sold on a small-scale basis in villages.

The price of firewood and charcoal overall has increased significantly in recent years, though by different amounts and for different reasons, depending on the region. Throughout the east, however, prices of charcoal fluctuate according to season (rainy vs. dry) and the security situation – there are times when the forests are completely inaccessible because of militia activity, for example.

In **Haut-Uélé**, demand for both firewood and charcoal has increased significantly as the LRA has become more active since 2008, for three key reasons: 1) people are now more afraid to make charcoal or collect wood themselves for fear of being attacked by the LRA; 2) the population of Dungu town has increased due to the influx of IDPs; and 3) the increase in humanitarian agencies active in the region, which also use charcoal in their guest houses/offices.[19] As a result of the increased demand, the price has increased: a *basin* of charcoal (which lasts approximately four days) cost 500-600 Congolese francs (CDF) in 2008 ($0.53 - $0.63); the same amount now costs 1,500 CDF ($1.58). The price of firewood also increases during the wet season or during particular instances of insecurity.

In **Ituri**, the price of charcoal has been steadily increasing since at least 2005, tripling over that period and nearly doubling just in the last year: according to humanitarian agency staff interviewed in Bunia, a 10-15kg bag of good-quality charcoal cost about $15 one year ago in Bunia town; that same amount, during the same season, now costs between $30-$40. Charcoal is less expensive in the rural areas – roughly $6-7 for the same size bag – but it is often of very poor quality.

Reasons for the increase in the price of charcoal as identified by humanitarian agency staff include lack of reforestation activities, which has led to a decrease in the supply of wood, as well as the fact that large tracts of what was once communal forest have been sold off to mining companies – which has also effectively decreased the supply.

Even outside of the privately owned land, however, firewood collection may be forbidden in **Ituri**, depending on who is collecting the wood (IDPs, returnees or locals, for example) and from where – live trees are not allowed to be cut in the national parks, for example, but dead wood can be collected from the parks if it is intended for household use – taxes are not levied on small amounts of wood.

Officially, charcoal manufacture or firewood collection for commercial purposes is outlawed, but according to interviewees this rule is widely flouted and there is little to no punishment for law-breakers. Commercial operators with licenses for charcoal production are required to pay tax – there are government checkpoints on the roads in and out of forests and main towns – but the price of charcoal is high enough that the producers will still earn money even if they pay the tax – so the restrictions have not led to a decrease in charcoal manufacture.

In both **North and South Kivu**, the massive population increase over the past 15 years, following the initial influx of refugees from Rwanda beginning in 1994, has put a significant strain on the environment (see Section 3.2, below), greatly decreased supply and therefore increased the prices. Moreover, in South Kivu in particular, interviewees reported that there is an especially high demand for charcoal even among the wealthier urban populations of Bukavu because the electricity supply is irregular.

Prices have also increased in the Kivus. In Bukavu, for example, a large sack (roughly 35kgs) of charcoal costs $20; in the villages, the same amount costs about $10. A small pile of charcoal (about enough for one day) costs 500 CDF ($0.53) in Bukavu. The price of a bag of high-quality charcoal in Goma was estimated in WFP's 2010 rapid SAFE assessment in that region to have increased from approximately $10 in 1994 to as much as $35 in 2010.

Charcoal manufacture and sale has become a very lucrative business for transporters and sellers in **South Kivu** – what they buy for 6,000 CDF ($6.30) in the bush, they can sell for $20 in Bukavu.

[18] These intermediaries are both men and women, with the exception of South Kivu, where they are predominately women.
[19] Though the main UN staff compound/offices in Dungu uses LPG.

The high price of firewood and charcoal and increasing distances and insecurity have forced displaced women in South Kivu in particular to resort to using manioc stems, organic waste (leaves and brush) and even plastic and garbage to cook their food, as they cannot afford to purchase fuel and fear the consequences of collecting it.

> *"Now, firewood is very hard to find and getting it is complicated because all of these fields and forests around here are privately owned – the owners don't want us on their land; we have no rights to it. If we go on their parcels [of land] to collect, they will attack us. So we use dried manioc stalks after the harvest, or banana palm leaves or whatever bits and pieces of leaves that we can collect from the ground right here in Luzira. If there's not even enough of that, we have to burn garbage."* IDP women interviewed in Luzira site, South Kivu, 7 April 2011.

> *"There is communal land, but it's 18kms away and full of FDLR, other militia, bandits, military – it's hard to tell who the perpetrators are in the bush. Some women go to collect firewood there anyway because they have no other choice – they are the poorest among us – but they can get raped in the process. Sometimes they're raped and set free; sometimes they're held in the bush to be 'wives.'"* IDP woman interviewed in Luzira site, South Kivu, 7 April 2011.

The heavy reliance by the population on firewood and charcoal is largely a result of two factors: few alternatives are yet available (see sections 2.2 and 2.4, below); and, particularly in **Haut-Uélé** and **Ituri**, wood is still readily available. It is not a coincidence that the regions with the most alternatives and the more widespread use of fuel-efficient stoves (see section 2.4, below), **North and South Kivu**, are also the regions suffering the most from environmental degradation and a corresponding decrease in the supply of fuelwood.

2.3 Briquettes

One alternative being introduced in **North Kivu** is biomass briquettes (see photo, left). The Institut Congolais pour la Conservation de la Nature (ICCN) and the Africa Conservation Fund conducted a study in 2007, which found that average firewood consumption in North Kivu was approximately 1.6 cubic meters per person per year; and average charcoal consumption was 85-90kgs per person per year. Given the rapidly increasingly population in North Kivu,[20] it was clear from the study that the consumption rate of natural resources was unsustainable, and putting ever-increasing pressure on one of the only remaining sources in the region: the Virunga National Park, a UNESCO World Heritage Site and home to one of the world's only remaining populations of endangered mountain gorillas. Mercy Corps estimates that Virunga National Park is currently being deforested at a rate of 15-20 percent per year.

A significant amount of this deforestation results from illegal charcoal production within the park. To try to reduce the rate of deforestation, the Congolese government gave ICCN the right to imprison people that it caught engaging in this activity. However, many of those being stopped by ICCN were poor members of the local communities[21] who live on the edges of the park, and who had few options *but* the

[20] According to Wildlife Direct, Goma's population alone has increase from 187,527 in 1994 to 527,572 in 2006 and it is estimated that it will be 1,484,336 by 2018.

[21] The FDLR has also been heavily implicated in the illegal manufacture of charcoal within the park; see Protection section, below.

exploitation of natural resources for their own survival as well as to earn an income. Thus a significant amount of tension was developing between the park authorities and the local population.

The Virunga briquetting program commenced in 2008 with several goals:

- Reduce poverty: save families money by offering them a less expensive alternative to charcoal; engage poor communities in briquette-making as an IGA; increase tourism by making the park more secure.
- Slow the rate of deforestation; improve natural resource protection.
- Reduce insecurity by providing an alternative to illegal charcoal production and trade; increase patrols in the park; reduce tensions between the park administrators (ICCN) and the local communities.
- Finance the care of the park – the project provides briquette production kits and free trainings on briquette manufacture to villages; it then buys the briquettes from the villagers and sells them to hospitals, prisons, schools and other institutions, and the profit from the sale then goes back into the park. Specifically to school feeding, WFP provides food to schools and the World Wildlife Fund (WWF) buys briquettes from the Virunga briquetting project to be used to cook the food. As a result, more children are able to stay in school because the overall cost of attendance is reduced in the sense that parents no longer have to pay the cost of food for feeding their children during the periods the children are benefitting from the school feeding programs, and children are no longer in the park collecting wood and risking their safety.

The briquettes are made from a combination of otherwise low-value organic waste materials, including paper, leaves, grass, charcoal fines, sawdust and agricultural waste (such as rice husks and groundnut shells). Once mixed, the materials are formed in a press and dried before they are bagged and sold. The project now has 600 presses in use – 70 percent of which are working at one time, with approximately four to five people employed per machine. The machines are dispersed in villages throughout the region – some have had to be moved because of threats from the FDLR, or the military demands bribes to allow the manufacture to continue.

Originally the target was 5,000 machines, which would employ roughly 20,000 people and transition 300,000 people from charcoal to briquettes. However, processing was slowed because more briquettes were being produced than there was demand for. Recent large-scale purchases by WFP and WWF for the school feeding programs have helped increase demand, and nearly three million tonnes of fuelwood have been saved,[22] but uptake from the general population remains a problem.

The goal is to sell the briquettes for up to 50 percent less than the cost of charcoal to create a market, but due to some quality control and user behavior issues, the briquettes are generally not preferred by the population, and demand for charcoal remains high despite its high price and the availability of briquettes as a less expensive alternative.[23]

According to interviewees from Virunga National Park and WWF, much more advance work and awareness-raising amongst the population on the benefits of the briquettes vis-à-vis charcoal is needed to help stimulate demand.

2.4 Other: LPG, Electricity, Methane

As noted above, very few alternatives to firewood and charcoal are currently in use anywhere in eastern DRC, particularly in the rural areas. There is a small amount of LPG to be found in the markets in Bukavu;

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[22] Africa Conservation Fund, "Virunga Biomass Briquette Project": http://africaconservationfund.gorillacd.org/ and http://gorillacd.org/the-briquettes-campaign/.

[23] The project charges different rates for individual versus institutional buyers, but averages $7.50 per 50kg bag (individual buyers are charged $5/bag). One bag of briquettes will last for approximately 1.5 months for a six-person family using a fuel-efficient stove. Good quality charcoal currently costs approximately $30 for a large bag, depending on whether it's the rainy or the dry season, and the average household uses 1.4 - 2 bags per month. [Wildlife Direct, Etude sur le Charbon de Bois: à Goma en République Démocratique du Congo et à Gisenyi au Rwanda, 2008, p.18; see also http://gorillacd.org/the-briquettes-campaign/].

it is imported from Rwanda. The use of LPG is not widespread, however, because the cost to refill the 12kg canisters is more than $55 in Bukavu (though refills can be done in Goma for $35).

Electricity is used by only an estimated three percent of the population in Goma and Bukavu; and even that small amount is only considered "semi-reliable."[24]

There are thought to be significant methane gas reserves in Lake Kivu, but as of yet these resources are not being accessed due to high cost, safety concerns regarding both extraction and storage, disputes between the governments of Rwanda and DRC and lack of legal regulations for extraction and use.[25]

2.5 Fuel-efficient Stoves

Household Stoves

Non-displaced persons in eastern Congo, including the current IDPs before they were displaced, often report using an inexpensive metal *braséro* (see photo at right) when cooking with charcoal. However, this stove cannot typically be considered "fuel-efficient" as the most basic models have not incorporated any fuel-saving design elements. Moreover, these stoves are typically not durable and must be replaced every three to six months depending on usage patterns.

There is a rather dramatic divide in awareness, use and availability of fuel-efficient stoves between the **Kivus** – where, as noted above, environmental concerns and deforestation in particular are most acute – and the relatively less environmentally impacted regions of **Haut-Uélé** and **Ituri**. Indeed, both humanitarian agency interviewees and beneficiaries admitted that fuel-efficient stoves were not much in use "because there is plenty of firewood available nearby." However, the relatively newer conflict in **Haut-Uélé** and the impact of the timber extraction occurring in **Ituri** are only beginning to be felt, and without efforts to curb firewood and charcoal consumption, both regions are likely to suffer the same environmental fate as the **Kivus** in short order. Unsurprisingly, then, many interviewees in both **Haut-Uélé** and **Ituri** felt that the combination of insecurity – including attacks on firewood collectors – and increased regulations on charcoal manufacture and the corresponding dramatic increase in the price of charcoal meant that now would be a good time to introduce both alternatives fuels and, especially, fuel-efficient stoves.

The few stoves that were observed in use in **Haut-Uélé** were relatively large, dual-fuel (firewood and charcoal), clay-brick stoves that were built by family members (often young boys, according to interviews) based on "local knowledge" (see photo at left). Several IDP interviewees in Haut-Uélé indicated that they had used these *fours* in their home villages before displacement, but that they had not built them in the sites due to lack of resources and physical space (the *fours* require an outdoor cooking shelter, which most IDPs living in the settlement sites do not have). Women interviewed about the stoves said that they liked using them because they cook quickly and retain heat.

[24] See http://gorillacd.org/the-briquettes-campaign/.
[25] See EAWAG Aquatic Research, "Turning a Risk into a Resource," (2007), among publications available on http://www.eawag.ch/site/suchresultat?fulltext=kivu&Go=Go.

Oxfam Québec had an FES program for Sudanese refugees in **Haut-Uélé** circa 2006, but stopped the project when the refugees returned. The research team was unable to find any remaining examples of these stoves.

In contrast to Haut-Uélé and Ituru, a wide variety of different models of fuel-efficient stoves appear to be available and in use in the **Kivus**.

Institutional Stoves

At the institutional level, only a handful of fuel-efficient stoves are in use for school feeding programs in the **Kivus**, though it was acknowledged by WFP staff and other humanitarian partners interviewed during the assessment that institutional stoves are a prime area for expansion throughout all regions of the east (see Section 5, proposed approach, below).

3 Implications of the Collection, Supply and Use of Cooking Fuel in DRC

This section explores the range of concerns associated with the collection, supply and use of cooking fuel in DRC. More specifically, emphasis has been placed on the following facets, drawing on the SAFE guidance: protection and safety of beneficiaries while searching for and using firewood for cooking and/or manufacturing charcoal; environmental degradation and related implications on protection and food security; livelihoods activities; and health problems associated with cooking generally and with indoor air pollution more specifically. These aspects have been selected for their linkages to WFP's programming and their relevance in the regions under consideration.

Though the sectors are described separately in this section for ease of reference, it is important to note that all are intertwined: environmental degradation caused or exacerbated by firewood collection can threaten food security and livelihoods, for example; protection risks associated with firewood collection can limit livelihoods opportunities; etc. Any programs designed to respond to any of the individual concerns outlined below must therefore necessarily take into account the problems and challenges across other sectors in order to be as effective as possible.

3.1 Protection Risks During Firewood Collection

> *"We always have fear when we leave the camp."* IDP women interviewed in Eti site, Dungu, 30 March 2011.

Firewood collection and charcoal manufacture are both considered by nearly all interviewees – both humanitarian agency staff and beneficiaries – to be key protection risks in all regions of the east. The specific reasons for attacks on firewood collectors and charcoal manufacturers and the perpetrators of these attacks, however, vary by territory.

Haut-Uélé (Dungu)

Haut-Uélé territory in Province Orientale has been "hosting" LRA elements since approximately 2008. Unpredictable attacks on villages and on individuals working in their fields, particularly abduction of women and children, have resulted in massive displacement and have spread a pervasive fear amongst the population.

Firewood collection, along with any other activity that requires the population to leave the relative safety of their settlement or host family, such as collecting water, tending to fields or manufacturing charcoal, are key protection risks.

Displaced woman interviewed during focus group discussion in Eti site, Dungu, 30 March 2011

"Going to the forest to collect firewood is a big concern, because of the LRA. A husband and wife going out together to collect wood and tend to their field were attacked along the road not far from here in 2010. They were cut with machetes. The LRA are always in the bush waiting for a chance to attack. They want to kill people and kidnap children." IDP women interviewed in Linakofo site, Dungu, 31 March 2011.

Women and children are the primary firewood collectors and are therefore most at risk of attack by the LRA, including being kidnapped, raped and/or murdered. According to interviewees, women may be kidnapped in the morning, raped all day and then let go at night; other times they are kept and held as porters, informers or sex slaves; the tactics of the LRA are always changing.

Despite these risks, women still go out to collect firewood because they have no choice; firewood is required for survival so "women are obliged to travel very far." According to humanitarian agency staff interviewed in Dungu, the women are forced to make a life or death calculation: "Maybe it's my moment and I'll be safe, maybe it's not my moment and I'll be taken – *tant pis* [too bad]."

According to IDP women interviewed in Eti site, before the conflict they tended to travel farther outside of their villages to find the "good" wood, and/or they were already relatively farther out tending to their fields, so the "good" wood was readily available. They also reported using more dead wood before the conflict because they could travel farther to find it, and would also use dead wood for constructing fences. Now, however, they use much more green wood.

Charcoal manufacture poses protection risks in Haut-Uélé as well. Men are the primary manufacturers of charcoal, far out in the bush. According to Dungu-based humanitarian agency staff, the LRA watches the charcoal makers so they know when the manufacturing cycle will be completed – they then attack the charcoal producers once the charcoal has been chopped into pieces and bagged; when the producers are en route to the market; or once the producers/sellers are returning from the market after having sold the charcoal (to steal the money they've earned).

There is some tension between IDPs and the local community regarding firewood collection, as well as other natural resource-based tensions. Dungu town has grown from a small town to a city of over 50,000 people as a result of the conflict. According to IDPs interviewed in Eti site, locals see them as "foreigners" without rights to anything. Some locals consider specific firewood collection areas to be "their" territory – even though nothing is marked – and will not allow IDPs to collect from there.

> *"I was chased [by a member of the local community] when I was out collecting wood with two other women and a young boy. I was threatened with a machete and I had to drop the wood and run away."* IDP woman interviewed in Eti site, Dungu, 30 March 2011.

There are "decent" relations between IDPs and the UN Organization Stabilization Mission in the DRC (MONUSCO) in Haut-Uélé, though the displaced do tend to view MONUSCO with suspicion – wondering why MONUSCO doesn't seem to be doing more to chase and capture the rebels, for example. When a civilian is killed – as a nun recently was – there are sometimes demonstrations against MONUSCO – "Where were they and why didn't they do anything?" According to some of the humanitarian agency staff interviewed in Dungu, MONUSCO does not have enough staff or tools at their disposal, their

mandate is limited and many soldiers do not speak French, so there are also frequent communication problems between the soldiers and the IDPs. There have been a few sensitization campaigns regarding MONUSCO's mandate, but trust must still be developed.

Ituri (Bunia)

Throughout Ituri territory, women and girls are at risk of sexual violence when they go to the fields (to farm and/or to collect firewood), to the markets (especially en route), to collect water, or to town, especially on market days. Perpetrators are "armed men," including the militias and the Forces Armées de la République Démocratique du Congo (FARDC), as well as opportunists.

> *"The only security issues in Geti are if we go far out to find firewood or foraging in the forest for food – then we fear being raped, especially if we're alone, and especially in the mornings and evenings and especially on the roads toward Uganda or Kasaï. Sometimes they'll even take our clothes and we have to run back home naked. The perpetrators are bandits, strangers, fishermen or militias. To protect ourselves, we try to go out in groups of five to ten."* IDP women interviewed in Geti site, Ituri, 1 April 2011.

Firewood collection in particular is a key protection risk because the forests from which firewood is collected are inundated with militias, including the Front Congolais pour la Justice au Congo (FPJC), FRPI, Naru, Mai Mai, LRA and others. Firewood collectors are at risk of rape; they may be injured or killed by landmines (a woman in Ituri was killed by a mine in 2005 while she was collecting firewood); or can be bitten by snakes.

Interviewees did not believe that attacks by militias on firewood collectors are necessarily aimed at discouraging collection, but rather that the militias feel a need both to control their territory and to make their presence known by instilling fear in the local populations. Militias also kidnap girls, in particular, to be used as porters and sex slaves.

Small-scale charcoal makers (typically men), however, may be killed by militias because the militias themselves are also heavily involved in the (illegal) commercial charcoal trade, and are trying both to protect their market and to avoid being revealed to the authorities. In addition, there is also a high level of conflict between villagers (*not* militias) over access to and control over land and use of natural resources.

The Kivus (Goma, Bukavu)

The (illegal) charcoal trade in Virunga National Park in North Kivu is worth $30 million annually, and is at the root of much of the conflict in the region both in terms of attacks on firewood collectors and charcoal makers, as well as the fact that the revenue earned by militia from the sale of charcoal helps to maintain their activities.

The FARDC are also heavily implicated in the charcoal trade in the Kivus. According to humanitarian agency staff interviewed in Goma, large groups of FARDC soldiers will sometimes arrive in villages in the middle of the night and force the local population to work as charcoal porters – carrying 30kg or larger bags, releasing them in the morning or once all the charcoal has been transported.

In South Kivu, the FDLR makes charcoal in the bush and hires IDP men to transport it from the hills down to the village level. Sometimes the FDLR will kill these men once their "job" is finished, for fear they may become informers and divulge the location of the militia camps to the Congolese government.

3.2 Environmental Impact

Deforestation in areas of eastern Congo has an impact on global climate change, according to Mercy Corps.[26] In a vicious cycle, the populations that live in this area are themselves particularly vulnerable to the negative effects of global climate change due to their dependence on natural resources for their

[26] Mercy Corps presentation to ECOSOC Humanitarian Segment, 1 July 2011.

survival. A reduction in fuel consumption – through the use of FES and/or switching to a more sustainable fuel source, for example – could reduce the rate of deforestation, protect trees and biodiversity, and slow the pace of global climate change.

Environmental degradation – as well as projects aimed at addressing it – is much more apparent in the **Kivus** than in either Ituri or Haut-Uélé. This is largely due to the massive population increase in the Kivus that began with the influx of refugees following the Rwandan genocide in 1994. In order to clear land for camps, build shelters and provide firewood for the roughly 1.5 million refugees, vast swathes of forests were cut down. The ongoing cycles of displacement have inhibited rehabilitation.

In **South Kivu**, environmental degradation has been exacerbated by the tradition of slash-and-burn agriculture and the resulting annual brush fires, which inhibit rehabilitation. An increase in the cutting of trees for charcoal production, firewood sale and brick-making has further added to deforestation, as has the 15-20 percent decline in annual rainfall over the last few years. In some areas – Uvira, for example – there is a total absence of trees.

Displacement further contributes to deforestation because as people move around, they must clear new land for a settlement and for planting each time. The displaced are poor and have no alternatives; their lack of FES means they must use huge amounts of firewood.

According to humanitarian agency staff interviewed by the research team, firewood is the biggest problem in South Kivu, and environmental degradation/deforestation is increasingly one of the government's top concerns.

Whereas there are some small areas of forest in central DRC that are protected by the ICCN (no human activity is allowed), there are no such programs in the east. Protecting the forests in eastern DRC is complicated by the fact that an increasing number of people are living just on the edge of the national parks and are dependent on the forest for their livelihoods and survival, including for securing domestic energy. Since few alternatives to biomass as the key source of energy in the region yet exist, firewood and charcoal will remain necessary at least in the near future, and thus access to the forests must be allowed.

Humanitarian agency staff interviewed by the research team in Bukavu suggested that systems could be developed to regulate shared access and use of the forests in the Kivus. However, the government does not have a clear reforestation program in place yet (such as "if you cut a tree, you must plant a new tree," and systematic encouraging of reforestation, for example), but some small local organizations and NGOs are starting a trend of promoting both FES and reforestation in tandem.

There have been a few new government initiatives aimed at regulating the charcoal trade – such as taxes and fines, and some areas like Virunga National Park are technically government-protected – but there is little will or capacity to enforce the rules. UNDP, however, is working with the government to develop a plan of action on renewable energy and deforestation, aiming to increase the government's capacity to enforce its own policies regarding reforestation, limiting bushfires, promoting sustainable charcoal production, etc.[27]

In addition to threatening livelihoods and food security, the increase in deforestation forces women to go farther and farther to collect firewood, risking their physical security and causing them to waste time that could otherwise be used for economic or other development opportunities.

[27] For more information, see http://www.cd.undp.org/mediafile/fiche%20des%20OMD%207.pdf.

In **Haut-Uélé**, the new IDP sites are being built from wood and/or fired mud bricks (which require firewood for the brick kilns). This new construction has put pressure on the environment, as has the construction of new humanitarian compounds and the restaurants, furniture and other goods that are needed due to the population increase. In **Ituri**, interviewees suggested that brickmaking is in fact the primary reason for illegal, commercial-level tree-cutting.

3.3 Livelihoods

> *"Before displacement, we farmed, hunted and made stools. Men worked the fields; women managed the seeds and harvesting, as well as the groundnut cultivation. Children went to school and helped to dry manioc or collect palm nuts in the afternoons. Now, we work as day laborers in the fields of others; cut bamboo for fences and sell to the locals, etc. Women also engage in day labor. Sometimes we're paid in food – this is good, because what would we do with cash? If we're paid in cash, we can earn 800 CDF [$0.84] per day for working one piqué.[28]"* IDP men interviewed in Komanda site, Ituri, 3 April 2011.

By far the most common IGA for displaced persons, both men and women, throughout all regions of the east is working as **day laborers** in the agricultural fields of non-displaced and/or host populations. The majority of interviewees were farmers prior to displacement, though they tended their own land rather than that of others. Relationships between the displaced and non-displaced land owners who hire them vary from location to location: in some areas interviewees reported working alongside the landowners without problem; in other places interviewees reported tenser relationships — being given the toughest plots to farm; and periodically not being paid as agreed.

Firewood collection and sale is another key form of income generation for the IDPs, though this is considered only women's work and men do not engage in it. Much of this firewood collection is illegal, putting firewood collectors at risk not only of attack and abduction, but of being harassed or jailed by government authorities. As a result, women report having to pay bribes to and/or negotiate with local government officials and forest guards in order to be allowed to collect firewood. According to interviewees, when the regulations against cutting trees in protected areas were put in place, the government did not arrange for any other income alternatives for those who were dependent on the use of natural resources for their income – so the population must continue to do what they did before to earn income, even though that activity is now illegal.

Many interviewees reported being engaged in **charcoal manufacture** and sale prior to displacement, though the vast majority were no longer engaged in this work since displacement, largely due to insecurity and/or lack of tools. Charcoal manufacture is almost exclusively considered men's work, though some widows and some pygmy women reported making charcoal in their home villages prior to displacement. Women do, however, often transport the charcoal from the bush and/or sell the charcoal in the markets or alongside roads.

[28] A *piqué* is a plot of farmland approximately 5x15 meters in area.

3.3a Pygmy Livelihoods

In Ituri, the research team interviewed members of the Pygmy population, both alongside other IDPs as well as separately. The Pygmies' livelihoods both before and after displacement are slightly different than other IDPs. For the most part, prior to displacement Pygmies were hunter/gatherers in the forests; they produced and sold charcoal; and they collected and sold firewood. They were not typically engaged in cultivation.

Pygmy mother interviewed during focus group discussion in Komanda site, Ituri, 3 April 2011

Since displacement, Pygmy women have tended to focus primarily on the collection and sale of firewood to earn income, relying on their intimate knowledge of the forests to be able to go deeper into the bush to find the "good" wood that can fetch a higher price. According to Pygmy women interviewed, they can earn 100-200 CDF ($0.11 - $0.21) per stick of firewood sold; or 1,000 CDF ($1.06) on a good day, resulting in as much as 3,000 CDF ($3.18) per week. They do not make charcoal anymore as they lack the tools for doing so.

For the most part, men tend to make charcoal in the places where they cut the trees – typically in the bush 5-10 kilometers outside of their villages. The do not stay with the fire while it is burning (over approximately three days), because it would be too dangerous – largely because of attacks by the LRA and other militias, and/or by the militias and FARDC elements who are themselves heavily engaged in the charcoal trade and see local manufacturers as competition.

Men are also engaged in **brick-making**, another fuelwood-intensive activity, throughout all regions of the east – though it was most noted by the research team as well as by interviewees in **Ituri**.

Despite the commonality of many of the IGAs throughout the east, there are some differences. In **Haut-Uélé**, for example, the pervasive insecurity caused by the LRA greatly reduces what the population is able to do where – for example, they cannot access their fields or collect firewood.

> *"We don't have access to fields because of the LRA. To earn money, locals can work for MONUSCO, but not us. Without WFP food, we'd all die."* IDP woman interviewed in Linakofo site, Dungu, 31 March 2011.

MONUSCO has been undertaking farmer escorts (accompanying farmers to their fields in the morning and then back home in the evening), but even then the LRA may steal the harvests overnight. As noted above, the LRA also watches charcoal manufactures from the bush and attacks them either to steal the charcoal itself, or once the charcoal has been sold, to steal the profits.

> *"Three of my children, two girls and a boy, were taken by the LRA and I was shot. My son was held for seven months in the park. I can't work because of my gunshot injury, so now my son, who should be in school, has to work as a day laborer instead so his sisters can go to school."* IDP man interviewed in Eti site, Dungu, 30 March 2011.

3.3b The Charcoal Value Chain in Ituri

The research team stopped at several locations along the road between Bunia and Komanda in the Ituri territory to interview charcoal sellers.

At one stop outside a (non-displaced) family's home, a large bag of charcoal was selling for $7; a *basin* cost 1,000 CDF ($1.06). The husband makes the charcoal at a location about five kilometers away, and the wife then sells it at the side of the road to traders from Bunia. She gives a small discount if they bring their own bags for it.

A second seller in this area charged the same prices, but his production location was 10-15 kilometers away.

At a different stop, a male charcoal seller explained: "Other people make charcoal in the bush. I go there to collect it and transport it here for them, to sell. Where they make it is about seven kilometers away. People come from Bunia or even from Kisangani to buy it. I sell a large bag for 6,000 CDF ($6.32). There are problems with animals and falling branches out in the bush, and we don't have many tools for making it."

Bicycle charcaol seller, on road between Bunia and Komanda, Ituri, 3 April 2011

The research team also observed dozens of boys and young men traveling from Bunia on bicycles to buy charcoal in the rural villages, and then transporting it back to Bunia to sell. According to one young man interviewed, these smaller-scale sellers buy a small bag of charcoal for 250 CDF ($0.27) and resell it for 450 CDF ($0.48) in town. The trip takes several hours each way by bicycle; they ride to Komanda and push their heavily loaded bicycles back to Bunia.

On a larger scale, truckers come in from Bunia – sometimes women, with male drivers – to buy huge quantities at wholesale prices and resell for much more in Bunia and Kisangani.

This very basic study found that there are therefore at least four levels (sometimes more) in the charcoal value chain in Ituri: the manufacturers in the bush (men); the small-scale transporters from the bush to Komanda/smaller regional town (men); the wholesale sellers in Komanda to large-scale transporters/sellers from Bunia and Kisangani (men or women) OR to the individual bicycle transporters (boys/young men); and the small-scale sellers in the markets in the large towns (women).

Women are very commonly engaged as **porters** in **South Kivu**, carrying heavy loads of produce, charcoal, firewood, construction materials or other items from the bush into smaller towns and/or to Bukavu to be sold in the markets. Men could and sometimes do do this work as well, but according to interviewees, companies prefer to hire women because women will work on credit for a month at a time, whereas men demand to be paid up front every day. It is also "cultural" that women carry more than men.

As a result of this tradition, and throughout all regions of the east, women are incredibly overburdened both at the household and the field level. Men often clear the trees from the land at the beginning of the planting cycle, but women do the majority of the rest of the work in the field, from planting to harvesting to bringing the harvest to market to sell.

Despite all this work, women do not have rights to the land they farm or to the income they earn; the man typically makes all decisions regarding expenditure of household income. Land poverty (in the sense of poor soil – particularly in **South Kivu**, where poor production methods have been used for too long) also puts girls at risk – according to interviewees, girls from rural areas will come into towns

because their land is not producing enough to support the whole family; the family expects the girls to prostitute themselves as a means of assisting the family economically. Sexual violence further inhibits women's ability to engage in IGAs even over the long term:

> *"I was raped [when the militia attacked my village].They took me to the bush, they held my husband and my children behind. Then they burned the house down and raped me. I was taken to Panzi Hospital – they gave me medicine and food. I was there for one month. I still have stomach pains, and now I can't work anymore. I used to work in the fields, but I no longer have the strength."* IDP woman interviewed in Luzira site, South Kivu, 7 April 2011.

The fact that women are overburdened with heavy labor has long-term consequences, including making them less likely to be able or willing to participate in community life, management and leadership opportunities, which then serves to reinforce their lack of power and status. According to humanitarian agency staff interviewed by the research team, women suffer from a vicious cycle: they must work the fields because they are illiterate and have likely dropped out of school early[29]; they have no time to access information, literacy and other skills trainings that would allow them to engage in different, better opportunities; so they must remain in the burdensome jobs.

The research team was unable to determine an overall typical weekly or monthly household energy expenditure, since the measurements of firewood (per stick; per bundle) and charcoal (per *basin*; per sack) varied from location to location, making comparison difficult. However, Mercy Corps estimates that the average household in North Kivu spends as much as $60 per month on charcoal, whereas average monthly wages are under $25.[30] Thus, families are forced to choose between taking on debt or skipping meals. The majority of the women interviewed by the research team throughout all regions of the east have resorted to cooking only one meal per day, for lack of sufficient cooking fuel (see section 3.4, below).

3.4 Implications for Food, Nutrition and Health

> *"We know the smoke isn't good for us – but what else can we do? We have no choice."* Displaced woman interviewed in Komanda IDP site, Ituri, 3 April 2011.

The most commonly cooked foods in eastern DRC include manioc flour and leaves, beans, peas, *ignames* (a root vegetable similar to a sweet potato; its leaves and stems are also used) and, occasionally, fish or meat. Most interviewees reported they did not use fuel-efficient cooking techniques, such as pre-soaking beans before cooking, largely due to a concern that pre-soaking makes the beans smell bad and affects the taste.

The most notable food security, nutrition and health concerns related to cooking fuel (and the lack thereof) in eastern DRC stem from two main problems: lack of access to land/land poverty and skipping meals.

Lack of access to land (due to security concerns) means that households cannot decide what to plant in order to balance the nutritional needs of the family (in other words, what crops to grow, keep and sell). Even when crops *have* been planted, women often cannot harvest them due to fear of LRA attacks, or the LRA steals the food before it can be harvested. As a result, interviewees believe that malnutrition has increased in children.

Land poverty, as noted above, is a particular concern in South Kivu, where decades of slash-and-burn agriculture and poor production methods have combined with the massive population increase and deforestation to leave the soil unable to produce enough to meet the needs of the population. Large amounts of food must therefore be brought in from North Kivu, increasing food costs.

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[29] For more information on early marriage, school-leaving and other forms of SGBV, see the report from the protection assessment undertaken simultaneously with the SAFE mission, "Sexual and other forms of Gender-Based Violence and Food Security in the Democratic Republic of Congo: Mission Report," WFP (Pia Skjelstad), April 2011.

[30] Mercy Corps presentation delivered during ECOSOC Humanitarian Segment, 19 July 2011.

Pygmy woman, Komanda site, Ituri, 3 April 2011

Lack of access to land, including for firewood collection, and insufficient household income to purchase enough cooking fuel to cook three meals per day (as was common before displacement) have combined to force the vast majority of women interviewed to cook only one meal per day – or less should rain and/or a total lack of available fuel make it impossible to cook even that one meal. As noted above, when no fuel is available women may resort to burning garbage, including plastic, which releases toxic fumes that can cause serious health concerns, or skip meals altogether.

A promising practice in this area comes from UNICEF and partners who, supported by the Canadian International Development Agency (CIDA), have begun a "socio-economic reinsertion" program that is meant to tackle some of the problems of land access and food security for women. The program has built a community-based network of vulnerable women who receive training on agricultural techniques, are given high-quality seeds (for manioc, corn and peanuts) and are lent a small plot of land for five years. The ultimate goal is to build women's capacity to become good farmers, provide for their families and earn income. The project has expanded to 45 women and also engages male traditional leaders.

4 Conclusions and Ways Forward: Options for an Integrated Approach to Safe Access to Firewood and alternative Energy in DRC

4.1 Why WFP?

WFP's comparative advantages in promoting a coordinated, multi-sectoral fuel strategy in DRC include its mandate, the scale and reach of its operations and a well-established outreach capacity through a long-standing partnership with the government. WFP's commitment to the work of the SAFE Task Force stemmed from the recognition of the complexity and multifaceted implications of access to fuel in emergency contexts. This is in the Strategic Plan, which calls for WFP operations to be carried out in ways that contribute to the safety and dignity of beneficiaries, including protection from gender-based and other forms of violence.

Moreover, WFP's Gender Policy sets forth a framework for the organization's work on addressing gender-related protection challenges, including those arising from firewood collection. More specifically,

it commits WFP to mobilize resources to ensure safe access to cooking fuel, including the provision of fuel-efficient stoves, to the most vulnerable women.[31]

WFP's mandate as a food assistance agency provides a good opportunity for increased investment in a wide array of activities, including climate change adaptation and mitigation, and livelihoods restoration through, among others, forest resources conservation and regeneration activities, and water harvesting and conservation systems.

To date, WFP's efforts to address the cooking fuel needs of the assisted population in DRC have included both emergency and protracted support (food aid); support to school feeding programs; and air services and logistics (see Section 1.4, above). With overall responsibility for addressing the cooking fuel-related needs of IDPs in eastern DRC currently unclear, there is a large gap to be filled. Working with partners that have a long history and technical expertise working on related projects, particularly in the Kivus, WFP is well positioned to begin to fill those critical gaps.

The current SAFE mission was meant to explore possibilities for WFP to be more actively engaged in several areas related to its mandate and to the SAFE initiative, building on and contributing to existing practices and, to the extent possible, filling identified gaps.

4.2 Proposed Approach

All of the multi-sectoral concerns that are key to WFP's engagement with the SAFE process are clearly evident in DRC: protection risks associated with firewood collection; deforestation and environmental degradation caused by unsustainable firewood harvesting – negatively impacting long-term food security; and negative health consequences resulting from the coping strategies employed by beneficiaries to deal with insufficient cooking fuel – including skipping meals or improperly cooking WFP rations.

Therefore, it is recommended that a holistic approach be used to develop programming that will target all of these concerns. Broadly speaking, the goal of SAFE programming in DRC, as elsewhere, is to ensure that displaced populations have safe access to appropriate cooking fuel, via targeted activities that improve overall protection by reducing exposure to a key risk factor (firewood collection) by accomplishing the following:

- Decrease the amount of biomass-based fuel that is needed/consumed;
- Increase the supply of cooking fuel that can be safely accessed (whether through collection, distribution and/or purchase);
- Diversify income sources for those households that are dependent on woodfuel-intensive activities for their livelihoods (e.g., collection of wood to sell; brick-making; charcoal production); and
- Reduce the negative health consequences associated with indoor air pollution and skipping/undercooking meals.

Reducing dependence on firewood collection and use either for household or for income generation purposes will, in turn, reduce women and girls' exposure to one of the key risk factors for physical attack, kidnapping and rape in DRC. However, it must be noted that there are many other GBV risk factors throughout the region that must be simultaneously addressed,[32] and much more research is needed on the direct effect of cooking fuel-related interventions on overall GBV incidences.

Whereas some proposed activities are specific to individual regions, others can be employed more generally throughout all affected regions. The proposed projects outlined below are categorized as "general" (applicable to all affected regions) or broken down by specific region of intervention.

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[31] WFP (2009), *Promoting Gender Equality and the Empowerment of Women in Addressing Food and Nutrition Challenges*, Rome: WFP, p. 10. WFP/EB.1/2009/5-A.

[32] See WFP (Pia Skjelstad): "Sexual and other forms of Gender-Based Violence and Food Security in the Democratic Republic of the Congo: Mission Report," April 2011. [currently unpublished]

4.2a General

Decrease the amount of biomass-based fuel that is needed/consumed:

- **Promote the use of FES at the household level** – there is significant capacity in the region, particularly in North and South Kivu[33], that could be consulted to determine the most feasible and appropriate models of stoves, as well as design and production capabilities. Testing for fuel-efficiency and emissions is critical before scaling up any particular program, however.

  Generally speaking, any stoves promoted will need to be dual-fuel (firewood and charcoal) and either fixed in place under a rain-resistant shelter or portable. If protected outdoor cooking shelters are not able to be put in place in all targeted areas (see below), portable stoves will be the only option. Detailed participatory assessments[34] will need to be undertaken with each targeted population in order to determine the specific needs and preferences of each population.

  Given the capacity and raw materials that exist in the region, it is likely that FES will be able to be produced locally, which will reduce their cost (either to a buyer or to a humanitarian agency that would distribute them). With proper training, beneficiaries could also be engaged in the FES manufacture process as an IGA (see "Diversify income sources" section, below, for additional information on this issue).

- **Promote the use of FES in institutional feeding programs**, including school feeding programs, therapeutic feeding centers.
- **Provide cooking demonstrations** when distributing foods with which beneficiaries are not familiar, in order to reduce waste of both food and cooking fuel; promote fuel-efficient cooking techniques, etc.[35] Such demonstrations can be conducted at food distribution points and/or could consist of illustrated cards that can be distributed with the food and/or posted in key places, such as the distribution points, health clinics, schools.
- **Distribute rations that require less cooking time**, as possible. Many interviewees noted that the beans distributed by WFP are very old and dry and can take several hours to cook. To the extent that it is possible, fast-cooking foods should be prioritized.

Increase the supply of cooking fuel that can be safely accessed (whether through collection, distribution and/or purchase):

- **Promote reforestation/the creation of woodlots, including as Food for Work/Food for Training activities.** Particularly in the Kivus, deforestation is a key concern and a priority of the government. The promotion of woodlots (sustainably managed firewood/timber harvesting areas, typically planted with fast-growing trees) can help to reverse the trend of deforestation, increase the supply of firewood/timber available to displaced and host populations and reduce tensions between the two, help to develop environmental management skills among the population and provide FFW or even employment opportunities (for planting and managing the woodlots).

  Additional research will be needed to determine the most appropriate species of trees for individual regions and microclimates, to avoid promoting invasive species and, to the extent possible, coppicing trees should be prioritized.

- **Promote the manufacture, distribution and use of waste-based briquettes**. There is a significant amount of raw material for briquetting available throughout the region, including organic waste material (WFP bags, paper, etc.), rice husk, corn husk, sugar cane, banana leaves and palm nut waste. When properly manufactured, briquettes are a good substitute for charcoal and – again, if

[33] Including Mercy Corps, GIZ, WWF, Horizon Nature and others.
[34] See participatory assessment questionnaire, included as Annex 4.
[35] And conduct advocacy to NFI cluster to include sufficient supply of cooking pots and tight-fitting lids as part of the standard NFI package.

properly manufactured – should be widely accepted by a population accustomed to using charcoal as a primary source of cooking fuel.

In addition to the ICCN/Virunga National Park briquetting project discussed in detail in Section 2.2, above, GIZ also has a small-scale briquetting project underway in South Kivu and is interested in working with WFP to use discarded food bags as a raw material for briquettes, eliminating a waste source. According to GIZ, the market for selling the briquettes is currently weak, but could be developed via systematic awareness-raising on the benefits of the briquettes vis-à-vis charcoal as well as demonstrations on how to use them properly. Better production and distribution chains are also needed both for the briquettes and the fuel-efficient stoves in which to use them, but working with GIZ and other partners, WFP could make a big difference in this area.

In order to ensure acceptability, briquettes must be thoroughly tested among the beneficiary population *prior* to scale up and distribution or sale. Since there is an alternative available (charcoal), if the briquettes do not meet a certain set of criteria, they are unlikely to be accepted by the population. Therefore, the briquettes should be the equivalent of (or better than) charcoal in terms of: 1) how quickly they light; 2) how quickly they become hot; 3) how much smoke they produce; 4) how much they dirty the cooking pots; and 5) how quickly and easily they can cook staple foods in the preferred manner (on a three-stone fire; using a FES, etc.). In addition, if they are to be sold, briquettes must be priced lower than charcoal.

Manufacturing briquettes could also be considered as an IGA [see "Diversify income sources" section, below].

- Undertake **feasibility study on the possibility of using vouchers to obtain cooking fuel via NFI fairs**. Such a study should investigate the options available for allowing displaced families to use the vouchers they are given by the Shelter/NFI cluster to "purchase" cooking fuel at NFI fairs alongside clothing, jerry cans and other NFIs distributed in this manner.

- **Undertake research on and support pilot testing of possible new fuels and energy technologies**. Possible alternatives include **biogas**, particularly in schools and other institutional settings. The slurry created at the end of the biogas digestion process can be used (or sold) as fertilizer, a facet that could be particularly useful in South Kivu as the soil quality is poor.

- An **LPG** assessment should be undertaken in the Kivus, since the fuel is currently available (imported from Rwanda) – it is conceivable that if brought to scale, the costs could decrease enough to make it an option in the urban and peri-urban areas.

Diversify income sources for those households that are dependent on woodfuel-intensive activities for their livelihoods (e.g., collection of wood to sell, brick-making, charcoal production):

- **Manufacture of FES and waste-based briquettes**. There are many options for engaging targeted populations in the production of FES and/or briquettes, including via Food for Work/Food for Training, women's associations [see section on Dungu, below] or creation of factories employing both displaced and non-displaced populations as a confidence-building measure,[36] for example. According to GIZ, a key factor inhibiting the success of a fuel-efficient stove training program in South Kivu was the fact that few women had the time available to participate in the rather lengthy training process – the opportunity cost, in terms of time, that could be otherwise spent collecting firewood, earning income, etc., was too high. Providing food as an incentive for women to participate in such trainings could increase participation rates.

[36] As is currently done by GIZ/UNHCR in Dadaab camp in Kenya, for example.

Both commercial and non-commercial models are possible, including but not limited to:

- The staff employed to manufacture FES and/or briquettes can be paid for the labor by the humanitarian agency/agencies, which would then distribute the FES and/or briquettes to beneficiary populations.
- The FES/briquettes can be purchased directly from manufacturing associations by humanitarian agencies for distribution or (subsidised) sale in communities.
- Manufacturing associations can be supported to develop a viable business model for direct sale to the community.

Collection and processing of raw materials for briquettes can also be an employment source and contribute to improved sanitation and waste management.[37]

- Undertake **agroforestry initiatives as food security interventions** [see section on South Kivu, below, for additional information].

- Work with the Shelter cluster to **develop and promote the use of alternative shelter construction materials as a Food for Work activity**, to reduce reliance on wood and fired mud bricks. The current high rates of deforestation, particularly in the Kivus, began with the influx of refugees in 1994, as large numbers of trees were cut down to build shelters, clear land for camps, to use as firewood and to sell. The ongoing cycles of displacement are exacerbating this process, since as people move from village to displacement site (and then between displacement sites), they must construct new shelters and clear new land for planting. Since these populations are poor, they have few alternatives to wood and bricks as their primary construction materials. Alternatives to these environmentally unfriendly materials can include stabilized soil bricks, for example. Construction of protected outdoor cooking shelters can also be included in this process [see above].

Reduce the negative health consequences associated with indoor air pollution and skipping/undercooking meals:

- **Consider providing additional rations to offset the cost of purchasing cooking fuel** in regions where collection is unsafe/impossible due to restrictions on accessing the forest and where alternatives do not yet exist.

- **Consider providing rations to host families,** to offset the amount of rations that displaced families must give away.

- **Consider construction of outdoor cooking shelters as an FFW activity:** most women interviewed indicated that they had cooked outdoors under specifically designed cooking shelters prior to displacement. Due to lack of construction materials, however, the vast majority must now cook either indoors, in very small shelters, greatly increasing the likelihood of developing indoor air pollution (IAP)-related health problems, or cook outside, increasing the risk of fire and limiting the ability to cook and eat during the rainy season.

Overall, most interviewees – both beneficiaries and humanitarian staff – agreed there would be a positive reception to the introduction of new sources of household energy, including fuel-efficient stoves and new types of fuels. However, awareness-raising, particularly regarding the household-level benefits of the new fuels and stoves, is critical to long-term success and sustainability. According to many experts interviewed, the key factor inhibiting adoption of FES in eastern DRC has been that it requires a change in behavior by the users – in order to accept this change, the users must understand and agree that the economic, health, safety and protection benefits to their households make the change "worth it."

[37] See, for example, http://www.undp.org/cpr/we_work/waste_management_haiti.shtml .

4.2b Haut-Uélé

The construction of **institutional-size FES for school feeding programs** throughout the region should be the first priority in Dungu, since the feeding programs have not begun (as of the time of the assessment) but are set to begin shortly. Though FES can be added at any point in the program, it is easiest and most efficient to incorporate them from the very beginning, to ensure appropriate kitchen size and design, reduce the time needed to train cooks and maximize the overall impact and cost savings.

Using FES in schools reduces schools' operational costs.[38] Equally important, it reduces the likelihood that children will be asked or expected to bring firewood to school, which sometimes limits school attendance – though this issue was not found in DRC largely because so few IDP children are in school anyway. Reducing school fees and encouraging attendance through school feeding, however, may help to address this challenge. In addition, the use of FES in school feeding programs is a good starting point in awareness-raising and encouraging the use of FES at the household level.

Mercy Corps has expressed interest in working with WFP to manufacture and provide institutional FES for the new school feeding programs, building on the knowledge and capacity that they have developed in North Kivu.

Development and promotion of **household-level FES** should also be a key priority in Dungu. A few dual-fuel (firewood and charcoal), fixed, brick stoves were observed in use during household interviews, and generally the users reported being pleased with their performance (including a few IDP women interviewed during focus group discussions (FGD) who indicated that they had used similar stoves in their homes before they were displaced). The stoves are all built locally, of local materials, often by women or boys based on traditional knowledge.

This stove should be tested for both fuel efficiency and emissions,[39] since local, familiar solutions will likely be better accepted by the population. However, it is nonetheless critical to first ensure that the stoves are meeting fuel-efficiency and emissions criteria[40] before launching any type of scale-up campaign. It is possible that only minor design changes would be needed to improve the stove's overall efficiency.

If this stove proves to be incapable of reaching a sufficient efficiency and emissions level, other stove models are readily available both in DRC (there is significant experience with FES in both North and South Kivu) and in the region (Rwanda and Uganda). In the case of Dungu, due to its relative remoteness and lack of solid transportation infrastructure, locally producible options are highly preferable to imported alternatives. The majority of the materials – bricks, mud, clay, straw, ash and/or dung and water are all readily available in the immediate vicinity and metal, should it be needed depending on the stove design chosen, could likely be secured in Bunia.

Regardless of which stove is ultimately chosen, it is clear that it *must* be able to use both firewood and charcoal, as nearly all beneficiaries interviewed expressed a desire and history of using both fuels.

Mercy Corps is again recommended as a potential partner for a household-level FES project in Haut-Uélé as they have the skills and capacity in North Kivu, transferable to Dungu, and have expressed strong interest in such a partnership. Mercy Corps suggested creating manufacturing associations for FES modelled on those already in existence in North Kivu. The associations, ideally run by women, could develop different sizes and types of FES to be distributed by WFP to targeted populations, for household

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[38] The July 2010 SAFE assessment in Kenya found that fuel saving associated with use of institutional FES in school feeding programs was as much as 70%, saving a significant amount on associated school costs and, therefore, fees. See "Safe Access to Firewood and alternative Energy in Kenya: An Assessment Report": http://www.fuelnetwork.org/index.php?option=com_docman&task=doc_download&gid=305&Itemid=57.

[39] There are many organizations that are able to conduct field-based testing on stove efficiency. See, for example, Berkeley Air Monitoring Group, http://berkeleyair.com/.

[40] There is no universally accepted standard – 80% is likely the maximum fuel efficiency that can be achieved with this type of stove; anything above 50% could be considered "acceptable." Figures on emissions criteria can be provided by Berkeley Air Monitoring Group or a similar partner that should be engaged to conduct the actual testing.

or institutional use. If and when the associations develop sufficient capacity and market for the stoves has developed, the associations could be expanded to sell the stoves as well.[41]

Awareness-raising and demonstrations on the benefits of FES (especially in regard to reducing cooking time) would be needed as part of any FES program.

4.2c Ituri

WFP has an extensive school feeding program in Ituri into which **institutional FES** should be incorporated. Additional training will be needed for the cooks on how to properly use the FES, but this should not inhibit a transition to improved cooking practices – rather, such trainings can be an important first step to raising awareness more generally throughout the community about the economic, health, protection and environmental benefits of FES. As noted above, by reducing school costs (and perhaps therefore school fees) as well as overall household costs, school feeding programs using FES could encourage increased school attendance by IDP children.

Household-level FES should also be promoted, as noted above – the current atmosphere in Ituri is ripe for such interventions as the prices of both charcoal and firewood have been increasing rapidly as a result of increasing regulations on forest activity and a decrease in overall supply. Possible partners for FES projects in the region could include Mercy Corps (which is in the process of opening an office in Ituri) or GIZ. Interviewees believed there would be plenty of knowledge and partners available.

Diversification of livelihoods activities away from woodfuel-intensive options should be another key priority. Interviews in Bunia found that both charcoal manufacture and brick-making (fired mud bricks made in kilns in the bush) are key IGAs in the region; brick-making is in fact thought to be the primary reason for illegal, commercial-level tree-cutting. Development and promotion of alternative shelter construction materials (such as stabilized soil bricks, for example) as a FFW activity (see above) is an option.

A **value chain assessment should be undertaken for the charcoal trade** in order to determine where interventions could be made to maximize the benefit for women while not increasing any associated protection risks. The very informal assessment undertaken as part of the current mission found that there are at least four levels (sometimes more) in the charcoal value chain in Ituri: the manufacturers in the bush (men); the small-scale transporters from the bush to Komanda/smaller regional town (men); the wholesale sellers in Komanda to large-scale transporters/sellers from Bunia and Kisangani (men or women) OR to the individual bicycle transporters (boys); and the small scale sellers in the markets in the towns (women).

Unlike in some other regions visited, it appears IDPs have some access to land in Ituri, but few tools with which to cultivate it. **Distribution of tools** should therefore be considered as a livelihoods/food security intervention.

4.2d North and South Kivu

Particularly in South Kivu, the combination of the population explosion that has occurred since 1994 and the tradition of slash-and-burn agriculture has resulted in an increase in seasonal brush fires, exacerbated environmental degradation, threatened food security and inhibited rehabilitation. Agro-forestry and food security interventions, including reforestation and creation of woodlots, should be a key priority.

The socio-economic reinsertion project supported by CIDA and run by UNICEF and partners (see Section 3.3, Livelihoods, above) should be investigated in more detail as it appears to be an example of promising practice in supporting food security. It has already expanded since its inception and, perhaps with additional input from WFP, could expand even more.

[41] The FES associations in North Kivu have begun selling the stoves now, but still must make them very inexpensive – though still durable – in order to make them competitive at the market.

Diversification of livelihoods activities away from woodfuel-intensive options should be another key priority. Given that a large number of women in South Kivu are employed as porters, women's transportation cooperatives could be an option for increasing their income and reducing the physical and time burden that such hard labor requires. A feasibility assessment – including assessing any potential protection risks that such a cooperative could create/exacerbate – would need to be undertaken.

As noted above, both household-level and institutional FES should also be promoted. Panzi hospital in Bukavu could be a useful place to begin promotion of FES, as it receives WFP food rations for its sexual violence survivors' wing. Institutional FES are also already well established in schools in North Kivu in particular, and can and should be easily expanded, in partnership with Mercy Corps, which has long-term experience in the sector.

Perhaps more than in any other regions visited by the team, there are myriad potential partners with long-term experience in undertaking the range of SAFE projects in both North and South Kivu, including FES, briquette manufacture, reforestation activities, forest conservation, training and awareness-raising on household energy activities.[42]

[42] See Annex 3.

Annex 1: Mission Itinerary and Key Informants

28 Mar	- WFP's sub office Senior Management - Security briefing	Goma
29 Mar	- WFP's sub office Senior Management - WFP's sub office staff (focus group discussion - FGD) - Security briefing	Dungu
30 Mar	- Partner's meeting (FGD)[43] - Mercy Corps - Household interviews – Dungu town - FGD (women) – Eti site - FGD (men) – Eti site	Dungu
31 Mar	- Household interview – Linakofo site - FGD (women) – Linakofo site - FGD (men) – Linakofo site	Dungu
	- WFP's sub office Senior Management - WFP sub office staff (FGD)	Bunia
1 Apr	- FGD (women) – Geti site - FGD (men) – Geti site	Bunia
2 Apr	- Partner's meeting (FGD)[44]	Bunia
3 Apr	- Roadside interviews with charcoal sellers - FGD (women) – Komanda site - FGD (men) – Komanda site - FGD (pygmy women) – Komanda site - Household interviews – Komanda site	Bunia
4 Apr	- UNICEF (Shelter/NFI Cluster lead)	Goma
5 Apr	- WFP sub office Senior Management - WFP staff (FGD)	Bukavu
6 Apr	- Partner's meeting (FGD)[45] - Visit to Panzi hospital SV program - Visit to City of Joy SV survivor shelter - Swiss Development Cooperation	Bukavu
7 Apr	- FGD (women) – Luzira site - FGD (women) – Luzira site - FGD (men) – Luzira site - FGD (men) – Luzira site - GIZ	Bukavu
8 Apr	- WFP sub office Senior Management - Partners meeting (FGD)[46]	Goma
9 Apr	- FGD – Kiwanja site	Goma

[43] Agencies attending this meeting included DRC, COOPI, Aider, UNICEF, LWF, ADSSE, Oxfam-Québec, UNHCR, UN-OCHA, MONUSCO, ALDI, Conscience.
[44] Agencies attending this meeting included UNICEF, UN-OCHA, UNHCR, Oxfam (representing the protection cluster), IPASC (WFP's IP for HIV/AIDS), UNFPA.
[45] Agencies attending this meeting included UNFPA, CAMPS, City of Joy/Panzi Hospital, V-Day, UNDP, Action Mobilité, Danish Church Aid, Organisation Mondial des Paysans, Emo-Baraka, COOPI, UNHCR, AASF.
[46] Agencies attending this meeting included UN-OCHA, ICCN/Virunga National Park, Réseau CREF.

Annex 2: Selected References

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Annex 3: Selected Potential Partners[47]

Mercy Corps[48]

Mercy Corps is a US-based NGO founded in 1982 with the objectives of reducing suffering, poverty and oppression, while helping populations to build safe, productive and fair communities.

Mercy Corps' eastern DRC program was established in 2007 to assist people displaced by conflict and insecurity. It focuses on four operational sectors:

- Water and sanitation (emergency and long-term)
- Food security (agriculture, environmental protection, market development)
- Economic recovery
- Civil society development/good governance

Activities in North Kivu

Mercy Corps quickly identified the lack of safe access to sufficient, appropriate household energy as an obstacle to safe, productive and fair communities. To respond, it began a program of production of fuel-efficient stoves in six IDP camps in Goma in September 2008. After the camps' closure in September 2009, the project continued in four return zones in North Kivu.

Collaborating with IDPs and a local organization, Mercy Corps' FES program has trained 260 facilitators in the construction of two models of fuel-efficient stoves; built 20,000 FES between September 2008 and March 2009; began water boiling tests to assess the quality of the stoves; replanted 75 hectares of deforested land; undertook follow up to obtain carbon credits; and assessed the social and environmental impact of the project. The organization has also provided institutional stoves to WFP in North Kivu for school feeding programs.

Mercy Corps' FES have been used to generate carbon credits using the Gold Standard.

Expanding to Haut-Uélé

The focus of Mercy Corps' current activities in Haut-Uélé is IGAs and food security. Food security activities include conducting trainings on agricultural techniques (such as diversification of crops), planting demonstrations, distribution of tools and training of trainers for farmers associations, Food security programs fall under the same umbrella as the environmental project run out of North Kivu.

IGA activities in Haut-Uélé include primarily infrastructure-focused cash-for-work, including school rehabilitation and latrine construction, as well as women-run market stands and voucher-based NFI fairs. Specific projects and beneficiaries are chosen in cooperation with beneficiaries and village leaders after joint feasibility studies have been undertaken.

Participants chosen for the IGA projects are typically the most vulnerable. Though both men or women participate, there are currently more women involved than men. Sensitization on gender is important to avoid tensions in the household stemming from women earning income, but Mercy Corps has found that men are often just happy to see an overall increase in the household income, regardless of who is earning it.

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[47] The organizations included as "potential partners" are only a small sampling of the organizations working on SAFE-related progamming throughout the east.

[48] Information based on an interview with Thierno Diallo, Mercy Corps Deputy Country Director, and Laurent Phung, Mercy Corps Head of Office, Dungu, March 30, 2011 and Mercy Corps presentation to the Humanitarian Segment of ECOSOC, July 19, 2011.

Mercy Corps had not been planning to undertake an FES program in Haut-Uélé due to lack of funding, as most donors in the region have been primarily interested in food security. However, they have sufficient capacity and technical expertise and would be interested in partnering with WFP were WFP to find funding for such a project.

As such, Mercy Corps suggested creating women's FES manufacturing associations similar to what they have done in North Kivu, for different sizes and types of FES for both households and institutions. All stoves can be locally-produced (nearly all of the necessary materials are available in Dungu or, at most, Bunia). Over the long term, the goal would be to build enough capacity within the women's FES manufacturing associations to allow them to expand in order to sell the stoves. However, the project would have to begin by distributing them for free in order to demonstrate the benefits and build a local market. It would also be critical to undertake awareness-raising campaigns and demonstrations on the benefits of the stoves (especially their ability to reduce cooking time) as part of any program.

Horizon Nature:

Horizon Nature is a Congolese NGO established in Bukavu, South Kivu, in 1998. They focus on conservation and development issues in cooperation with groups of women, including survivors of sexual violence, pygmies and young people. The organization's objectives are to improve environmental protection and food security by empowering vulnerable populations through the sustainable use of natural resources, including manufacture of FES.

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ):

One of GIZ's three key programming areas in DRC is the sustainable management of natural resources. To this end, they are engaged in FES manufacture, briquette manufacture, and woodlot promotion in partnership with local organizations and ICCN.

Annex 4: Participatory Assessment Template

SAMPLE Interview/Focus Group Discussion Questions for Beneficiaries or Women's Groups on the topic of Cooking Fuel Needs & Preferences

Please ensure the following requirements are in place *before* undertaking a focus group discussion (FGD) or interview:

- Always begin a focus group discussion by explaining the procedures and objectives for the discussion. Make sure that all participants are aware of who you are, why you are interviewing them, what types of questions you will be asking, and how any information you obtain from them will be used.
- Be certain that all participants understand the format and discussion topics in advance and can choose not to participate if they are in any way uncomfortable.
- Always obtain permission to quote interviewees and/or to take pictures.
- The following statement may be adapted for use in advance of a FGD/interview to ensure that interviewees are aware of and comfortable with the process:

  "*I am interested in learning about your views on the type of fuel you use for cooking. I would like to ask your permission to interview you and other people in your community about things like firewood, how you collect it, and how safe you feel doing so. If you prefer not to answer certain questions, please feel free to keep silent. This information will be used in [*example only: *evaluating different types of cooking fuels] and shared publicly with the aim to educate others about what fuels work best in your situation, which you prefer, and why. It is important that you understand that any personal information that we gather in this discussion will be treated with the utmost confidentiality, unless you expressly request or allow us to use your name or photograph. I expect our talk to last about [length of time]. Do I have your permission to begin?"*

- **What do you currently use for cooking? (i.e.: 3-stone fire, improved stove, other?)**

  A. If 3 stone fire or other "traditional" method:

  - How do you get your firewood? (i.e.: do you collect it yourself, rely on others to collect it, do you purchase it or is it given to you?)
    - IF COLLECT OWN: How often must you collect it? How long do such trips take? Do you go alone or with others? How many others? Do you feel safe leaving the camps to collect firewood? Why or why not? If not, who or what make(s) you feel unsafe?
    - IF PURCHASED: Do you feel you have enough money to continue purchasing your firewood for a while? Why do you purchase the wood rather than collect it yourself? How much does a bundle of firewood cost? How long does it last you? Has the cost of firewood changed over the time you have been displaced?
    - IF GIVEN: Do you receive your wood from a relief agency? Which one? How often? Is the amount you receive enough to cook for your family every day? If not, how do you supplement the wood you're given? Have you discussed your firewood needs with the agency that gives it to you?

B. If an improved [wood-burning] stove:

- What type of stove are you using? (i.e.: mud, clay, ceramic, metal, combination, etc.)

  TRAINING:

  - Did you make the stove yourself, was it given to you or did you have to work for it/purchase it? If you had to work for it or purchase it, how much was it and/or what did you do to earn it?
  - If you made it, did you receive training on how to make and use it? From whom? How long was the training? Was the training only on how to make and use the stove, or did it involve other things as well (i.e.: reading, health care, etc.)?
  - Has the person or organization that gave you the training returned to ask you about how you use the stove, and if you like it or not? How often?
  - If you received training on how to make and use the stove, have you trained other women on how to make and use it, too? If so, was this a requirement of your training? If not, are there any reasons why you haven't done so?

  OPINIONS ABOUT THE STOVE:

  - Do you like the stove? Why or why not? (what about it is good, and what about it is not good?) Do you think you'll fix it if it breaks, or will you go back to using your traditional cooking method?
  - What is the most important aspect of the stove from your perspective? (for example: easy to use, durable, portable, uses less firewood, cooks food well, was given to you for free, etc.)
  - What would you change about the stove if you could?

  USE/COLLECTION OF FIREWOOD/FEELINGS OF SAFETY:

  - Do you think you use less firewood with the stove?
  - Do you go out to collect/purchase firewood less often than before you used the stove?

    - IF YES:
      - How often do you still leave the camps, if at all? What for?
      - Do you feel safer now that you don't have to leave the camps as often to collect firewood?
      - What, if anything, do you do with the time you used to spend collecting wood?

    - IF NO:
      - If you still leave the camps to collect firewood, how long does it take you each trip? How many trips do you make per week? Do you go out the same amount as before you began using the stove? More often? Less often?
      - Do you still collect firewood because you feel you need the wood, or do you collect extra in order to sell it for money?
      - If you sell the wood to earn money, for what do you need the money? (i.e.: to supplement food or non-food rations, for medicine, for your children's education, etc.?)
      - Do you think there are some days when it is more or less safe to collect wood? If so, do you stay in the camp on days when you think it is less safe outside?

- If you had another way to earn money besides selling firewood, do you think you would still leave the camps to collect it? Do you know of other ways to earn money? Are you interested in learning other ways to earn money?
- Did you earn money before you were displaced? If so, what did you do?

C. If "other" and/or non-wood burning stove:

- If you do not use a 3-stone fire or an improved stove, what do you use (for example: charcoal or kerosene stove, solar cooker, etc.)? Is this the only cooking device you use, or do you combine it with other methods? If so, which other methods? Why do you use more than one method for cooking?

TRAINING:

- How did you get or hear about this device? Was it given to you, did you have to purchase it/work for it, or did you make it? If you had to purchase it or work for it, what were you required to do or to pay?
- Did you receive training on how to make it and/or use it? From whom or what agency? How long was the training? What did it entail? (i.e.: was it a part of a larger training for reading or health, for example, or on its own?)
- Has anyone who helped with the training or who is from the agency that gave you the training come by to see how you're using it or how you like it? How often?

OPINIONS ABOUT THE DEVICE:

- Do you like the device? What about it do you like or not like?
- What is the most important aspect of the device for you?
- What would you change about the device if you could?

[ADD FIREWOOD COLLECTION/SAFETY-RELATED QUESTIONS AGAIN, AS ABOVE]

- **<u>Route Patrolling ("Firewood Patrols" of Escort Systems):</u>**

- Have any security forces, such as the [peacekeeping force/CivPol/other relevant local security force], ever accompanied you when you collected firewood?

  - IF NO: have you or your neighbours ever asked to have security forces accompany you? Who did you ask? Do you know why they did not come?

  - IF YES: do you know how the accompaniment was organised? Were you asked about when and where you wanted to go? If so, who asked you these questions (i.e.: UNHCR, another relief agency, the security forces themselves, etc.). Do you think the routes they take and the times they leave are good? Do they go often enough? (i.e.: do you still have to collect wood unaccompanied sometimes? About how often?)
  - Do you feel safer collecting wood when the security forces are nearby than when they're not? Why or why not?
  - Do you feel like you can talk with the security forces, to tell them what you need, etc.?

- **Cooking techniques:**

  - What foods do you normally cook? How long does it take to cook them? Would you consider cooking other types of food if they cooked faster?
  - How do you prepare the food before you cook it? (i.e.: soaking beans, cutting vegetables, etc., into small pieces....)
  - Would you consider cooking with your neighbors in order to use less firewood and therefore not have to collect it as often? Why or why not?
  - What is the most important part of cooking for you? (apart from making food edible, of course!) – the social aspect (i.e.: cooking with other family members, for example), having a fire to gather around, the act of providing for your family, etc….

- **Other:**

  - What did you use for cooking before you were displaced? How did you obtain it? (i.e.: collect; purchase; made own, etc.) Did you have any complaints about your cooking fuel(s) or device(s) before displacement? If so, what were they? What (if anything) were you able to do to resolve those problems?
  - What else do you think the relief agencies can do to help you with your firewood or fuel needs?
  - What else do you think *you* can do to manage fuel and firewood needs?
  - Is there anything else you would like to tell me about collecting firewood, using stoves or other cooking devices, or how safe you feel in or outside the camps?
  - Do you have any questions for me?