



# *Gaia Association*

**Testing of the CleanCook Stove  
in  
Refugee Camps in  
Ethiopia**

Refugee populations lack  
the necessary household  
energy for cooking.

Food relief comes to some camps, but the refugees then have to seek the fuel for cooking food.

Camp residents are forced to gather fuelwood from the surrounding area.

But this creates tension & conflict with the local community.

Women & children are primary victims of the violence generated by the competition for scarce resources, because they are the majority of fuelwood gatherers.

In some refugee camps where biomass cannot be gathered, improved-biomass stoves have been a strategy.

However, these may not be worthwhile where biomass must be purchased and imported

**SUSTAINABILITY**

**and**

**HEALTH**

*Gaia Association*

1. Wood and charcoal cannot be gathered or purchased sustainably on large scale

2. Improved wood stoves save on wood but still produce Indoor Air Pollution

So...

Improved-fuel stoves like kerosene and LPG  
may be the solutions

But...

Existing improved fuel stoves have some  
limitations: cost, danger, performance,  
impact on health, microeconomic issues...

Gaia Association has been  
testing  
an improved fuel stove  
that may have overcome these  
limitations



# Alcohol Powered CleanCook Stove



Gaia Association

We have been testing our alcohol stoves in four refugee camps with the cooperation of UNHCR and OWDA

- Shimelba Refugee Camp
- Kebribeyah Refugee Camp
- Bonga/Sherkolle Refugee Camps
- Denan IDP camp

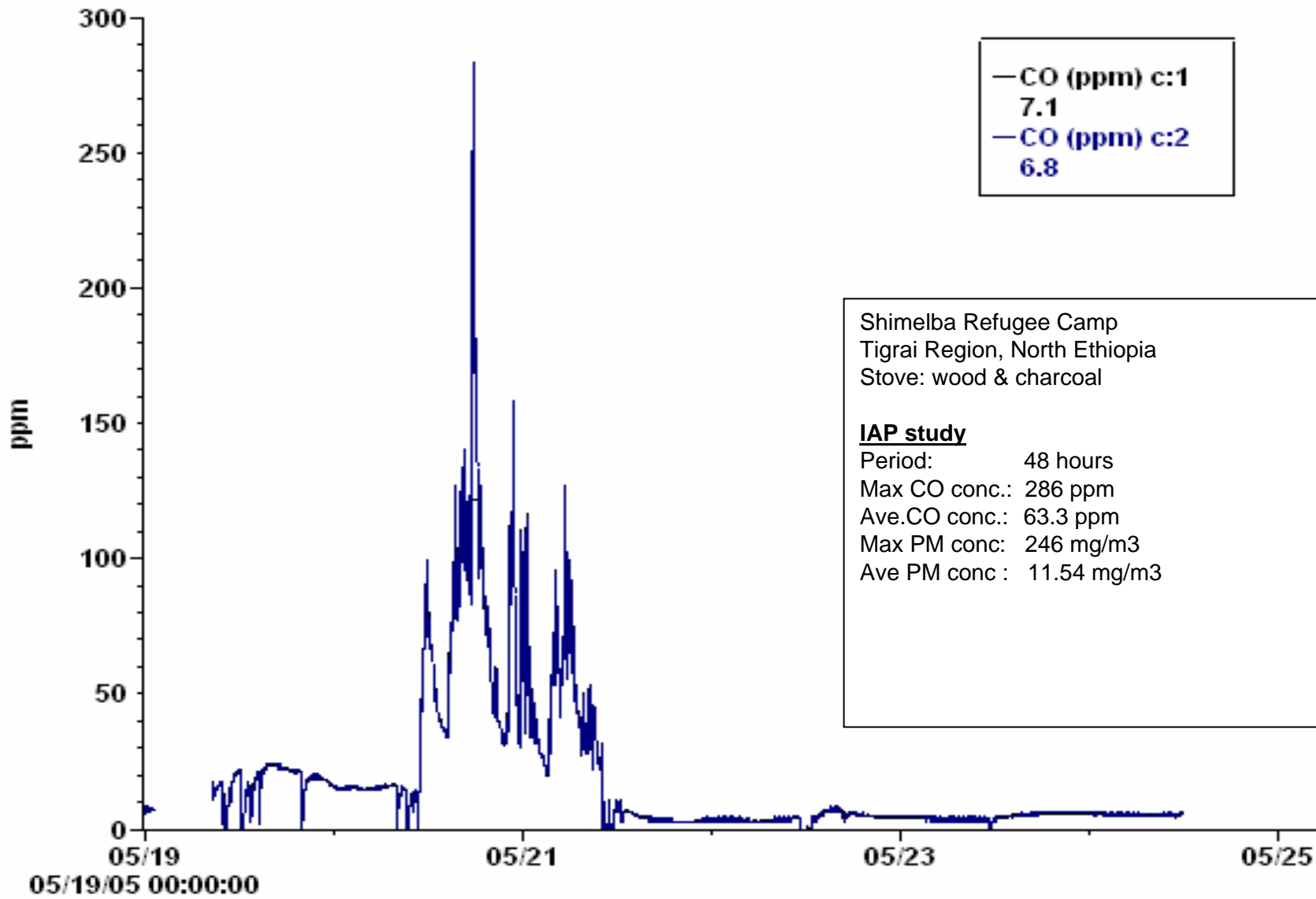
# Three Months Pilot study

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- 350 refugee households were selected
- Baseline survey questionnaires were used to gather information about their existing cooking stoves and habits
- IAP was measured before intervention
- Training was then given to them on the newly introduced ethanol powered stove and related health & environment issues
- The CleanCook stove was distributed with free supply of ethanol to fuel it
- Follow up survey questionnaires were conducted throughout the 3 months
- IAP was measured after intervention

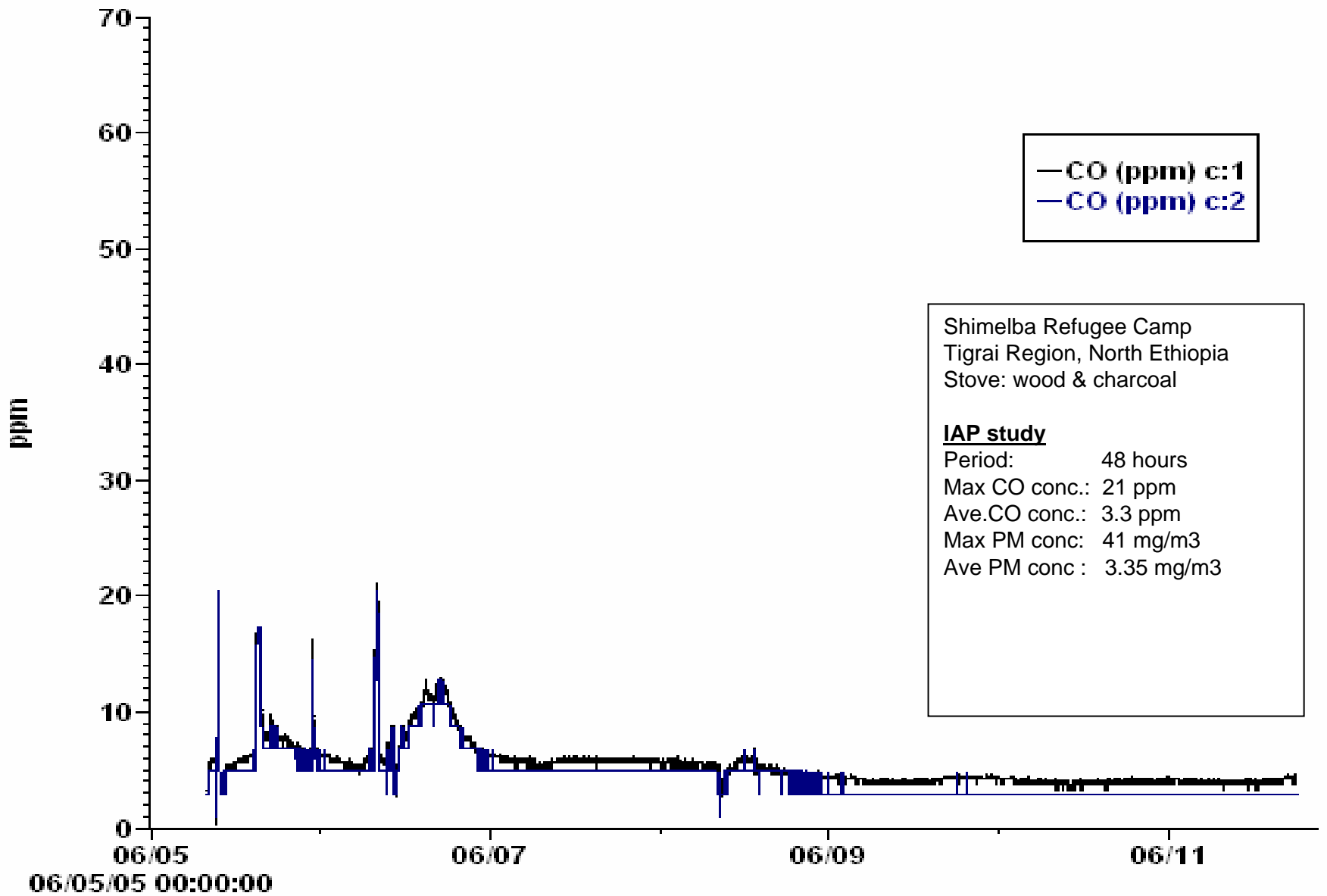
# Findings

- **Before intervention**
  - 100% of households relied on biomass fuel
  - Wood was gathered by women and children
    - ~402 kg of wood collected per month per HH
    - ~125 kms traveled per month per HH
    - ~42 hrs spent per month per HH
  - Households mainly complained about
    - scarcity of fuel
    - security threats
    - local community problems
    - not enough help gathering fuel
    - long distance & time
    - health problems
  - Very high carbon monoxide and particle matter concentration



# Findings

- **After intervention**
  - HH shifted to the CleanCook stove
  - Number of HHs gathering fuel reduced to 60% (Note: enjera baking)
  - Wood gathering reduced to
    - ~176 kg of wood per month per HH
    - ~60 kms per month per HH
    - ~22 hrs/month per HH
  - **Activities resulting from decreased fuel gathering**
    - Home activities
    - Social life
    - Income generating activities
    - Caring for children
    - Education
  - **Better indoor air**



Therefore, alcohol fuel used in the proper stove provides solution to delivering

- *safe*
- *clean*
- *affordable*
- *sustainable*

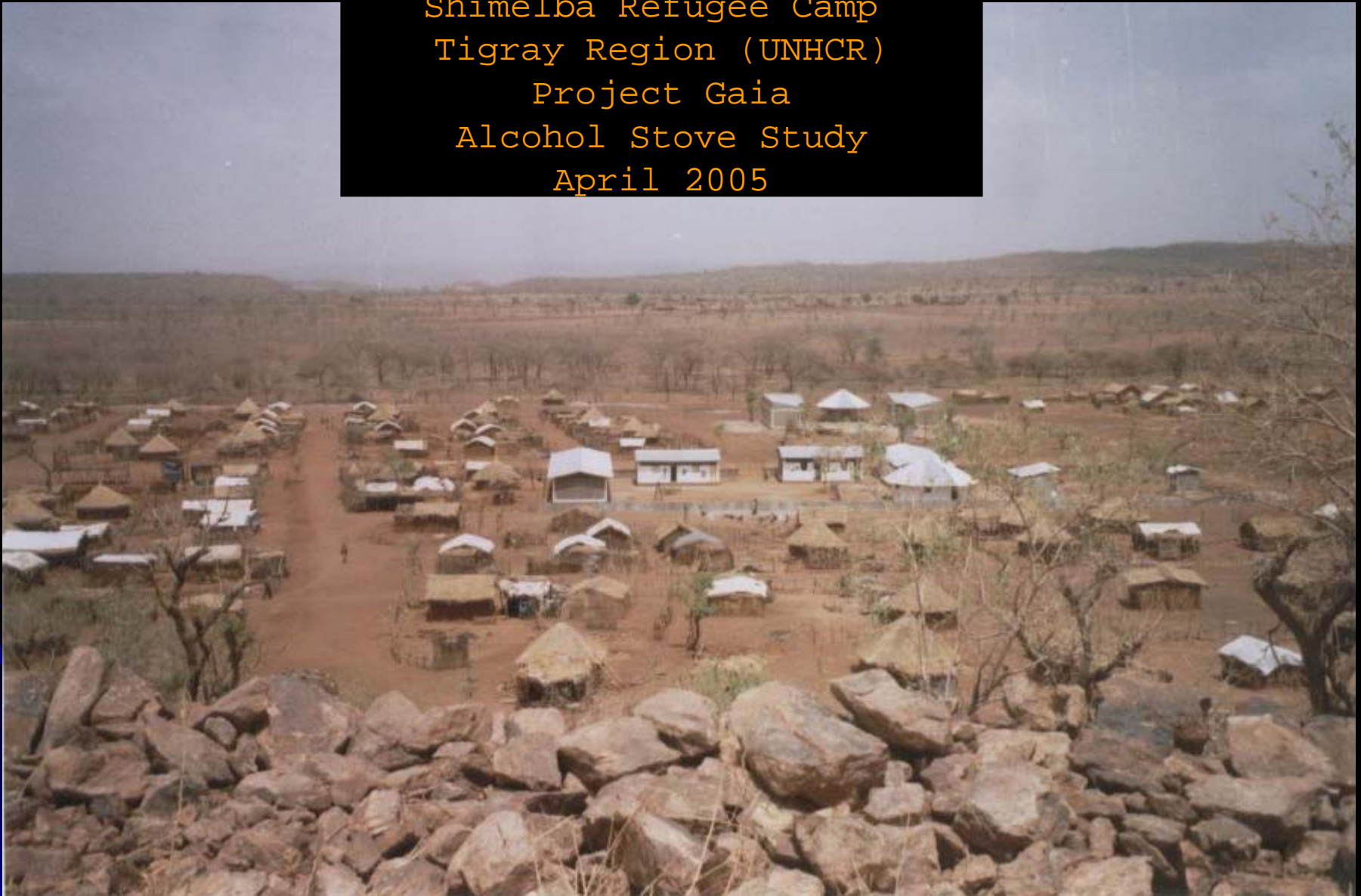
cooking energy to the camps where fuelwood is scarce and competition for it leads to conflict with local communities.



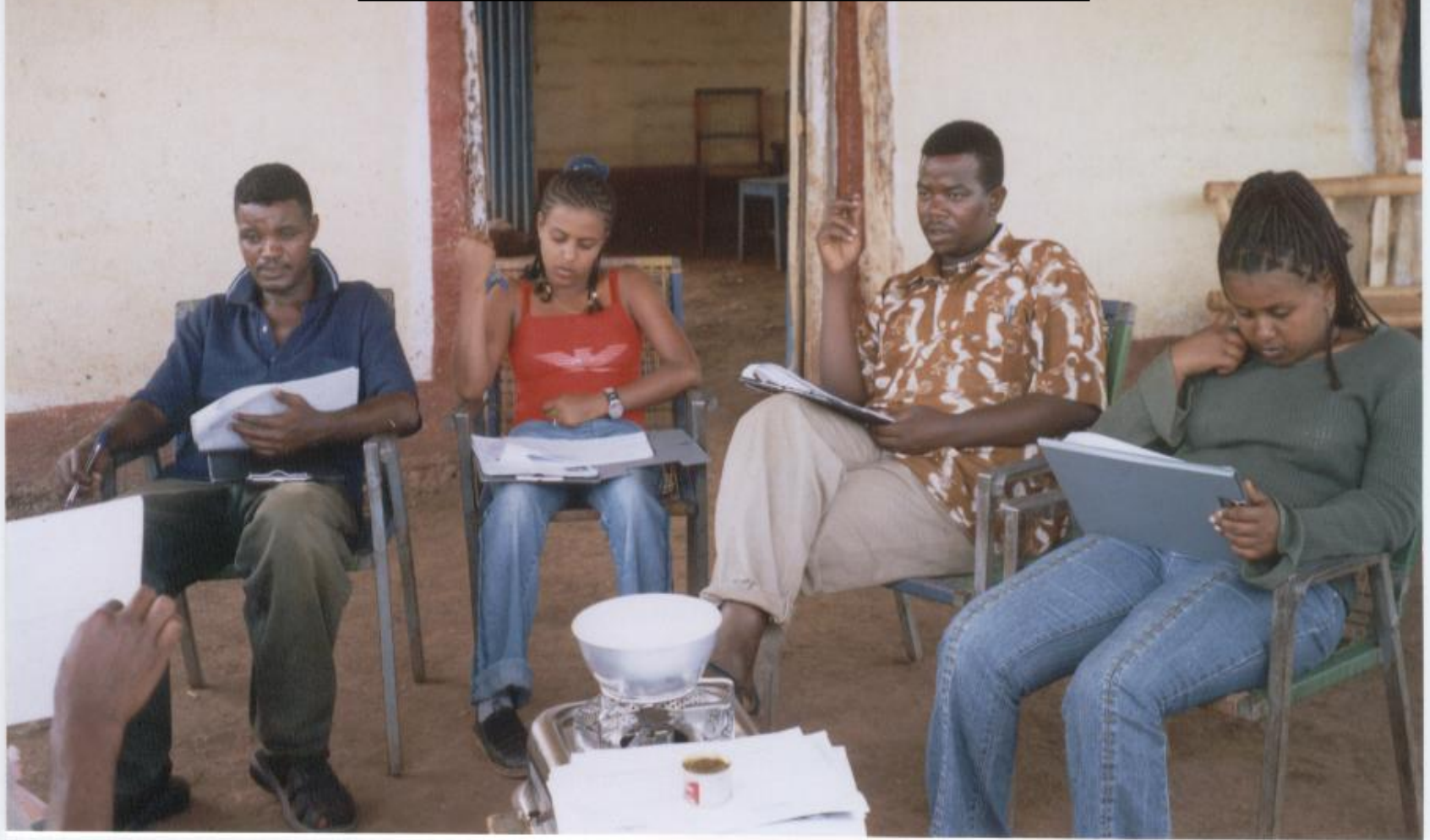
We hope to establish  
a business in Ethiopia that will  
manufacture stove and  
deliver the alcohol fuel along with the  
stoves to the camps.

# Few pictures of our activities in the refugee camps

Shimelba Refugee Camp  
Tigray Region (UNHCR)  
Project Gaia  
Alcohol Stove Study  
April 2005



Shimelba Refugee Camp (UNHCR)  
Alcohol Stove Study  
Surveyors



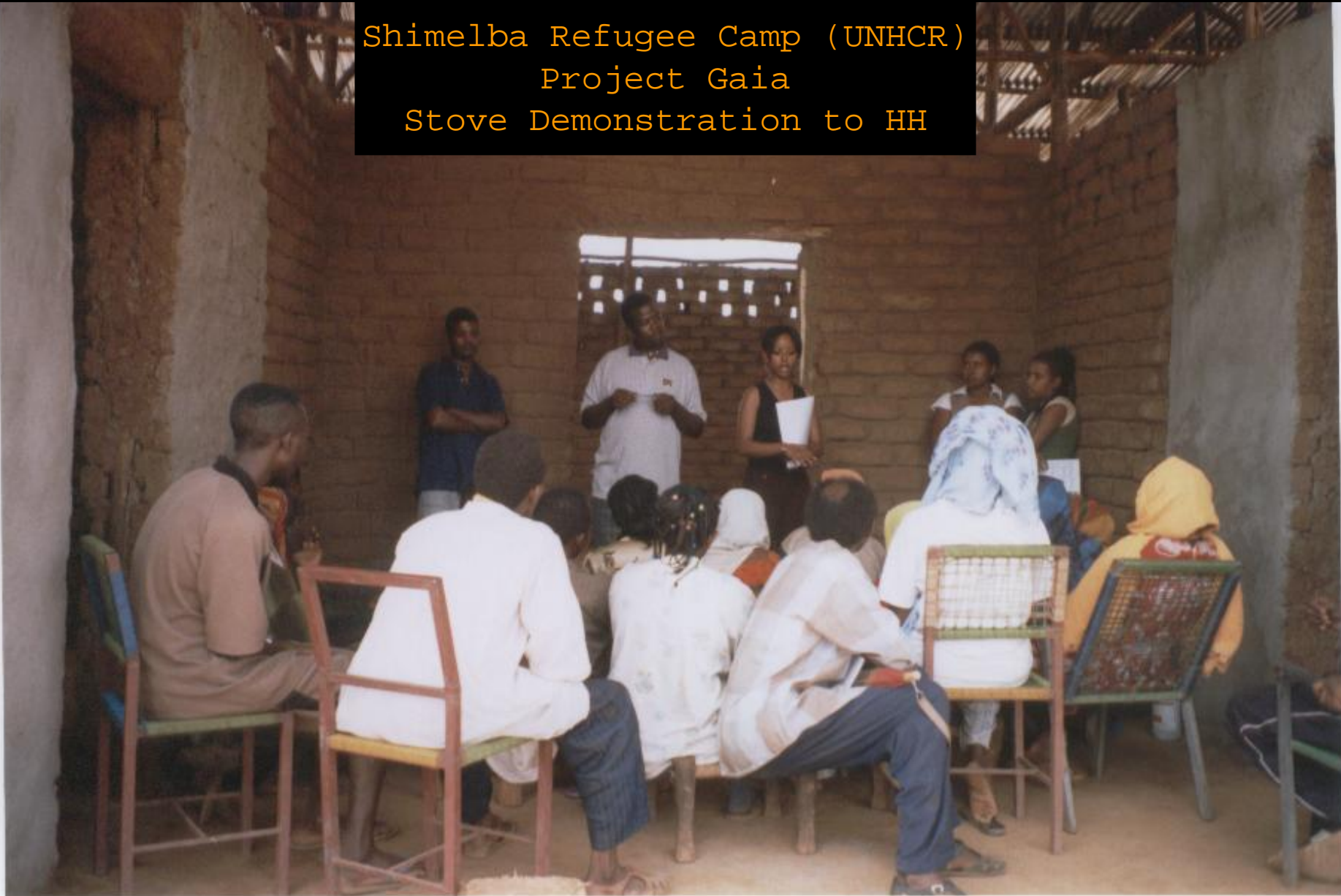
Shimelba Refugee Camp (UNHCR)  
Surveyor with members of a HH





Shimelba Refugee Camp (UNHCR)  
Indoor Air Pollution Monitoring  
Surveyor placing IAP measuring  
instruments

Shimelba Refugee Camp (UNHCR)  
Project Gaia  
Stove Demonstration to HH





Shimelba Refugee Camp  
(UNHCR)  
Project Gaia  
Alcohol Stove Study  
Woman cooking on a  
CleanCook Stove



Shimelba Refugee Camp (UNHCR)  
Project Gaia  
Enjera Baking on a wood stove



Kebribeyah Refugee Camp  
Somali Region (UNHCR)  
Project Gaia  
Alcohol Study  
September 2005



20 9:27PM

Kebribeyah Refugee Camp (UNHCR)  
September 2005  
One of the study HH



Kebribeyah Refugee Camp (UNHCR)  
HH demonstration



Kebribeyah Refugee Camp (UNHCR)  
HH demonstration



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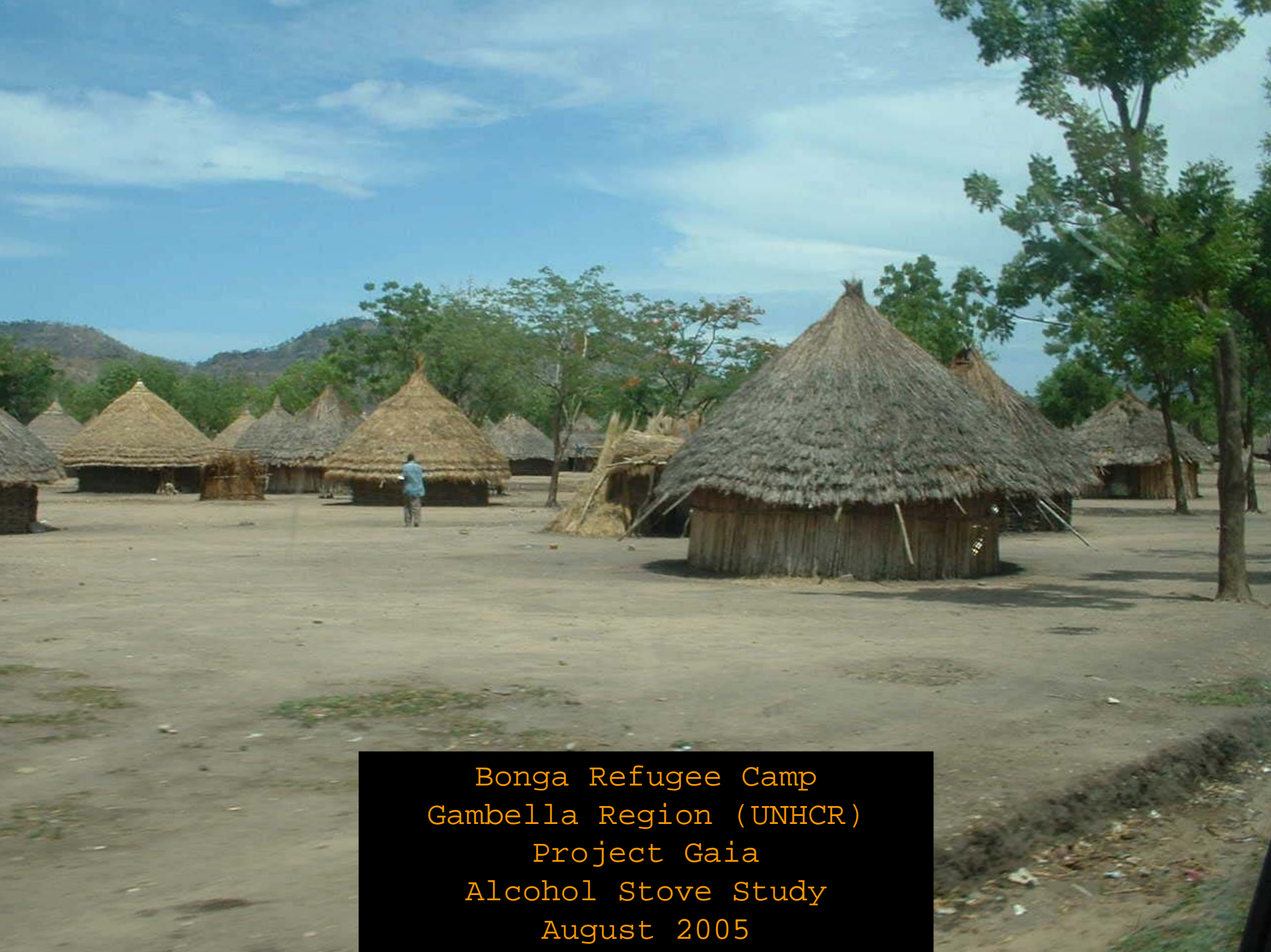
Kebribeyah Refugee Camp (UNHCR)  
HH using the alcohol stove



11 12:12PM

Kebribeyah Refugee Camp (UNHCR)  
HH using the alcohol stove





Bonga Refugee Camp  
Gambella Region (UNHCR)  
Project Gaia  
Alcohol Stove Study  
August 2005



Bonga Refugee Camp (UNHCR)  
3-stones stove

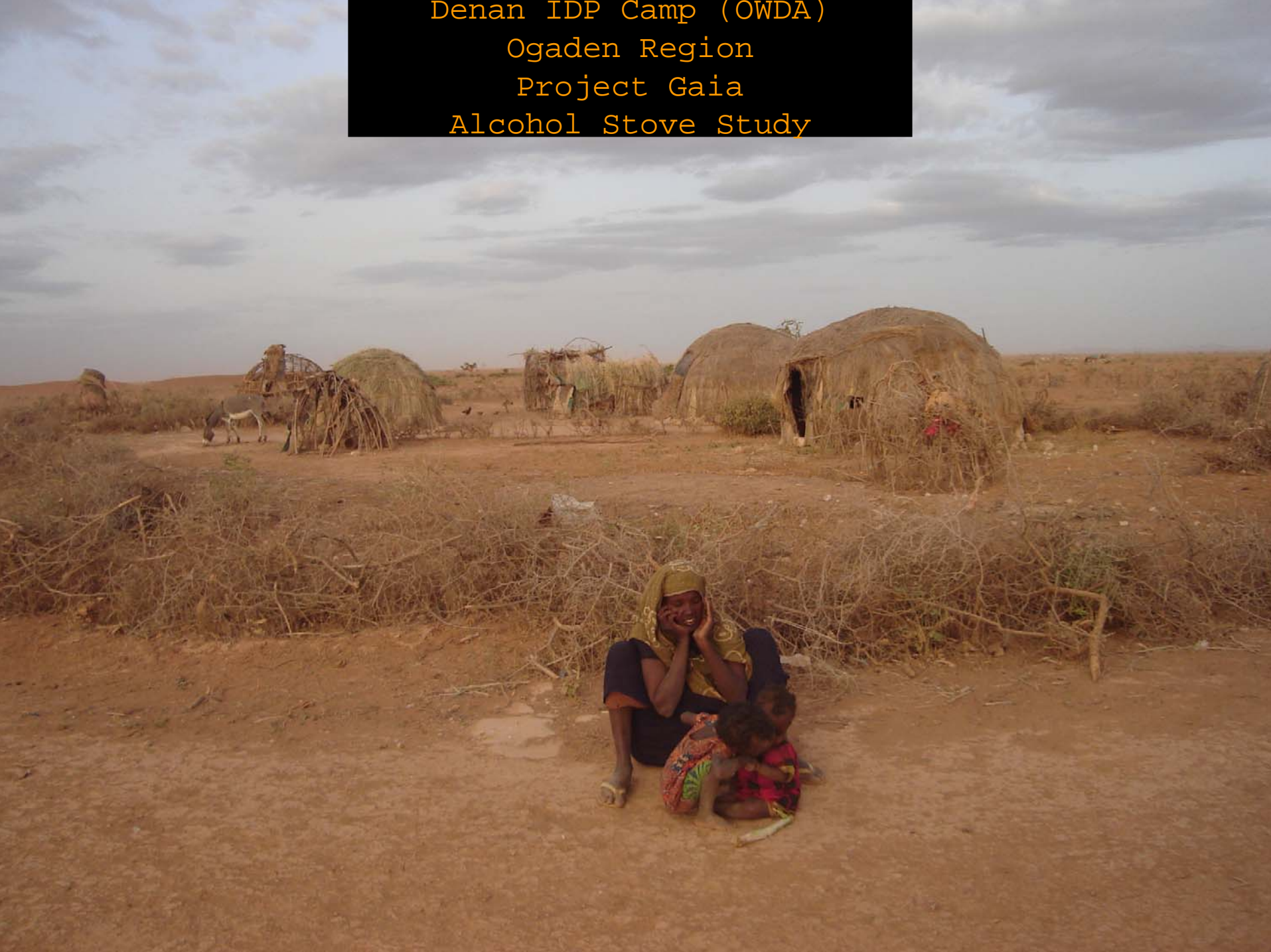




Bonga Refugee Camp (UNHCR)  
Project Gaia  
IAP monitoring



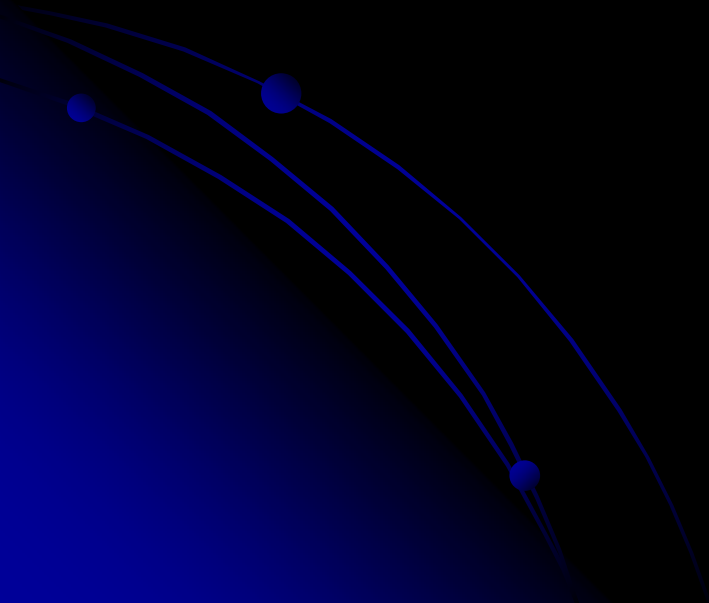
Denan IDP Camp (OWDA)  
Ogaden Region  
Project Gaia  
Alcohol Stove Study





Denan IDP Camp (OWDA)  
Project Gaia  
Stove Demonstration to HH

**Questions?**



Thank you

