



ADDRESSING CHARCOAL PRODUCTION, ENVIRONMENTAL DEGRADATION AND COMMUNAL VIOLENCE IN SOMALIA: THE USE OF SOLAR COOKERS IN BANDER BEYLA¹

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Introduction

Since 1990, Somalia has experienced statelessness, compounded with armed violence that has led to a high unemployment rate. But another kind of war is going on in Somalia – one that is being waged against the already fragile environment. This war involves the destruction of acacia trees to produce charcoal for the local and international market. Since the collapse of the Somali state, a large number of unemployed men have made their livelihood from charcoal

production. In the absence of government environmental regulation and protection, acacia trees are cut and burnt on a large scale for charcoal, leading to the degradation of Somalia's natural resources. Due to poverty, unemployed

Above: Charcoal, which is referred to as *dhuxul* in Somali, has been the main cooking energy used by millions of households in Somalia for centuries.

young men as well as older men – desperate to survive and feed their families – are forced to engage in this business. Charcoal production as a livelihood has led to environmental destruction – and even death.

The first section of this article discusses the effects of charcoal production on the environment, its direct and indirect contributions to violence, and its overall effect on the health of women and girls in war-torn Somalia. The second part of this article discusses a solar cooker project implemented in 2005 in Bander Beyla by Horn Relief International and Sun Fire Cooking Ltd, to benefit 950 tsunami-affected families in the area. Given that charcoal production leads to environmental degradation and conflict as a result of competition for scarce resources – as well as affecting the health of those exposed to its use, and its high cost – the last part of this article assesses the impact of solar cookers as an alternative to using charcoal as cooking fuel.

Charcoal Production: A Source of Environmental Destruction and Communal Violence

Charcoal, which is referred to as *dhuxul* (and firewood as *qoryo*) in Somali, has been the main cooking energy used by millions of households in Somalia for centuries – and will remain so if no alternative energy is introduced. It is becoming difficult for women, who collect firewood, to find it due to denudation. Charcoal production, which involves cutting trees and burning them, is predominantly undertaken by men. The majority of charcoal traders are also men, but there are some women involved in this trade. Dependency on firewood and charcoal is not only destroying Somalia's environment but also negatively impacting the health of women, who are its main users.

In the last two decades, charcoal production has intensified and continues to destroy trees in Somalia, forcing women and young girls to walk long hours to collect firewood. The main trees targeted for charcoal production are acacias, known in Somali as *qurac*. These trees are significant to the survival of this nomadic society, as they provide shade to herds, particularly goats, sheep, cows and donkeys. *Qurac* trees are also used to construct traditional houses. When the Somali state collapsed, men and women who lost their jobs and were displaced turned to charcoal production – a job at which even previously unskilled workers could succeed. The requirement for charcoal production is simply the ability to use physical energy to cut down and burn trees to make charcoal. As a result of massive charcoal production, trees are now rare. In fact, there are towns and villages where no trees are left standing – a testimony to charcoal and firewood dependency and consumption.

Discussions with women in Bander Beyla revealed that firewood is becoming scarce in this region, and that many families have no choice but to buy the commodity from other locales. Interviews with traditional leaders in the area revealed that, without environmental legislation, charcoal producers – who are not concerned about the long-term effects of their



Acacia trees are cut and burned on a massive scale, to produce charcoal in Somalia.

actions on the environment – will continue felling live trees. “The charcoal traders behave as though the environment is insensitive to their greed,” said an elderly man in Bander Beyla. “Their ultimate goal is to make money, oblivious to the devastation they are causing to the environment. Their primary goal is to make profits from cutting and burning trees to make thousands of charcoal sacks.”²

The massive destruction of acacia trees will have profound environmental consequences for nomadic families, whose survival is linked to the environment they inhabit. One man, who owns a small herd of goats, said: “There are no trees left in my community where both people and herds can find shade. Trees are stripped off and are now rare. We cannot live without trees, but we continue to destroy them.”³ When – and if – durable peace is achieved in Somalia, the citizens of this war-ravaged country will face enormous environmental insecurity, which already threatens their well-being and recovery. Environmental insecurity will negatively

affect the ability of a war-affected population to recover from their losses and survive the post-conflict stage.

Charcoal production in Somalia has led to what are known as ‘charcoal wars’, where those who are involved in charcoal production clash with inhabitants of the area where the trees are being cut for charcoal production. The makers of charcoal and those⁴ who feel their territory is being invaded by outsiders are armed – a situation that often leads to violence, displacement and even death. Discussions with traditional leaders who are involved in traditional conflict resolution highlighted that there have been a number of conflicts over charcoal production. For example, two groups competing to access a particular location with many trees often end up in a violent clash. Sometimes, the inhabitants of the area may rise against the charcoal producers who destroy their trees. Charcoal wars perpetuate tensions among certain clans, and are a threat to overall security in some regions. Interviews with residents of Bander Beyla town and the surrounding villages noted that, whenever there is a charcoal conflict in an area filled with trees, the supply of charcoal is interrupted, and remote towns and villages that rely on charcoal for cooking are adversely affected. The phenomenon of charcoal wars needs to be investigated more, as there is not enough information on it – particularly the number of displacements and deaths caused. More elaborate research will provide better insights on the impact of such conflicts on communities and the environment.

Firewood and Charcoal Consumption, and the Health of Women and Girls

Dependence on charcoal for cooking is very costly for impoverished families. Women and girls walk long hours to collect firewood to supplement the expensive charcoal. Firewood collection is an arduous, back-breaking task, and is dangerous in a conflict environment where many people are armed. The further women and girls travel in search of scarce firewood, the more vulnerable they are to armed men, who may sexually abuse them. Interviews with women and girls who collect firewood in Bander Beyla and four other villages revealed that they suffer foot, ankle and eye injuries – and even snake bites – as they remove and cut tough and dead wood with axes. In underdeveloped towns and villages where there are no hospitals, such injuries can be deadly for women and girls, or may leave permanent injuries that affect their mobility and, hence, their ability to care for themselves and their families.

It is estimated that each household needs five to seven sacks of charcoal per month, and each sack of charcoal costs about US\$8 to US\$10 – a very expensive commodity for poor families with scant resources who barely cope, and in an armed conflict context. Due to the absence of price control, millions of Somali households that depend on charcoal for energy are at the mercy of charcoal sellers, who gauge the prices for charcoal daily, forcing poor families to spend more money on charcoal than on other necessities.

One woman points out: “Imagine you have to divert your meagre resources to purchasing sacks of charcoal because there is no firewood available in the area where we live, and you have no money left to buy food for your family. You will see many neighbours who have charcoal but no food to cook.”⁵ Another woman says: “After we purchase charcoal, we may only afford to prepare one meal a day.”⁶ Money needed to purchase food is channelled to buying charcoal and, therefore, charcoal consumption negatively affects the food consumption of poor families. In addition, charcoal usage directly affects the health of women and girls, who do the cooking for their families. They are exposed to black dust, smoke and soot inhalation, which affects their respiratory system and eyesight.

The good news is that there is alternative cooking energy available in the form of solar power, which is environmentally friendly and safe, for the health and well-being of women,



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Firewood collection is an arduous, back-breaking task, and is dangerous in a conflict environment where many people are armed.



A woman buys charcoal from a trader at a charcoal market; each bag costs about US\$8 to US\$10.

girls and their families. Solar cookers also enable households' dependency on charcoal and firewood to be minimised and, consequently, their food consumption to be improved.

The following section discusses a solar cooker project implemented in Bander Beyla and four neighbouring villages affected by the 2004 tsunami, and its impact on these communities.

Preventing Violence and Protecting the Environment through Solar Cookers

Horn Relief International and Sun Fire Cooking Ltd's solar cooker project was unique, and was the first project of this scale in war-torn Somalia. The project – which provided beneficiary families with alternative cooking energy in the form of solar cookers and new cooking pots – was implemented between November 2005 and March 2006, and 950 families residing in Bander Beyla town and four surrounding villages – Dhuur, Dhuudo, Eldhidir and Kulule – benefited from the project.⁷ The beneficiaries were carefully selected⁸ based on their economic vulnerability, female-headed households, loss of assets (such as fishing gear and boats) during the 2004 tsunami, lack of capital, and minority and marginalised group membership. A survey was conducted with these households to collect information on who cooks and buys charcoal, the number of sacks of

charcoal used by each household, and the families' basic awareness of the importance of trees and environment. Members of the beneficiary households were then trained on how to use and maintain their solar cookers, and the heads of families were trained⁹ on the benefits of using solar cookers – the health of their families, saving time and being more economically viable.

While it is too early to determine the extent to which the introduction and distribution of solar cookers has minimised violence and conflict over charcoal and firewood, discussions with traditional leaders, women and men in these communities indicate that, prior to the distribution of solar cookers in their locales, conflicts over charcoal and access to firewood occurred between individuals and groups from time to time. The recipients of solar cookers in the four locales hold the view that cases of such conflicts have reduced with the introduction of solar cookers. Halima, a resident of Eldhidir village, said: "Scarcity of firewood leads to fierce competition, which may cause those competing for these commodities to resort to violence. Each group wants to have more access to firewood and may, at times, use arms to scare off other interested groups. In some incidences, where violence has led to serious injury or even death, those affected oftentimes move to avenge on behalf of the victims' families and clans, leading to deadly violence. A traditional leader in Kulule



A woman in Bander Beyla cooks lunch for her family using a solar cooker.

village confirmed: “With the solar cookers now available in a number of households in my village, we are seeing less quarrels and conflicts over firewood and charcoal production. The use of solar cookers has reduced the demand for scarce firewood and charcoal in our village, as well as in other places where distribution of solar cookers were made.”¹⁰ A resident in Dhuur village explained how dependency on charcoal impacts on poor families, and said: “Charcoal sellers often quarrel with families that take charcoal on credit over payment. This at times leads to serious conflicts.”¹¹ Consistent use of solar cookers can ease competition over scarce firewood and lessen conflicts over firewood and charcoal.

By using solar cookers, families have reduced their dependency on charcoal and firewood for their daily cooking, enabling them to afford more nutritious foods. For example, after receiving a solar cooker, average charcoal use decreased by three to four sacks a month in each family. “Through our new solar cooker, my family is able to save money, which

we previously spent on purchasing sacks of charcoal,” one recipient said.¹² Another woman asserted: “My solar cooker has eased my family’s reliance on expensive charcoal.”¹³ According to Haweya, a mother of six, she is now able to buy goat milk, meat and other food items for her children. “I have saved thousands of shillings since I started using the solar cooker. Before, I could not purchase those items,” she said.¹⁴

The introduction and distribution of solar cookers has also increased the participation of men and older boys in household cooking activities. A mother of four boys noted that her husband and sons are keen on cooking since her family received its solar cooker through this project. “Because the solar is clean and easy for them to use, they can now make tea, coffee and light meals for us,” she added.¹⁵ The use of solar cookers can alter socially defined gender roles and may encourage men and boys to participate in cooking – and, as such, free women and girls from spending long hours in food preparation and cooking. Domestic chores that require many hours of work deny women and girls the opportunity



A Somali woman proudly shows off the small amount of charcoal she now uses, since receiving her solar cooker.

to obtain an education and participate in decision-making processes, but the use of solar cookers may provide women and girls such space, and the opportunity to be educated and to participate actively in activities in which they previously could not.

With the introduction of solar cookers to the 950 households, charcoal traders were finding it difficult to sell charcoal to their former customers. There were also more sacks of charcoal at the markets: a sign that solar recipients were no longer purchasing as much charcoal. This, of course, infuriated the charcoal traders, who began an aggressive campaign to reclaim their customers. Discussions with recipients of solar cookers indicated that charcoal traders were discouraging them from using solar cookers, and reduced the price of charcoal sacks to attract former consumers. Some charcoal traders went as far as spreading rumours that the glare from solar cookers was harmful to health. However, the project's staff, who visited the solar cooker users frequently, continued to support them and encourage the use of this form of energy.

Families using these cookers have managed to pay off debts and start income-generating activities, thus improving their livelihoods. "With the savings that I made since I started using my solar cooker, I was able to save some money to pay off my debts," testified a mother of four.¹⁶ "The more I used the cooker, the more money I saved, and with the money I have been able to buy clothing and medicine for my children," another woman commented.¹⁷ By switching to a more efficient and modern form of cooking energy, these families were able to keep their hard-earned money for their own benefit rather than paying charcoal traders, who have contributed to the destruction of trees and community conflict over the years. Solar cookers have provided these families with a responsible form of energy that safeguards the well-being of the community, particularly women and girls. The use of solar cookers has also freed women and girls from the difficult and dangerous task of collecting firewood, and

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introduced them to an environmentally friendly and safer form of energy.

The solar cooker project was not just about the distribution of solar cookers. It also raised the awareness of the recipients and their communities about their impact on the environment. As has been described above, first a survey captured information on families' charcoal consumption and the amount of money spent on charcoal every month. This information, when shared, enlightened the community as to their impact on the environment and the overall amount of resources spent on this unsustainable commodity. Next, the benefits of using solar cookers and the importance of protecting the environment were communicated to beneficiary families. Environmental principles¹⁸ and messages were also created and communicated to members of the community, particularly to women, youth and traditional and religious leaders. The project united members of the community on how to reduce charcoal consumption and protect their environment through the use of solar cookers.

Challenges Faced by Recipients of Solar Cookers

Despite the benefits of using solar cookers, certain challenges affected the way the recipients adapted to the use of solar cookers for their daily cooking activities. The type of solar cookers distributed required a spacious and cemented area. However, the majority of families had no cemented areas in their homes, and the solar cooker wheels easily sank



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Many families lacked closed compounds and cemented areas to ensure the security of their solar cookers and to prevent sand damage to the cooker.

into the sand and could not stand upright well. As a result, the recipients were hesitant to use the cookers and complained that they were too heavy to move around their compounds. Sand eroded the lower metal of the solar cookers, and the project's budget did not allow for the building of cemented spaces for each of the recipients. The majority of households also lacked closed compounds where they could ensure the security of their solar cookers, and they were concerned about theft. Recipients also complained about the glare of the cookers, and some feared losing their eyesight. Ongoing dependence on charcoal was also a hindering factor, and some families – even once they had received solar cookers – struggled to change this destructive and expensive habit.

Conclusion

The use of solar power in Somalia can reverse the problems of desertification caused by charcoal production. It has the potential to free charcoal and firewood-dependent

families to utilise energy that is clean, free and does not affect their health. This project provided 950 families in Bander Beyla and surrounding villages with alternative clean, cheap, environmentally friendly cooking energy, and through their usage eased some of the communal conflicts over scarce firewood and charcoal production. Through this project, households saved money and increased their environmental awareness. The financial savings enabled families to purchase much-needed items they were unable to afford prior to the distribution of the solar cookers. In addition, the introduction of solar cookers has brought positive change to the lives of women and girls, who previously spent six to seven hours a day cooking for their families and being exposed to smoke and soot inhalation. The use of solar cookers has given women and girls more time, which they can use to attend school and be active in their community affairs. Through solar cookers, women and girls have become aware of the negative effects of firewood and charcoal on their health and on their

family's savings – which heightened their understanding of the benefits of using solar cookers.

The introduction and distribution of solar cookers was intended to reverse the long-term environmental degradation caused by the production and use of charcoal for cooking energy. This project was implemented more than five years ago and its findings were relevant to 2006. The long-term impact of this project needs to be explored to establish if the earlier results of the project still remain. Updated research will reveal the percentage of recipients who are still using their solar cookers, the amount of savings each household continues to experience, and the extent to which the continued use of solar cookers still reduces environmental degradation and communal conflict. In order to save more trees and reverse environmental degradation,

FAMILIES USING THESE COOKERS HAVE MANAGED TO PAY OFF DEBTS AND START INCOME-GENERATING ACTIVITIES, THUS IMPROVING THEIR LIVELIHOODS

more solar cookers need to be distributed to many regions of Somalia. Charcoal production and consumption in Somalia is not sustainable – if charcoal dependency continues, the few remaining trees and rangelands will be denuded and destroyed, leading to further soil erosion.

Charcoal production and consumption provides livelihoods to many people. Without creating alternative employment opportunities for these people, and without the use of alternative cooking energy – such as solar cookers – the production and consumption of charcoal and firewood will persist in Somalia. Furthermore, all levels of authority in Somalia – from village level to national level – must implement and enact environmental policies that will protect trees and prevent soil erosion (an outcome of charcoal production) and provide alternative livelihoods for those involved in charcoal production. Immediate action must be taken to minimise the ever-growing dependency on charcoal, and the related conflict and violence that occurs in communities. Raising the awareness of everyone involved in charcoal production and consumption – buyers, consumers, sellers and the general public – particularly their understanding of the benefits of protecting their own environment, is also urgently needed in war-torn Somalia. ▲

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Endnotes

- 1 Bander Beyla is a coastal town on the Indian Ocean in Somalia's north-eastern region of Puntland. The town was affected by the 2004 tsunami and its inhabitants lost their fishing boats, gear, homes and their overall livelihoods.
- 2 Ali, Hussein (2005) Interview with the author in November. Bander Beyla town. Ali is an elder in Bander Beyla town. Fictitious names have been used to protect the real identity of all individuals quoted in this article.
- 3 Salad, Ali (2005) Interview with the author in November. Bander Beyla town.
- 4 Armed men who reside near the areas where charcoal is produced may refuse outsiders to cut trees in their region. These men argue that they are protecting the environment. They are not environmentalists and they argue that they simply want to protect the trees for their own interests: to make charcoal or use trees as firewood for themselves.
- 5 Jelle, Fatuma (2005) Interview with the author in November. Bander Beyla town.
- 6 Suldaan, Jimco (2005) Interview with the author in November. Bander Beyla town.
- 7 A total of 612 families in Bander Beyla town received solar cookers. Dhuur is 56 km from Bander Beyla, and 55 families in Dhuur benefited from this project. Eldhidir is 38 km from Bander Beyla town, and there were 86 families in Eldhidir that received cookers. Kulule is 70 km from Bander Beyla, and 155 families were selected and received solar cookers.
- 8 The process of selecting beneficiaries was participatory and inclusive. Community members – including local leaders, women and youth – in all five areas were mobilised and invited to choose the most deserving families for the solar cookers. They came up with a guideline for selecting the most deserving families in their respective communities.
- 9 Through such trainings, the head of each family was provided with information on the importance of preparing nutritious meals, how to cook nutritious and affordable meals through channelling resources spent on charcoal to food, and the importance of boiling drinking water.
- 10 Abdulle, Odowa (2005) Interview with the author in November. Kulule village.
- 11 Daud, Hindiya (2005) Interview with the author in November. Dhuur village.
- 12 Abdi, Jamila (2005) Interview with the author in November. Bander Beyla town.
- 13 Abdikarim, Suad (2005) Interview with the author in November. Bander Beyla town.
- 14 Adan, Haweya (2005) Interview with the author in November. Bander Beyla town.
- 15 Farah, Zeinab (2005) Interview with the author in November. Bander Beyla town.
- 16 Isak, Dahabo (2005) Interview with the author in November. Bander Beyla town.
- 17 Ismail, Hawa (2005) Interview with the author in November. Bander Beyla town.
- 18 Environmental principles formed included: human beings can only survive and be secure when they protect, respect and become the custodians of their environment; they need to recognise that, as humans, cutting and burning trees to produce charcoal impacts negatively on the environment; charcoal production has multiple implications for people and animals; and that every person has the responsibility to protect and minimise their negative impact on the environment.