

Narratives of CleanCook Stove use in the
UNHCR Shimelba Camp
Tigray, Ethiopia

31 August 2005

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Project Gaia Research Studies

Introduction. On 24 August 2005, Project Gaia's Cheryl O'Brien and James Murren flew to Shire, northern Ethiopia, for a two-day field assignment of collecting first-hand insight into the use of the CleanCook Stove by Eritrean refugees living in the United Nations High Commissioner for Refugees (UNHCR) Shimelba camp. Accompanying Cheryl and James was one of Project Gaia/Ethiopia's two Quality Control specialists, Yonas Abesha, and Dr. Amare Gebre Egziabher of UNHCR. Upon arrival in Shire, the team was transported by UNHCR to the town of Sheraro, 100 km to the north and west of Shire. Due to a flight delay, they arrived in Sheraro late in the afternoon and were unable to begin work, as was planned, in the camp that afternoon.

On the morning of 25 August, Cheryl, James, Yonas and Dr. Amare arrived at the camp around 8 am. After a quick breakfast at the Plaza Restaurant located inside the camp, the day's plan was discussed and preparations were made to carry it out. Yonas soon began a stove demonstration for 50 new households that received the CleanCook Stove. Dr. Amare met with camp officials and UNHCR staff, taking care of business matters pertaining to his work agenda. Cheryl and James reviewed the Narrative questions with Project Gaia Shimelba Camp Surveyors, Tsegai Beyene, Salem Fitsum and Gebeyehu Lagia, before heading out to interview Project Gaia study participants on the use of the CleanCook Stove in their homes.

Around 9:30 am, Cheryl and Salem were transported to the Tigray side of the camp, followed by James, Tsegai and Gebeyehu walking out to the Kunama side of the camp. Salem translated the questions from Tigrigna to English for Cheryl. For the Kunama people, Tsegai translated the questions to Amharic for Gebeyehu, who translated to Kunama for the refugees. Answers came back to English in the reverse order for James.

The purpose of collecting the Narratives was to assess CleanCook Stove use and its effects on the lives of the refugees, using a qualitative approach to accompany the quantitative surveys already being used by Project Gaia in the camp. The aim was to provide a more personal understanding of how the CleanCook Stove impacts the daily lives of its users, refugees who at the time had been using the stoves for nearly two months.

The narrative questions appear below first, followed by the narratives that were collected over six hours on 25 August 2005. The quotations attributed to the interviewees are exact translations of the responses given by the refugees. Admittedly, translating is a difficult

task. However, given the excellent English skills of Tsegai, Salem and Gebeyehu, Project Gaia is very confident that the collection of narratives is an accurate account of stove-use and the refugees' lives.

REMINDER: IN REFERENCE TO THE FOLLOWING NARRATIVES, IF FELLOW PROJECT GAIA PARTNERS WANT TO USE THE NARRATIVES IN OTHER REPORTS, PLEASE USE STUDY PARTICIPANT'S FIRST NAMES ONLY, AND DO NOT GIVE HOUSEHOLD NUMBERS UNLESS PROJECT GAIA PERMISSION IS OTHERWISE GRANTED.

Project Gaia Narrative Questions (Open-Ended Questions)
---DO NOT PROMPT RESPONSES---

1. Health Impact

1. How has the CleanCook (CC) Stove **positively** impacted the physical health of you and your family?

2. Satisfaction and Efficiency of the CC Stove

2.a. How satisfied are you with the heat output of the CC Stove? How satisfied are you with the cook time (speed of cooking) of the CC Stove?

2.b. How efficient (cook time/speed) is the CC Stove in comparison to other stoves you have used? (Specify the other stoves and the difference in cook times.) If the CC Stove is more efficient, about how much time per day is/was saved from cooking with the CC Stove?

2.c. If the CC Stove is more efficient, in what ways are/were you able to use your extra time?

3. Safety of the CC Stove

3.a. How safe is the CC Stove in comparison to other stoves you have used, and if it is safer, in what ways is it safer? (Specify the other stoves.)

3.b. If you find the CC Stove to be safer than other stoves, how has using the CC Stove positively impacted your sense of well-being in the household (in comparison to your safety concerns with other stoves)?

4. Only for those who gather(ed) fuelwood, etc. either before or during the pilot study:

4.a. About how much time per day did it take you to gather fuel before using the CC Stove? What kinds of fuels did you gather? Specify the type of load used for gathering

(woman, man, child, donkey, etc.). If a child load was used, give the child's sex (male/female) and age.

4.b/4.c. Did you gather fuel during the pilot study to supplement the CC Stove? If yes, about how much time per day did it take you to gather fuel during the pilot study?

4.d. If you decreased the overall time that you typically spend gathering fuel during the pilot study, in what ways were you able to use your extra time?

4.e/4.f. Are there safety concerns or fears when gathering fuelwood, leaves, etc.? If yes, what are those concerns or fears?

4.g. If there are safety concerns regarding gathering fuel, how has the CC Stove positively impacted your sense of well-being for yourself and/or your children?

5. The following questions address the use and social impacts of the CC Stove.

5.a. Would you like to purchase the CC Stove in the future? If so, how much would you be willing to pay for it? Even if you think refugees should not pay for the CC Stove, what do you think would be a fair price for the CC Stove?

5.b. Is the kitchen environment cleaner now? In what way?

5.c. What do your friends / neighbors think about your CC Stove? Who, if anyone, in your family has tried cooking on the CC Stove?

6. What suggestions do you have to improve the utility and design of the CC Stove?

Project Gaia's UNHCR Shimelba Refugee Camp Narratives

Present: Project Gaia Surveyor Salem (woman) and Cheryl O'Brien

Date: 8/25/05. Main Note-taker: Salem. Translation typed by Cheryl.

Study Participant Interviewed: Mehari Azera (Husband)

Other Household (HH) Member Present: Wife

HH Number: Zone E 7/2

Project Gaia (PG) Baseline Data #: 58



Project Gaia Surveyor Salem, Mehari, and his wife, who also cooks on the CC Stove

With the CleanCook (CC) Stove, I have no coughs or headaches anymore...The CC Stove is much faster than the other stoves...It took me two hours once a day to gather a man load of fuelwood before the CC Stove...During the pilot study, I gathered a man load of fuelwood only once a month for two hours [to supplement the CC Stove for cooking injera]. Since I save time from gathering fuel with the CC Stove, I do income-generating activities, take a nap, and read. Corruption of the local people is a concern when gathering fuelwood, because they take my device for carrying the fuelwood when I set it down...I cannot carry the fuelwood home without it. --Mehari

1. With the CleanCook (CC) Stove, I have no coughs or headaches anymore.
- 2a. We are satisfied with the heat output and cook time of the CC Stove.
- 2b. The CC Stove is much faster than the other stoves.
- 2c. We read and take a nap with the extra time saved with the CC Stove.
- 3a. The CC Stove is very safe for our health in comparison with the open fire stove.
- 3b. The CC Stove is safe, so I do not fear anything with it.
- 4a. It took me two hours once a day to gather a man load of fuelwood before the CC Stove.
- 4b. I gathered fuel during the pilot study to supplement the CC Stove for cooking injera.
- 4c. During the pilot study, I gathered a man load of fuelwood only once a month for two hours.
- 4d. Since I save time from gathering fuel with the CC Stove, I do income-generating activities, take a nap, and read.
- 4e. Corruption of the local people is a concern when gathering fuelwood, because they take my device for carrying the fuelwood when I set it down to collect fuelwood. I cannot carry the fuelwood home without it.
- 5a. I would like to have the CC Stove, but I think refugees should have a grant. I think locals would purchase the stove for 1000 Birr. 1000 is fair.
- 5b. The kitchen environment is cleaner with the CC Stove. There is less smoke, but the pots get black.
- 5c. My friends and neighbors want the CC Stove very much. My wife also cooks on the CC Stove. [Note: The wife was cooking on it while we were interviewing.]
6. The heat regulator should be different than it is now.

Study Participant Interviewed: Selamawit Tesfamariam (Husband)

[Note: Wife is the primary cook, but she is out of the house during the interview. The husband cooks sometimes.]

Other Person Present: Another Adult Male (relation unknown; seemed bedridden)

HH Number: Zone E 7/11

PG Baseline Data #: 81

NO PHOTO AVAILABLE

1. We are OK with the CC Stove. We have no coughs anymore.
- 2a. We are satisfied with both the heat output and the cook time of the CC Stove.
- 2b. It is very fast in comparison to other stoves About one hour is saved by cooking with the CC Stove.
- 2c. We take a nap and read with the extra time saved by cooking with the CC Stove.
- 3a. The CC Stove is very safe for our health. Also, we are not as tired as we were with the other stoves.
- 3b. In comparison to other stoves, I do not have a concern for my child to be around it [the CC Stove].
- 4a. Before the CC Stove, it took me five hours per day to gather a man load of fuelwood.
- 4b. During the pilot study, I still gather fuelwood for injera.
- 4c. But now, I only gather for five hours per week with the CC Stove.
- 4d. I use my extra time from decreased fuel gathering by taking a nap, reading, and taking care of the children.
- 4e. When gathering fuelwood, I fear most the corruption of the local people and also wild animals.
- 5a. I think the local people would purchase the CC Stove for 500 birr.
- 5b. The kitchen is cleaner now and has less smoke.
- 5c. My friends and neighbors like the CC Stove very much. They want to have it too. My wife is the primary cook, but I cook on the CC Stove too.
6. The heat regulator should be different than it is now.

Study Participant Interviewed: Gafu Gebregziabheir

HH Number: Zone E 6/9

PG Baseline Data #: 34



The CC Stove's cook time is very fast in comparison with other stoves, and we save about one hour cooking with the CC Stove. With the extra time, I am able to take a nap, read, and do income-generating activities. The CC Stove is safe, because you can control it...Before I had the CC Stove, it took me one hour per day to gather a man load of fuelwood. We don't gather fuelwood anymore now that we have the CC Stove. We are concerned about the corruption of the local people when gathering fuelwood. The CC Stove has positively impacted our sense of well-being. We feel OK because we don't gather fuelwood anymore. --Gafu

Gafu cooks lunch on the CC Stove for his household.

1. We are fine with the CC Stove. We have no coughs.
- 2a. We are very satisfied with the heat output and the cook time of the CC Stove.

- 2b. The CC Stove's cook time is very fast in comparison with other stoves, and we save about one hour cooking with the CC Stove.
 - 2c. With the extra time, I am able to take a nap, read, and do income-generating activities.
 - 3a. The CC Stove is safe, because you can control it.
 - 3b. There is no change in my sense of well-being regarding stove safety.
 - 4a. Before I had the CC Stove, it took me one hour per day to gather a man load of fuelwood.
 - 4b. We don't gather fuelwood anymore now that we have the CC Stove.
 - 4e. We are concerned about the corruption of the local people when gathering fuelwood. The CC Stove has positively impacted our sense of well-being. We feel OK because we don't gather fuelwood anymore.
 - 5a. I believe the locals would pay 700 Birr for the CC Stove.
 - 5b. The kitchen is cleaner now, because we have clean air while cooking.
 - 5c. My friends and neighbors like the CC Stove. They even want to buy it. My father also cooks on the CC Stove.
 - 6. If the tubes of the burners could be a little shorter, then we could more easily light it.
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Study Participant Interviewed: Hadas Gebreyohannes
 Other Household (HH) Member Present: Two minor daughters
 HH Number: Zone 12/2
 PG Baseline Data #: 40



We are feeling very good now that we use the CC Stove. We have no more coughs. We are very satisfied with the CC Stove's heat output and cook time. The CC Stove's cook time is very fast in comparison with other stoves. We save one and half hours cooking with the CC Stove. With my extra time saved by cooking with the CC Stove, I do income generating activities and take care of the children. The CC Stove is very safe in comparison to other stoves. --Hadas

***Hadas, her two daughters, and
 Project Gaia Surveyor Salem***

- 1. We are feeling very good now that we use the CC Stove. We have no more coughs.
- 2a. We are very satisfied with the CC Stove's heat output and cook time.
- 2b. The CC Stove's cook time is very fast in comparison with other stoves. We save one and half hours cooking with the CC Stove.
- 2c. With my extra time saved by cooking with the CC Stove, I do income generating activities and take care of the children.
- 3a. The CC Stove is very safe in comparison to other stoves. The children cannot easily get to it.
- 3b. There is no change in my sense of well-being regarding stove safety.

- 4a. Before we had the CC Stove, it took three hours a day to collect a man load of fuelwood.
- 4b. We gathered some fuelwood to cook injera during the pilot study.
- 4c. With the CC Stove during the pilot study, we only collected one man load of fuelwood three hours per week.
- 4d. As a result of the saved time from gathering fuel, we do income-generating activities and take care of the children.
- 4e. Our concerns with fuel gathering is the corruption with the local people and wild animals.
- 5a. I think the locals would pay 700 Birr for the CC Stove.
- 5b. The kitchen is cleaner now. We have clean air.
- 5c. My friends and neighbors like the CC Stove very much. They want to have it. My husband also cooks on the CC Stove.
- 6. The CC Stove is good as it is now. I have no suggestions to improve upon it.

Study Participant Interviewed: Kasha Araya

Other Household (HH) Member Present: 2 daughters (one was taking a nap)

HH Number: Zone E 12/3

PG Baseline Data #: 46



Before using the CC Stove, it took us four hours per day to gather one woman load and two child loads of fuelwood. My daughters, who are 14 and 15 years old, gathered the child loads. I gathered fuelwood during the pilot study to cook injera. Now while we use the CC Stove, I gather one woman load of fuelwood four hours per week. We do not gather child loads now. With my extra time from fuel gathering, I take care of the children and do other housework. My concerns with fuel gathering are the wild animals and corrupt local people. My sense of well-being has improved with the CC Stove. Now I feel OK, because I only have to gather fuelwood once a week and my daughters do not have to go. --Kasha

Kasha's 15 year old daughter cooks lunch on the CC Stove.

- 1. Our health is very good with the CC Stove. We have no coughs anymore.
- 2a. We are very satisfied with the heat output and the cook time of the CC Stove.
- 2b. The CC Stove is very fast in comparison with the cook time of other stoves. We save about one hour cooking with the CC Stove than with other stoves.
- 2c. By saving time cooking with the CC Stove, I take care of the children and do other housework.
- 3a. In comparison to other stoves, the CC Stove is very safe, because you can control it.
- 3b. Regarding stove safety, my sense of well-being has not changed.
- 4a. Before using the CC Stove, it took us four hours per day to gather one woman load and two child loads of fuelwood. My daughters, who are 14 and 15 years old, gathered the child loads. [Kasha also has sons living there, ages 20, 10, and 7. Note on the

baseline survey, she said they do not gather. They must have begun gathering after the baseline survey or they did not understand the question at that time.]

4b. I gathered fuelwood during the pilot study to cook injera.

4c. Now while we use the CC Stove, I gather one woman load of fuelwood four hours per week. We do not gather child loads now.

4d. With my extra time from fuel gathering, I take care of the children and do other housework.

4f. My concerns with fuel gathering are the wild animals and corrupt local people. My sense of well-being has improved with the CC Stove. Now I feel OK, because I only have to gather fuelwood once a week and my daughters do not have to go.

5a. I think the locals would pay 500 Birr for the CC Stove.

5b. The kitchen is cleaner now. It has clean air.

5c. Mom and daughters cook on the CC Stove.

6. I have no suggestions to improve the CC Stove.

Study Participant Interviewed: Son of Rahma Osman (Saho ethnic group)

Other Household (HH) Members Present: 2 other young men (1 cooking on a charcoal stove during the interview)

HH Number: Zone E 12/16

PG Baseline Data #: 78

NO PHOTO AVAILABLE

1. We have no coughs anymore with the CC Stove.

2a. I am very satisfied with the heat output and cook time of the CC Stove.

2b. The CC Stove is very fast compared with other stoves. We save about one hour cooking with the CC Stove.

2c. I take a nap and read books with the extra time saved from cooking with the CC Stove.

3a. The CC Stove is very safe in comparison with the charcoal stove.

3b. I feel better than before regarding my sense of well-being.

4a. Before using the CC Stove, it took me four hours per day to gather a man load of fuelwood.

4b. I gathered fuelwood to cook injera during the pilot study.

4c. But, now I only gather a man load of fuelwood every four days for four hours instead of every day as in the past.

4d. With the time saved from gathering fuelwood, I take a nap, read books, and do housework.

4e. I am concerned with the corruption of local people and wild animals when I gather fuelwood.

5a. I think the locals would pay 300 Birr for the CC Stove.

5b. The kitchen is cleaner and has clean air with the CC Stove.

5c. My neighbors and friends like the CC Stove very much and they want to have it. My mother is the primary cook. My father and I [Rahma's son] also cook on the CC Stove.

6. The heat regulator could be different than it is now.

Study Participant Interviewed: Helen Tekle

HH Number: Zone 12/17

PG Baseline Data #: 43



I am very satisfied with the heat output and the cook time of the CC Stove. The CC Stove's cook time is very fast in comparison to other stoves I've used. I save about 1 ½ hours cooking with the CC Stove. With that extra time, I read books and do other housework. In comparison to other stoves I've used, the CC Stove is safer, because I can control it. As a result, the CC Stove has positively impacted our sense of well-being. We feel better than before regarding stove safety. --Helen

***Helen cooks lunch
on the CC Stove.***

1. Our physical health is OK with the CC Stove.
- 2a. I am very satisfied with the heat output and the cook time of the CC Stove.
- 2b. The CC Stove's cook time is very fast in comparison to other stoves I've used. I save about 1 ½ hours cooking with the CC Stove.
- 2c. With that extra time, I read books and do other housework.
- 3a. In comparison to other stoves I've used, the CC Stove is safer, because I can control it.
- 3b. As a result, the CC Stove has positively impacted our sense of well-being. We feel better than before regarding stove safety.
- 4a. [Note: At the interview, she said they never gathered fuelwood, but the baseline survey says they gathered a man load of fuelwood. Perhaps she did not understand the question and was speaking about their current situation.]
- 5a. I think the locals would be willing to pay 400 Birr for the CC Stove.
- 5b. The kitchen is cleaner now, because we have clean air with the CC Stove.
- 5c. My friends and neighbors like the CC Stove very much, and they want to have it too. My brother also cooks on the CC Stove.
6. I would like the CC Stove to have a good, tall stand.

Study Participant Interviewed: Abrehet Kirose

Other Household (HH) Members Present: 19 yr old daughter; small son; another woman; and her husband came toward the end of the interview

HH Number: Zone E 12/13

PG Baseline Data #: 3



We are very satisfied with the heat output and the cook time of the CC Stove. The CC Stove cooks very fast in comparison to the charcoal stove. I save 1 ½ hours cooking with the CC Stove each day...The kitchen is cleaner and has clean air with the CC Stove. My friends and neighbors like the CC Stove.
--Abrehet

Abrehet with her son Samuel by the CC Stove

1. Regarding our physical health with the CC Stove, we are very happy.
- 2a. We are very satisfied with the heat output and the cook time of the CC Stove.
- 2b. The CC Stove cooks very fast in comparison to the charcoal stove. I save 1 ½ hours cooking with the CC Stove each day.
- 2c. With that extra time, I take care of the children and do other housework.
- 3a. In comparison to other stoves I've used, the CC Stove is safe and I can control it.
- 3b. I feel better than before about my sense of well-being since I'm using the CC Stove.
- 4a. Before using the CC Stove, it took four hours per day to gather a man load of fuelwood.
- 4b. We still gathered fuelwood to cook injera during the pilot study.
- 4c. However, now we only gather fuelwood four hours per week.
- 4d. The extra time from fuel gathering allows us to care for the children and do other housework.
- 4e. My husband fears corruption of the local people and wild animals when gathering fuelwood. I feel better because we only gather once a week.
- 5a. I think the locals would pay 400 birr for the CC Stove.
- 5b. The kitchen is cleaner and has clean air with the CC Stove.
- 5c. My friends and neighbors like the CC Stove. My husband also cooks on it.
6. I like the CC Stove as it is. I have no suggestions to improve it.

Surveyor Interviewed (upon her request): Salem Fitsum
Other Household (HH) Member Present: Male friend was cooking on the CC Stove
HH Number: Zone E 8/3



I no longer have coughs or eye irritation with the CC Stove, unlike with the charcoal stove's smoke. I am very satisfied with both the heat output and the cook time of the CC Stove. The CC Stove is very efficient in comparison to the charcoal stove. I save about one hour cooking with the CC Stove than with the charcoal stove... The CC Stove is safer than the charcoal stove. I can control the CC Stove, whereas the charcoal stove is an open fire. You cannot put out the charcoal stove's fire when you want. My sense of well-being has improved with the CC Stove, because I feel good that I breathe safe air. --Salem

***Surveyor Salem and
the CC Stove***

1. I no longer have coughs or eye irritation with the CC Stove, unlike with the charcoal stove's smoke.
 - 2a. I am very satisfied with both the heat output and the cook time of the CC Stove.
 - 2b. The CC Stove is very efficient in comparison to the charcoal stove. I save about one hour cooking with the CC Stove than with the charcoal stove.
 - 2c. With the extra time from cooking, I am able to do more work for Project Gaia, more housework, and read books.
 - 3a. The CC Stove is safer than the charcoal stove. I can control the CC Stove, whereas the charcoal stove is an open fire. You cannot put out the charcoal stove's fire when you want.
 - 3b. My sense of well-being has improved with the CC Stove, because I feel good that I breathe safe air.
 - 4a. I never gathered fuelwood.
 - 4e. However, as a Surveyor and a refugee, I know that the local people do not like refugees gathering fuel. Also, I know the refugees fear wild animals, especially for the children. Snakes are particularly common in the grasses of the summer, rainy season.
 - 5a. I think locals, non-refugees, would pay 700-800 Birr for the CC Stove.
 - 5b. My kitchen is cleaner and I have clean air with the CC Stove. But, the pots are worse with the CC Stove. With the CC Stove, my pots are black all the time. With the charcoal stove, my pots were OK; they were not as black as with the CC Stove.
 - 5c. My friends and neighbors like the CC Stove and they would like to have it too. They would even like to buy it. My friend [a male] cooks on the CC Stove too.
 6. Sometimes the CC Stove's heat regulator has problems. If the CC Stove is burning for a long time, you cannot put the fire out with the heat regulator. You have to tip the stove over to put the fire out. Sometimes the fire transfers from one burner to the other burner, even if the heat regulator is closed on the other side! So there needs to be something like a shield between the two burners or they need to be farther apart. So I suggest that the heat regulators need to be fixed. Also, I think the pots are blacker possibly because it's a long tube on the CC Stove. It would be better to have a shorter tube so that it is easier to light the stove and clean the pots.
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Project Gaia's UNHCR Shimelba Refugee Camp Narratives
Present: Project Gaia Surveyors Tsegai Beyene and Gebeyehu Lagi and James Murren

Date: 8/25/05.

Kunama to Amharic Translator: Gebeyehu. Amharic to English translator: Tsegai. English Note-taker: James Murren.

Study Participant Interviewed: Kelementina Peito
HH Number: B 9/17
PG Baseline Data #: 47



The CC Stove is safer than the charcoal stove and open fire stove, because there is no fire danger to my children. The CC Stove is better for my health. Fuel storage of ethanol is safer and cleaner because insects live in fuelwood.
–Kelementina

Project Gaia Surveyors Tsegai and Gebeyehu with Kelementina holding her income-generating handicraft

1. With the CC Stove, we no longer have eye irritation and coughs from smoke.
- 2a. Our satisfaction of the heat output of the CC Stove depends on the heat level that is used. We like that we can increase or decrease the heat output using the stove regulator. The CC Stove's cook time is very fast compared to the charcoal stove.
- 2b. The CC Stove is more efficient than the charcoal and open fire stoves. Before the CC Stove, I spent the whole day cooking food. But with the CC Stove, I have more free time.
- 2c. In my free time, I make handcrafted fans for income and I care for my children.
- 3a. The CC Stove is safer than the charcoal stove and open fire stove, because there is no fire danger to my children. The CC Stove is better for my health. Fuel storage of ethanol is safer and cleaner because insects live in fuelwood.
- 4a. Before using the CC Stove, I spent 6-8 hours/day, three days/week gathering a woman load of fuelwood.
- 4b. I still gather wood for baking injera.
- 4c. I spend about 6 hours a day, once a week gathering wood instead of the three days/week before the CC Stove.
- 4d. (same as 2c)
- 4e. When gathering fuelwood, I fear wild animals like snakes and scorpions. Also, the local people throw stones at me. The fuelwood is not easily available. I get very tired carrying the fuelwood back home.

- 5b. Yes, the kitchen is cleaner with the CC Stove because there is no smoke.
5c. My neighbors like the CC Stove and they want one too.
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Study Participant Interviewed: Margareta Karar
HH Number: B 9/16
PG Baseline Data #: 53



Surveyors with Margareta holding income-generating handicraft and her child.

The CC Stove is more efficient than the other stoves. Before the CC Stove, I spent all day cooking, and now I cook about two hours a day. With my free time from cooking, I weave mats to sell and I go to the literacy program offered by the IRC [International Rescue Committee]. Also, I care for my three children with my free time. --Margareta

1. I no longer have coughing and eye irritation problems now that I use the CC Stove.
- 2a. My satisfaction with the heat output depends on where I set the regulator, but the CC Stove's cook time is fast compared to charcoal and open fire stoves.
- 2b. The CC Stove is more efficient than the other stoves. Before the CC Stove, I spent all day cooking, and now I cook about two hours a day.
- 2c. With my free time from cooking, I weave mats to sell and I go to the literacy program offered by the IRC [International Rescue Committee]. Also, I care for my three children with my free time.
- 3a. The CC Stove is safer than the charcoal and open fire stove, because there is no danger of sparks and I don't have to worry about my children being burned. The CC Stove is easy to use and simple to understand.
- 3b. Because the CC Stove is easy to use, I worry less when my children are around the stove in comparison to other stoves.
- 4a. Before the CC Stove, I would gather one woman load of fuelwood all day, about 10 hours, four times every week, because I used the open fire stove, which consumes a lot of wood.
- 4b. I still gather fuelwood to bake injera.
- 4c. Now I only gather fuelwood one day a week for about 10 hours.
- 4d. (see 2c)
- 4e. When gathering fuelwood, I am afraid of the wild animals and I get very tired because it is very far. I also experience conflict with locals; they throw stones at me. The militia men don't let me take downed wood, which is legal to take. Sometimes I have to pay money to the militia for my downed wood, and that is illegal for them to do.
- 5b. The kitchen is cleaner, because there is less smoke.

5c. My neighbors like the CC Stove and would like to get one.

Study Participant Interviewed: Hallom Dulle

HH Number: B 6/11

PG Baseline Data #: 42



Surveyor Tsegai with Hallom, holding her income-generating handicraft

The CC Stove's very high heat output makes it very fast for cooking. The CC Stove is more efficient than the charcoal and three stone open fire stoves... I have more free time than before the CC Stove. With my free time, I make small handfans for injera baking. I also sew patterns onto cloth for tablecloths and pillow cases. I sell the handfans and the cloth handicrafts. And I have more time to care for my children...The CC Stove is safer. I can have it inside my house and I don't have to fear for my children getting burned. With the three stone open fire stove, I worry about my children getting burned. The CC Stove is easy to operate. --Hallom

1. My physical health has improved because there are no more eye problems or coughing with the CC Stove.
 - 2a. The CC Stove's very high heat output makes it very fast for cooking.
 - 2b. The CC Stove is more efficient than the charcoal and three stone open fire stoves. I have more free time than before the CC Stove.
 - 2c. With my free time, I make small handfans for injera baking. I also sew patterns onto cloth for tablecloths and pillow cases. I sell the handfans and the cloth handicrafts. And I have more time to care for my children.
 - 3a. The CC Stove is safer. I can have it inside my house and I don't have to fear for my children getting burned. With the three stone open fire stove, I worry about my children getting burned. The CC Stove is easy to operate.
 - 4a. Before the CC Stove, I gathered one woman load of fuelwood two times a week for 6-7 hours each time.
 - 4b. I gathered fuelwood for baking injera during the pilot study.
 - 4c. After the CC Stove, I gathered fuelwood one day each week for 6-7 hours.
 - 4d. (same as 2c) In addition, I attend the literacy education program through IRC.
 - 4e. The local people throw stones at me when I gather fuelwood. Sometimes they prevent us from going out so we have to hide and sneak around to get out to where the wood is. The militia has taken the wood I've collected and then sold it.
 - 5b. The kitchen is cleaner, because there is less smoke with the CC Stove.
 - 5c. The neighbors are very happy when they see the CC Stove and they want it.
-

Study Participant Interviewed: Senie Salhi (wife)

Other Household (HH) Member Present: Dawit Tsegai (husband) (he arrived midway through the interview)

HH Number: B 2/4

PG Baseline Data #: 21



Before the CC Stove, I would gather fuelwood one time each week with my camel. It would take four hours. I still gather wood, but only one camel load every two weeks...I hide when I gather wood, and if the militia gets me, they take my wood. Sometimes they come into the camp and take the wood. And politics is a part of it, because we are Eritreans. I have had stones thrown at me. When I've been alone gathering wood and they have found me, I have been hit by them. --Senie

Surveyors with Senie and her husband Dawit

1. The CC Stove causes no health problems. I have no eye irritation, coughs, or headaches like when I used the charcoal stove. I think the charcoal stove's smoke causes headaches.
- 2a. The CC Stove has high heat outputs and cooks very fast, especially wots [traditional sauces].
- 2b. The CC Stove is more efficient than the charcoal and open fire stoves. I save a few hours each day cooking with the CC Stove.
- 2c. With my free time, I rest because I am pregnant, and I care for other child.
- 3a. The CC Stove is safer than other stoves because there is no fire danger, and my child will not get burned.
- 3b. I feel safe using the CC Stove and I can use it inside my house.
- 4a. Before the CC Stove, I would gather fuelwood one time each week with my camel. It would take four hours.
- 4c. I still gather wood, but only one camel load every two weeks.
- 4d. (see 2c)
- 4e. I hide when I gather wood, and if the militia get me, they take my wood. Sometimes they come into the camp and take the wood. And politics is a part of it, because we are Eritreans. I have had stones thrown at me. When I've been alone gathering wood and they have found me, I have been hit by them.
- 5b. My home is cleaner because there is no smoke with the CC Stove.
- 5c. My neighbors really like the stove and they would like one.

Her husband Dawit commented, "I cook because she is pregnant now."

Study Participant Interviewed: Kuchia Gorando
HH Number: B 8/10
PG Baseline Data #: 48



The CC Stove is safer than the charcoal stove. There is no danger of catching my house on fire with the CC Stove. I find the CC Stove to be safe to use inside my home. --Kuchia

Kuchia with Surveyors outside of her husband's store

1. Because there is no smoke with the CC Stove, I have no eye irritation and coughing.
- 2a. The CC Stove has a high heat output and it cooks food very fast.
- 2b. The CC Stove is more efficient than my charcoal stove.
- 2c. I have more free time during the day from cooking with the CC Stove, and I now have more time to help run my husband's store. Also, I have more time to care for my children.
- 3a. The CC Stove is safer than the charcoal stove. There is no danger of catching my house on fire with the CC Stove.
- 3b. I find the CC Stove to be safe to use inside my home.
- 4a. For the CC Stove, I would gather a woman load of fuelwood every day, taking about 7-8 hours each day.
- 4c. I still gather fuelwood, but only two times a week.
- 4d. (see 2c)
- 4e. I am afraid of snakes when gathering fuelwood. My friends have been bitten by snakes when fuel gathering. There is also conflict with locals, who throw stones at me. I do not pay them money though; I run away.
- 5b. My kitchen is clean with the CC Stove, especially the air.
- 5c. My neighbors like the CC Stove. They think I am lucky to have it.

Study Participants Interviewed: Nazerth Gebreyesus (wife) and Minase Agare (husband)
HH Number: B 14/3
PG Baseline Data #: 73



Surveyors with Nazerth and her husband Minasa with their garden in the background

Before the CC Stove, we would go together and collect one man load and one woman load of fuelwood every day. It would take us about 6 hours each time. After the CC Stove, we only gather fuelwood three times a week for baking injera.
–Minasa

1. We are very satisfied with the CC Stove. There are no eye problems or coughing now, because there is no smoke inside of our home.
- 2a. The CC Stove has a high heat output and cooks fast.
- 2b. The CC Stove is faster than the charcoal and open fire stoves. We have more free time as a result, about 2-4 hours more each day.
- 2c. I [Nazerth] make hand fans and mats for income with this extra free time. Also, I care for our one child.
- 3a. The CC Stove is safer than other stoves.
- 3b. I like that the CC Stove is safe to use inside my house.
- 4a. Before the CC Stove, we would go together and collect one man load and one woman load of fuelwood every day. It would take us about 6 hours each time.
- 4c. After the CC Stove, we only gather fuelwood three times a week for baking injera.
- 4d. (see 2c)
- 4e. First of all, there is very little wood available. We have to walk very far, and the local community prevents us from going to gather fuelwood sometimes. They also throw stones at us.
- 5b. Yes, the kitchen is cleaner because there is no smoke.
- 5c. My neighbors like the CC Stove and they want one too.

(Due to time constraints and the relative same answers for questions 1-3, we decided to focus on the fuel gathering questions for these last two interviews.)

Study Participant Interviewed: Andom Agina (man)
HH Number: A 7/4Project Gaia
PG Baseline Data #: 11



Surveyors with Andom and Cheryl

With the free time saved from fuel gathering, I work as a day laborer building houses and toilets for income. My wife is able to make and sell handicrafts like mats and fans with her extra time. --Andom

4a. Before the CC Stove, my wife and I would go out five times each week for 8-10 hours each time to gather a man load and a woman load of fuelwood.

4c. Once using the CC Stove, we would go out only two times each week to get fuelwood for injera baking.

4d. With the free time saved from fuel gathering, I work as a day laborer building houses and toilets for income. My wife is able to make and sell handicrafts like mats and fans with her extra time.

4e. I am afraid of snakes. I have been bitten once when gathering fuel. [Andom then showed Project Gaia staff the scar from the snake bite.] Also, the locals throw stones at me. I was detained once for three days for gathering what the militia said was illegal wood, but it was legal downed wood.

5c. My neighbors like the CC Stove and they would like one too.

Study Participant Interviewed: Mateo Nana (husband) and Rosa Bahri (wife)

Other Household (HH) Members Present: children and grandmother

HH Number: A 6/6

PG Baseline Data #: 56



James and Surveyors with Mateo, Rosa, and family

Before the CC Stove, we would collect one man load and one woman load of fuelwood three times a week. It would take 6-8 hours each time. Since the CC Stove, we gather only one time each week, sometimes less, for injera baking. With the free time from fuel gathering, I maintain my store and my wife cares for our five children. --Mateo

- 4a. Before the CC Stove, we would collect one man load and one woman load of fuelwood three times a week. It would take 6-8 hours each time.
- 4c. Since the CC Stove, we gather only one time each week, sometimes less, for injera baking.
- 4d. With the free time from fuel gathering, I maintain my store and my wife cares for our five children.
- 4e. When fuel gathering, we fear the animals. Also, the local community throws stones at us.
- 5c. My neighbors really like the CC Stove and they would like one too.
-

Findings. At the end of the day, it was apparent that the CleanCook (CC) Stove is viewed as a safer stove to use in the homes in comparison to the charcoal and three-stone open fire stove. Study participants showed a consistent concern for the safety of their children when they are cooking with the charcoal and the open fire stoves, whereas with the CC Stove they have little to no fears of their children getting burned. Also, several refugees responded by saying that they like that they can safely use the CC Stove inside of their homes.

Every household interviewed stated that the air inside of their homes is cleaner with the CC Stove than with the other stoves, and many of those interviewed cited that their eyes are not irritated and that they do not have coughing fits when using the CC Stove because there is nearly no smoke when it is in operation.

Perhaps the greatest impact on the refugees' lives as a result of using the CC Stove involves fuel gathering, especially amongst the Kunama people. Clearly, the amount of time spent cooking and the amount of time spent gathering fuelwood has decreased after the introduction of the CC Stove into their homes. The refugees' newly found free time has been used to pursue income-generating activities, attend literacy classes, provide more care to their children, and seek labor opportunities within the camp, among other uses.

Reports of conflict with the local community over access to fuelwood, whether induced by resource scarcity or ethnic relations, were reported widely and seemed to be the source of the most anxiety and fear in their daily lives, as was evident in their emotions when talking about it, especially for the Kunama women fuel gatherers. While the CC Stove does not eliminate all fuelwood gathering, as a wood-fired stove is preferred for baking injera on large pans that do not fit the stove, the CC Stove does alleviate some of the fear and anxiety felt by the refugees because they are not collecting wood as often during the week. Consequently, the use of the CC Stove fueled by ethanol is also assisting in reducing the incidents of conflict between the local community and the refugees.

Finally, everyone interviewed mentioned that their neighbors like the CC Stove and that they too would like to have one. Reports from the Tigray side of the camp suggested that they may be willing to pay for the CC Stove. This was not found on the Kunama side, as

they are of a lower economic class. Of note, it was suggested by some refugees that the stoves should be donated to the refugees.

Conclusions. Sixteen households and one Project Gaia Shimelba Surveyor were interviewed concerning the use of the CleanCook Stove in their homes. The CC Stove is the stove of choice for cooking their food, with exception given for baking injera. Improved health and safety conditions are evident in the camp. Much positive talk about the CC Stove was heard throughout the day; those that did not have the CC Stove expressed interest in having one and wanted to know how they could get one.

UNHCR is very responsive to the many positive impacts of the CC Stove. Dr. Amare noted that he would like for every household in the camp to have a CC Stove. He also stated that thought is being given to building another camp near the Shimelba camp and that if UNHCR does build a new camp, serious consideration will be given to implementing a rule that would prohibit refugees from gathering fuelwood, as it is limited in supply in the area and the act of gathering fuelwood leads to conflict with local communities. How would the refugees cook their food in the new camp? Dr. Amare said that, ideally, the refugees would have a CleanCook Stove in their homes and a supply of ethanol would be available at a reduced cost.

In light of these developments, it is paramount that Project Gaia begins to investigate how it can make Dr. Amare's vision a reality. UNHCR and Project Gaia should begin to craft a financial plan, seeking donor monies to facilitate the purchasing of the stoves and negotiating with FINCHAA to reach an agreement on an ethanol price and supply for the UNHCR camps. Additionally, further investigations regarding the use of the CC Stove in other UNHCR camps should be carried out, as more findings concurrent with the findings in the Shimelba camp would increase Project Gaia's and UNHCR's leverage when working to make the stoves and ethanol a household cooking energy and source for the refugees living in the camps.