Palette

Summary of Gaia Association Activities, Projects and Partnerships January - December 2007
Mission Statement
The Gaia Association's mission is to revolutionize the household energy market by introducing ethanol as a sustainable and economical cooking fuel.
ACRONYMS

ARRA - Administration of Refugee and Returnee Affairs
CC - Clean Cook
CEIHD - Center for Entrepreneurship in International Health and Development
CO - Carbon Monoxide
FEPA - Federal Environmental Protection Authority
FINCHAA - Ethiopian National Sugar Factory
IAP - Indoor Air Pollution
LPG - Liquefied Petroleum Gas
PCIA - Partnership for Clean Indoor Air
PM - Particulate Matter
UNHCR - United Nations High Commission for Refugees
USEPA - United States Environmental Protection Agency
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I. INTRODUCTION

The following report summarizes the 2007 fiscal year activity by the Gaia Association on its various projects including commercialization in Addis Ababa and stove distribution in refugee camps. Gaia Association continues to proceed toward our ultimate goal of providing clean and safe energy for all Ethiopian households. This report documents our recent progress and accomplishments.

II. PROJECTS

2.1 Commercialization of the CC Stove

Gaia Association and Makobu Enterprises PLC received a grant of $200,000 by USEPA to initiate commercialization of the Dometic “CleanCook” (CC) stove in Addis Ababa, Ethiopia. Gaia Association and Makobu Enterprises PLC have signed a commercialization agreement to commence the project. According to the agreement, commercialization will begin as soon as the needed supply of ethanol is confirmed by Finchaa sugar factory. Gaia Association has also hired additional international staff to manage promotional activities in order to establish a market. The new staff has assisted in developing both electronic and print media including flyers, brochures and other marketing essentials.

2.2 Promotion of Ethanol as a Household Cooking Fuel Conference, Ghion, Hotel

Commercialization of the CleanCook Stove

The UNDP funded business plan was completed for the commercialization of the CleanCook stove. The fund for this document came from UNDP’s Growing Sustainable Business Program. The business plan was distributed to all our partners and concerned organizations.

On June 5, 2007, the Gaia Association and Makobu Enterprises PLC organized a half-day workshop that was held at the Ghion Hotel. The primary goal of the workshop was to inform the public and government about the benefits of ethanol as an efficient, clean, safe and affordable cooking fuel for Ethiopia. Public and private stakeholders were assembled for the presentation of the UNDP-funded Business Plan. The Business Plan details the potential of the CC Stove and its viability as a cooking option for Ethiopian households. The CC Stove and ethanol fuel dissemination was presented and discussed during the workshop as well. [See attachment 1: conclusions and recommendations from the workshop]

2.3 Condominium Project

Fifty CC Stoves will be provided to fifty families in a sub-city selected by the Gaia Association and Addis Ababa Housing Agency. These stoves will be fueled by approximately 4500 liters of ethanol which will be distributed into individual condominiums for up to two months, whereby three to five condo units will be used in each demonstration area throughout four of the ten sub cities of Addis Ababa. The ethanol fuel will be handled and distributed by the condominium association, the Gaia Association and Makobu Enterprises PLC. The project partners will work closely together to develop a fuel receiving, storage and distribution system.
A promotional demonstration project will assess the impact of the stoves on the participant health and general livelihood. The project will address the negative health problems associated with burning biomass, such as using fuelwood indoors for cooking purposes. The project will showcase the CC Stove in condominiums of Addis Ababa and the demonstration project will provide an opportunity for the public to witness how the CC Stove is an appropriate cooking technology for these dwellings. The Gaia Association foresees that the recipients of the CC Stove and fuel will benefit from the clean, smoke-free indoor air and, as a result, household health will improve. Data gathered from the demonstration will be used to justify a future scale up of stoves in the entire condominium complex.

During the early stages of the project, the focus will primarily be on the efficiency and safety of the fuel and the stoves, comparative cooking cost of ethanol and competing fuels. As with all Gaia Association projects, additional goals include improving household health, safety and livelihoods of families, in particular, women and children.

It is anticipated that because of this demonstration project, the market for ethanol-fueled CC Stoves will potentially stimulate stove production in Ethiopia. Once demand is created, Makobu Enterprises PLC has committed to develop a stove assembly line to begin local stove frames and parts production.

2.4 Good Shepard Sisters
The Good Shepard Sisters continue to be a very strong partner of the Gaia Association. The Association has solidified plans to implement seven hundred stoves to the beneficiaries of Kebele 05. The project will begin in late 2007. The Gaia Association will work with Makobu Enterprises PLC to facilitate the distribution of ethanol and CC Stoves to the recipients.

Beneficiaries rely heavily on kerosene and charcoal for their cooking needs. The implementation of this project in their household will have a positive impact on their health and safety. This project will showcase how the CC Stove can provide clean and safe energy to the people of Addis Ababa. The homes that will gain from the stove will be the first large-scale distribution of the CC Stove in an urban environment. An ethanol distribution center will be constructed in the middle of the Kebele and this central location will ensure equal access to the site by all the beneficiaries.

2.5 CRDA Membership
Gaia Association has applied for membership to the Christian Relief Development Association (CRDA). Membership would benefit Gaia by providing important resources and an extensive network of potential funding and implementation partners. We are hoping that Gaia fulfills the requirements of CRDA to be a listed member. Acceptance to CRDA will be announced at the end of March 2008.

2.6 Tree Planting
Gaia Association and Mokabu Enterprises PLC participated in a tree planting activity with the City Government of Addis Ababa. The tree planting gave an opportunity for Gaia/Mokabu to showcase the stove to both City Government and Kebele Officials. The Gaia Association and
Mokabu Enterprises PLC gave a presentation to the Mayor as well.

2.7 Participation in Exhibition by City Administration of Addis Ababa

Gaia Association participated in an exhibition prepared by the Addis Ababa Clean and Green Society in November 2007. The exhibition provided a venue for environmental organizations to share past experiences and current initiatives with one another. As part of the exhibition, Gaia had the opportunity to introduce our work to different government officials including the Mayor of Addis Ababa.

2.8 Staff Evaluation

The Gaia management conducted individual staff evaluations based on their job descriptions and an internal report was prepared of its findings.

2.9 Malawi Project

The Ethio Resource Group in collaboration with the Gaia Association was chosen to carry out a feasibility study for developing a sustainable business case for the production of an ethanol based cooking stove in Malawi. The focus of the study will be to see if the CC Stove is the best cooking technology to tackle the challenges of Malawi's household energy crisis. The CC Stove will compete against three other ethanol stoves. The criteria for the competition between the different stoves will be based on emissions standards, stove efficiency, and safety.

The objective of the study is to investigate and document the potential for developing ethanol as a domestic cooking fuel in Malawi (learning from and building on previous experiences in Malawi and in Africa) and to develop/propose an economically viable business model for building an ethanol stove and fuel business in Malawi. The resultant business should be owned and operated by Malawians.

Some of the deliverables include:
- Draft and final work plan
- A household energy analysis including household cooking fuels and stoves used in Malawi
- Industry Analysis of the players/competitors in the household energy market both in regards to stoves and fuel
- Review of best available stove technology
- Review technology for small-scale (micro distillery) ethanol production using a variety of feedstock from sugar industry wastes to fruit and food processing wastes.
- Recommendation for promoting/popularizing ethanol stove and fuel in Malawi

III. REFUGEE CAMP ACTIVITIES

Kebribeyah Refugee Camp

3.1 Project Scale up

Gaia Association and our implementing partner UNHCR planned a massive scale up of CC stoves in Kebribeyah Refugee Camp. The scale up occurred in January 2008 and included 700 Somali refugee
households. Selection of beneficiary households took place in August. The selected households were trained in stove operation, maintenance and safety precautions. Distribution of the stoves was delayed due to limitation of ethanol supply. The Gaia team conducted “reminder” training before stove distribution to refresh the beneficiaries on stove use and safety. The 700 households were each provided with a one-burner CC stove, two jerry cans and small pitcher. The beneficiary households are given ten liters of ethanol fuel every ten days for household use. This most recent scale up in Kebribeyah raised the total number of stove beneficiary households to 1550. [See attachment 2: UNHCR Kebribeyah Camp progress report]

3.1.2 Ethanol Storage at Kebribeyah

The last stove project scale up caused daily consumption of ethanol in Kebribeyah Refugee Camp to reach 1550 liters. The previous ethanol storage facility built by Gaia Association was not large enough to hold 1550 liters of ethanol per family per day. On account of the tanker’s insufficient capacity and with future scale ups in mind, Gaia purchased a storage tanker with a capacity of holding 30,000 liters of ethanol. The tanker was placed in the newly constructed and secured Gaia Association compound in the town of Kebribeyah. Ethanol storage capacity in Kebribeyah has reached 46,000 liters, safely able to serve more than 2000 CC stove users.

3.1.3 Gaia Association compound in Kebribeyah

Gaia Association secured a plot of land from the Kebribeyah town administration for construction of a new office and storage facilities. The plot is now fenced with barbed wire and a security guard has been hired. The new 30,000 liter fuel storage tanker has been placed on the new place and already serves stove beneficiaries. Gaia has also placed a bid for construction of a new office in the compound that will enable Gaia to work more efficiently within the refugee camp.

3.1.4 Ethanol Purchase and Transportation

For the year 2007, Gaia Association used a total of 323,500 litres of ethanol fuel for use at the Kebribeyah Refugee Camp used. This fuel was transported by tanker truck to the camp and placed in a storage facility at Kebribeyah. All beneficiaries at the camp receive ten litres of ethanol every ten days.

3.1.5 Ethanol Denaturing and Quality Control

The Gaia Association in Addis Ababa first denatures every batch of ethanol transported to Kebribeyah camp. A light blue dye is used to color the ethanol and the chemical agent “bitrex” is used to bitter the ethanol and make it unpalatable. Every shipment of ethanol has been and will continue to be carefully tested for purity by Gaia team-members to protect the stove canisters from damage.

3.1.6 Received Kebribeyah Project Vehicle from UNHCR

The Gaia Association received a vehicle (Toyota Hilux D/Cabin Pick Up) from UNHCR for transport use at the Kebribeyah Refugee Camp. This vehicle will be used to transport staff for humanitarian purposes. It will be essential to facilitate and control our mission at the camp.

3.1.7 Participatory Assessment at the UNHCR Kebribeyah Refugee Camp
Gaia team-members consisting of Milkyas Debebe, Abel Negede, and Todd Wofchuck participated in the 2007 PA in both Kebribeyah and Teferi Ber Refugee Camps. The objective of the PA was to document the refugees voice and their needs within the camp. Age, gender, and minority populations categorized the refugee focus groups. Multifunctional teams were then organized by UNHCR consisting of all the implementing partners that provide services for the refugee populations of Kebribeyah and Teferi Ber. Each focus group prioritized their concern and this information will be used by the UNHCR/ARRA for their upcoming budget.

3.1.8 Indoor Air Pollution Project
The Association has almost completed two substantive IAP reports from data collected in the UNHCR Bonga Refugee Camp in western Ethiopia and Addis Ababa, Ethiopia. Team-members are working closely with the University of California Berkeley to finalize these reports.

In March of 2007 the Gaia Association completed an IAP report from data collected at the Kebribeyah Refugee Camp during the summer of 2006. This report is available to our partners upon request and the empirical data has provided solid evidence of the positive attributes of the CC Stove. Data demonstrated that when the stove was introduced into a cooking room there was a 90% reduction in PM and a 60% reduction in CO. The report also focused on the health effects of high levels of CO and PM on an individual. The concluding results of the tests demonstrated that the CC Stove is a clean technology which when implemented into a household can act as a health intervention.

3.1.9 Indoor Air Pollution Health Training
Dr. Stuart Warren of the Hershey Medical Center at Pennsylvania State University and Jason Speaks of the Colorado Health Sciences came to Ethiopia for six weeks to conduct a feasibility health study on the relationship between IAP and respiratory diseases. Half of their time was spent at the Kebribeyah Refugee Camp where they trained refugee nurses attending Jijiga Nursing College. Fifteen DAFY scholarship recipients were selected to participate in the training. DAFY scholarships provide educational opportunities to refugee women and financial allocation has been earmarked for education of girls in fields such as teacher training and health care. Trainings were held both in Kebribeyah Refugee Camp and Jijiga Health College. Sessions focused on:

3.1.10 Film Project
The Gaia Association is presently shooting a filming project to document the progress of the Association’s work and to highlight the need for additional CC Stoves at the Kebribeyah Refugee Camp. Three short films will be produced; one 10 minute film will be used for promotion and fundraising; one 5 minute fill will be shown to refugees.
to demonstrate the impact of ethanol stoves and to further integrate them into the Gaia program; one 3 minute film will be used as a training tool for use during stove scale up in Kebribeyah and elsewhere. The film project is completely financed by the Gaia Association and a professional filmmaker from the U.S. is leading the film project. The outcome of the project will be of great benefit to the refugee community as it will raise awareness at an international level of the ‘Clean Energy – Safe Energy’ program at the camp, and will be a valuable fundraising tool for Gaia Association as donor monies are sought to complete the scale up of stoves and ethanol at the camp. The Gaia Association received permission from UNHCR and ARRA to film within the Kebribeyah Refugee Camp during the period of September 24-30, 2007.

3.1.11 Monitoring and Evaluation

Gaia Association has conducted Monitoring and Evaluation (M&E) in Kebribeyah Refugee Camp to receive important feedback on the stove distribution project from end users. The Gaia team trained high school students in the camp to carry out the evaluation. The surveyors visited the beneficiary houses and conducted several surveys on stove operation, ethanol as a fuel alternative, safety, physical and social health, and economic affordability. M&E has enabled Gaia to effectively evaluate our project’s impact on the refugees’ lives. The surveys showed positive results of the CC stove on health, safety and the community economy. We also found that in some cases that ten liters of ethanol for a ten-day period was not a sufficient amount of fuel for larger families. [See attachment 3: Monitoring and Evaluation Report]

3.1.12 Income Generating Activities (IGA)

The M&E surveys demonstrated that many of the households using the CC stove now have more free time. Especially women and girls are freed from the task of fuelwood gathering, a very time-consuming activity. However, this newly available time was not immediately used for income generating activities (IGA). Based on this result, Gaia Association began a feasibility assessment of IGA in Kebribeyah. We have developed a proposal with support from several international consultants. Gaia is currently investigating potential funds and vendors for implementing IGA in Kebribeyah Refugee Camp. [See attachment 4: Income Generating Activities report]

3.2 Teferi Ber (Aware) Refugee Camp

The newest UNHCR refugee camp in the Somali Regional State of Ethiopia, Teferiber, shelters over 800 refugee families in 2007. Besides numerous other facility shortages, these refugees lack access to a supply of clean household energy. Gaia Association has therefore signed an agreement with UNHCR-RLO to duplicate the Kebribeyah ethanol fuel and stove distribution project in Teferiber Refugee Camp in 2008. Gaia has purchased 800 CC stoves with a generous donation from the Lutheran World Federation. The stoves were transported to the nearby town of Jijiga’s Lutheran World Federation Store. Household selection, beneficiary training and stove distribution will occur when an adequate supply ethanol is allocated to Teferiber camp.

IV. OTHER ACTIVITIES
4.1 Partnership for Clean Indoor Air Conference
Fiona Lambe and Milkyas Debebe attended the 3rd Biennial PCIA Forum in Bangalore India from March 20-23, 2007. Participants from all over the world were in attendance to discuss the latest in appropriate technologies. The purpose of the conference was to bring together organizations and individuals who are members of the PCIA. The Partnership is a program funded by the USEPA with the mission of creating awareness of the harmful effects of IAP. During the conference, the Association received an award for its dedication to IAP data collection. [See attachment 5: Article on HEDON]

4.2 African Union/ Brazil / UNIDO First High-Level Biofuels Seminar in Africa – July 30th – August 1st 2007
Milkyas Debebe, Firehiwot Mengesha, and Todd Wofchuck attended the first Biofuels Seminar in Africa. Delegates and representatives from all over the world were in attendance. Key stakeholders at the seminar, included over two hundred fifty high-level representatives of the Africa Union Commission; ministries and departments of energy, agriculture, environment, industry, trade, from African Union member countries; Regional Economic Communities, development partners including UN agencies and the African Development Bank; government of Brazil; private sector; NGO’s; and biofuels experts.

The Gaia Association had a booth at the event, where they displayed the CC Stove. Participants from Kenya, The Gambia, and Malawi were very interested in the CC Stove and requested to bring it to their countries. The Association benefited enormously from the event because it provided a global exhibit for the CC Stove. It was also encouraging for many participants because it demonstrated the mobilization of the Bio Energy community in Africa.

4.3 US Ambassador’s Fund
For the second year in a row, The Gaia Association received funding from the US Ambassador’s Fund of Ethiopia. The purpose of the US Ambassador’s Fund is to provide assistance to refugee focused projects. This year the Fund supported Gaia by supporting the Kebrhibeyah project with $4,000 dollars. This amount will fund seventy-five one – burner stoves. The financial amount will aid in allowing the Association to purchase enough stoves to provide full coverage for the camp.

4.4. Ashden Award
Gaia Association was awarded 1000 pounds ($2,000 US) by Ashden Award committee. The Ashden Awards for Sustainability Energy – highlights and rewards exemplary and successful examples of sustainable energy use in both the UK and other parts of the world.

In additions to the grant Gaia Association applied for the prestigious award and was selected in February 2008 to be one the top nine candidates. The Ashden Awards committee requested that Gaia submit a full application form with comprehensive information about our association’s history, experience, and current initiatives. Gaia prepared and submitted the application form as per their format. A representative from the judges’ panel will arrive in Addis Ababa in March 2008 to visit the local stove manufacturing and ethanol distribution sites and see our refugee programs being successfully implemented.

4.5. Women’s Commission for Refugee Women and Children
The Women’s Commission for Refugee Women and Children is an advocacy and expert resource organization working on behalf of refugee and displaced women, children and adolescents around the world. In late 2005, the Commission initiated a project investigating methods for reducing the vulnerability of displaced women and girls to gender based violence (GBV) during firewood collection. Two years later, the Women’s Commission held a conference in Sweden at which Fiona Lambe, a Gaia Association international staff member, presented the work of the Gaia Association in relation to eliminating the need for fuelwood gathering at Kebríbeyah Refugee Camp by providing ethanol stoves.

Following Fiona’s presentation, the Women’s Commission launched a project to work toward elimination of fuelwood gathering for vulnerable females. For this new project they have selected three sites: Darfur, Sudan; the Thailand-Burma border; and Kebríbeyah, Ethiopia. Representatives from the Women’s Commission are expected to visit in March 2008 to discuss how we can work together at Kebríbeyah Refugee Camp.

V. PARTNERS AND PARTNERSHIPS

5.1 Building Contacts within the Government
The Association has been working with all related Ethiopian government offices especially, ARRA, FEPA, Addis Ababa EPA, Ethiopian Rural Energy Development and Promotion Center, Finchaa sugar Factory, Addis Ababa city Government, and the Ministry of Trade, Ministry of Mince and Energy and Ministry of Health.

5.2 Makobu Enterprise PLC
The Gaia Association is now working closely with Makobu Enterprises PLC, who will be the eventual stove importer and local manufacturer. The partnership is currently collaborating on the Addis Ababa Condominium project, commercialization of the CC Stove under the USEPA project, carbon finance, and the micro distillery project.

5.3 UNHCR
UNHCR has been a tremendous supporter and advocate of the CC Stove. Working in the Kebríbeyah Refugee Camp has enabled large-scale introduction of the stove.

5.4 IRC and the Lutheran World Federation
Partnership with IRC and the Lutheran World Federation has given Gaia Association access to sufficient funding to purchase 1400 two-burner and 800 one-burner CC stoves. Gaia welcomes these connections and will maintain close ties with these two organizations as our work continues.

5.5 Dometic AB
The Association is in a technical working group with Dometic AB, Dometic, a Swedish company. Dometic AB is the original stove manufacturer and originator of this project concept. Both the Gaia Association and Dometic have been collaborating to import the CC Stove for the up-coming scale up in the Kebríbeyah Refugee Camp and for country commercialization.

VI. LIMITATIONS
The Association’s immediate need is to obtain a sustainable supply of ethanol from the Finchaa. It is imperative to allocate a steady stream of ethanol so that a successful commercial project can be launched. Additionally, a new ethanol supply agreement with Finchaa will permit the Association to sell its first carbon credits. As carbon credits financing is developed and sold, the Association will work closely with MoTI technical staff to develop a program that will be of interest to the sugar industry and also stimulate the ethanol stove and fuel business.

In October of 2006, the Association submitted a request a minimum of one million liters of supply for the year but the organization could not meet a final agreement. Unfortunately, as of late September of 2007, the Association could not finalize an agreement with Finchaa.