

**REPORT ON CONDUCTING
THE IAP STUDY AND NARATIVE SURVEY
IN BONGA REFUGEE CAMP**



Bonga Resettlement Camp

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Gaia association has been conducting pilot studies with the CleanCook ethanol stove (CC stove) in several UNHCR refugee camps in Ethiopia. One of the refugee camps that was selected for a three month pilot study, including an Indoor Air Pollution Monitoring Study was the Sudanese refugee camp, Bonga Resettlement Camp, which is located at 738 km southwest of Addis Ababa. Gaia Association introduced 20 CC stoves into 20 homes in the Bonga Camp for a three month period. The project delivered free ethanol for the three months to each house hold. The pilot study included an indoor air pollution before-and-after study in twelve of the participating households. After the completion of the three month period, Gaia also completed a final round of household survey questionnaires with user interviews in order to complete a qualitative survey, or user-narrative survey. Six household IAP had been completed on a previous trip. On this trip, it was Gaia's mission to complete the second group of six IAP studies

Saturday November 25, 2006 was the day for the Gaia Association IAP team (Firehiwot Mengesha and Wubshet Tadele) to depart Addis Ababa for Gambella, a town nearby the Bonga refugee camp. We took off at 11:45 am from Addis Ababa local airport and arrived in Gambella at 2:20 pm. We were warmly greeted by ZOA (Refugee Care Netherlands) staff and by the hot weather of Gambella. Then we made our way to the town which is 18 km from the airport and went to Gambella UNHCR guest house, which was prepared for us. We stayed the first and next nights preparing our IAP monitoring equipment for the study.

On Monday morning we drove to Bonga by UNHCR vehicle and went to ZOA office in Bonga. They were prepared for our arrival. ZOA facilitated our work and we made the contact with our guides to go to the camp.

In the camp, our selection of participants for the IAP study was from the fourteen households that had not participated in the first round of IAP studies. After we made six random selections of households, we went to the households and made arrangement for a small meeting to explain the aim of our study and to create awareness on IAP. During the discussion, participants explained how the indoor air pollution and household fuel shortage is making their life hard. After the discussion we began the placement of monitoring equipments in the households according to



IAP explanation and awareness in Bonga Camp, conducted by Wubshet Tadele of the Gaia Association.

the standard established by our technical partner CEIHD (Center for Entrepreneurship in International Health and Development, University of California at Berkeley). The equipment we were using was the HOBO Carbon Monoxide (CO) Data Logger and CO dosimeter tubes, and the University of California-Berkeley (UCB) Particle Monitor.

It was already late afternoon when we finished placement of the monitoring equipments and we were already tired after a long day. We went to our ZOA guest house and took a rest till dinner, when we gathered to dinner with ZOA staffs. This gave us a good opportunity to explain Gaia's mission in detail and they were good enough to give us encouragement.

While we worked to place the equipment, the test houses ask more about the equipment and the study. This was repeated at almost every test home. The IAP testing thus served as an opportunity for education, because of the activity and excitement generated. If not immediately, by the end of the set-up process, most of the IAP test home generally understood what the tests were for and what the equipment would measure.



IAP monitoring equipment placement for the 'Before' study.

On Tuesday at 8:30 am, we were ready to move forward on our planned activities. Our plan was to conduct narrative surveys during the morning. We went to our first house with our guides. This was Mariam Bade, family size six. She

was happy to talk about the CleanCook and her other stoves with us. Our survey included three parts; the first was about ethanol and the previous fuels she used, the second part concerned CleanCook stove technology, and the last part was on the health impact of CleanCook stove and reduced IAP in their house. Mariam said "I used to gather fuel wood three times a week but after you gave me your stove I only gather once a week". But as she said, she didn't stop gathering fuel wood completely because CleanCook cannot support large pots and she needed her three stone stove for large pot cooking. We understood that the refugee families have a tradition to make cooking together and this required large pots.



Mariam Bade discussing with us. She has a family of six.

We then went to our next household, Hathiya Jale, she lives with her daughter. She was also happy to discuss about CC stove, she questioned on sustained availability of ethanol and also she said "I use CC-stove during the night for snake and insect protection but I used to light three-stone for this purpose before I owned the CC stove". After we finished with Hathiya we took a break for lunch and it was not possible to get back to work before 3:00 pm because of the direct sun.

The late afternoon mission was collection of the IAP monitoring equipments, which had been placed in the homes 24 hours before. It would have been desirable to test for a 48 hour period, but we were constrained to leave the equipment only for 24 hours so that we could be the sampling done in our allotted time. This was sampling for the before study (monitoring when households use their previous stoves, before receiving the CC stove). During the equipment collection we conducted the CEIHD post monitoring questionnaire, which is a useful tool for analysis of the collected data. After going through the process for around three hours, we finished our collection. We then made the downloading of the data with the re-launching for the after study (monitoring when households use the CC stove).

On Wednesday, we started early to place our monitoring equipments for the after study in the households that were part of the before study. On the way we explained that they should use only the CC stove during the 24-hour monitoring period. We did not do this with our previous six households. Although this created an artificial situation, it gave us the value for potential gain that we sought for our work with the UNHCR-RLO. We could then compare the incremental benefit of introducing the CC stove, knowing that other household fuels would continue to be used to some extent, and the absolute benefit

if only the CC stove were used, in place of all other stoves. When we finished the placement of the IAP equipment we returned to conducting the survey questionnaire.

Our third visit was the Tamar family, ten family members. We discussed with her all parts of the survey but she emphasized on not being able to use large pots. She said "our traditional food is Genfo and it needs large pot cooking but CC stove can't do that". After we finished with Tamar we went to our late lunch.

In the afternoon we completed visits to two more households for the usual detailed survey about their fuel, stove and health. These households were also happy to have the CC stove and they were constantly thanking us. But there was a common complaint that the CC stove cannot support large pots. We included all of the detailed survey information in our narrative survey report (please see separate narrative report). Finally, we finished the study on late afternoon and went to rest.



Temar cooking the traditional food, Genfo, using a large pot.

Thursday, Nov 30th, was the final day for our study in Bonga refugee camp. The day's mission was to collect the IAP monitoring equipments together with conducting the survey for the post monitoring questionnaire. We completed the equipment collection as we planned at 12:00 noon. Then we got back to Gambella at 2:30 pm by UNHCR vehicle. When the temperature lowered at the evening, we downloaded the data. Our IAP 'before' samples showed that heavy use of fuel wood combined with the lack of ventilation in the cooking structures resulted in high levels of CO and PM even if they cooked outside. Once the CleanCook was introduced, the CO and PM concentration went way down. (Please see Bonga IAP data report.) And we were happy because everything went smoothly as we had planned.

Friday was the planned day for our trip back to Addis Ababa. We kept waiting for the plane till late afternoon but we finally informed that Ethiopian cancelled the flight because of bad weather in Addis Ababa. Thereafter our smooth and successful trip changed and we became forced to stay in Gambella until Tuesday, Dec 5th, before we could get back to Addis. We finally made it back late on Tuesday, Dec 5th at 4:00 pm, even though we didn't believe it!