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Mission Statement

To promote clean, safe, sustainable, and renewable energy for cooking and other household needs, displacing the reliance on fossil fuels, firewood, and charcoal; reducing carbon emissions and deforestation by employing efficient alcohol-fueled stoves and other appliances.
ACRONYMS

ARRA - Administration for Refugees and Returnees Affairs
CC - CleanCook
CO - Carbon Monoxide
EMD - Ethanol Micro-Distillery
FEPA - Federal Environmental Protection Authority
FWFCA - Former Women Fuelwood Carriers Association
IAP - Indoor Air Pollution
NCF - Nordic Climate Facility
PGI - Project Gaia Incorporate
PM - Particulate Matter
SEI - Stockholm Environment Institute
UNHCR - United Nations High Commissioner for Refugees
USEPA - United States Environmental Protection Agency
WB - World Bank
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Project Overview

The livelihood of the majority of Ethiopians relies on agriculture and livestock. In consequence, adverse changes in climate heavily impact most Ethiopians life and livelihood. Vulnerabilities to climate change are accentuated because of poverty as it gives very low adaptive capacity and let many people to depend on local resources (water, soil, vegetation). Moreover, in the Ethiopian case the productivity and sustainability of local resources is already severely eroded.

Renewable energy, particularly bio-energy and hydropower, provide 95% of the energy consumed in Ethiopia. These renewable resources are used for power generation (hydropower) and for meeting basic cooking and lighting energy requirements in the residential and service sectors (biomass). Cooking is estimated to account for more than 90% of the demand for energy in the sector. 15 million households in rural and urban areas of Ethiopia cook with biomass fuels. The demand for cooking fuels is growing relatively rapidly (6% annually). Heavy reliance on wood fuels and agricultural residues has contributed to the non-sustainable harvesting and use of wood fuels and agricultural residues. It has also contributed to declining access to cooking fuels in both rural and urban areas which increases the burden on women and girls, who are responsible for fuel collection. Dependence on solid biomass fuels and kerosene also exposes households, particularly women who are responsible for cooking for the household and children who they care for at the same time, to indoor air pollutants.

The collection, supply and/or use of firewood and traditional energy sources have also been associated with a variety of harmful consequences. These include but are not limited to: rape and assault during firewood collection, environmental degradation, and respiratory and other illnesses caused by the indoor burning of biomass materials. The household energy needs of displaced people in refugee camps are difficult to address for both concerned government bodies and for the UN High Commissioner for Refugees. The key challenges related to household energy in refugee camps are: protection, relation between the host community and displaced people, environmental problems, household related natural restrictions and livelihood related challenges. In addition, household energy issues are also linked to family health, and the low school enrollment of girls. The chore of gathering firewood can be a highly time consuming task often undertaken by girls, which makes them unable to attend school.

Gaia Association, Ethiopian Resident Charity, established on 2005 to revolutionize the household energy economy in Ethiopia across a range of settings; from private homes in Addis Ababa to refugee camps. Gaia has been introducing ethanol as a household fuel which then replaces existing traditional household fuels and imported expensive fuels. Together with the Administration for Refugees and Returnees Affairs (ARRA) and the UN High Commissioner for Refugees; Gaia Association has been implementing its project in Kebrabeyah, Awbare and Sheder refugee camps in Eastern Ethiopia. Gaia targeted to address refugees cooking energy demand through the provision of fuel-efficient devices & alternative energy sources, contribute to the enhancement of refugees protection, and to relieve women from the tedious task of firewood collection and risk of Gender-based violence (GBV), while also improving indoor air quality.
In order to achieve similar project goals in Addis Ababa city and beyond; Gaia Association continued to support Makobu Enterprises, local Ethiopian business company, to commence commercialization of 2000 ethanol stoves imported by Makobu to spur local market. For this, Makobu secured half a million litres of ethanol from Methara sugar factory during the year 2011. The Ministry of Water and Energy continued its support for the project working to introduce ethanol for household use and manufacture efficient ethanol stoves locally. The Ministry proved its support for the project by allocating half a million litres of ethanol from Methara factory to fuel seed stoves imported by Makobu. During the reporting year, more than 250 ethanol stoves were sold out to households in Addis Ababa by Makobu Enterprises.

From April, 2009 to March, 2011; Gaia faced local ethanol supply interruption due to shortage of ethanol supply from Finccha sugar factory. This has forced Gaia Association to cease its project both in Addis Ababa and the refugee camps temporarily until local ethanol supply resumed. During ethanol supply interruption, Gaia engaged in an emergency program that addresses the severe household energy problem in the refugee camps. Gaia provided kerosene fuel and kerosene stoves to refugee families during the year 2009 and 2010 as a temporary solution for the problem. As a result of the strong effort from Gaia Association, Makobu and UNHCR to secure ethanol supply back, 1.2 million litres of ethanol was allocated by Ethiopian government for the year 2011 enabling both the Addis and refugee camps project to resume back.

Gaia continued to expand its project by introducing a technology to produce ethanol in small scale distilleries. For this, Gaia Association secured a grant from Ethiopian Environmental Protection Authority, World Bank and Nordic Climate Facility. The Grant from FEPA planned to build three a 150lit/day Ethanol Micro-Distilleries (EMDs) in three regions of Ethiopia while the grant from WB and NCF targets to install a 1000lit/day EMD in Addis Ababa. The FEPA EMDs are planned to be installed in Gambella, Amhara and Oromia regional states of the country that have sugarcane plantation to be used as feedstock for ethanol production. It is also planned that the EMDs will be installed in the selected villages of the regions and will be owned by the local communities’ cooperative. The project aims to introduce ethanol for household use in the villages and nearby towns and at the same time to enhance the daily income of the communities. The ethanol produced will be used for domestic cooking with ethanol stoves which are already in plan to be disseminated in the communities.

Gaia Association launched the Addis EMD project after establishing partnership with Stockholm Environment Institute (SEI), Ethiopian Environmental Protection Authority and Former Fuel wood carriers Association (FWFCA) to implement the project successfully. The project targets to supply ethanol and distribute ethanol fuelled cooking stoves to 1000 low and middle income households in Kolfe-Keranio sub-city at the outskirts of Addis Ababa by establishing a community owned and run EMD.

The following report summarizes the 2011 fiscal year activity by the Gaia Association on its various projects.
1. ETHANOL SUPPLY

Since the first day of the local ethanol supply interruption, Gaia Association has made efforts to secure ethanol from both local production and international sources to resume the ethanol program in both Addis Ababa and refugee camps of Ethiopia. Fortunately on March 2011 Gaia secured 700,000lit ethanol for its refugee camps project while its local partner Makobu secured 500,000lit ethanol for the project undergoing in Addis Ababa due to the commencement of ethanol production at Methara sugar factory.

Besides the local production, Gaia (PGI) and UNHCR have been working closely with the Brazilian government to import ethanol donated to the refugees in Ethiopia. However, there was impediment on the process due to concerned government authority transition in Brazil.

Moreover, Gaia received grants from the World Bank, NCF and FEPA to pilot test ethanol micro-distilleries for household energy use. In the year 2011, Gaia has gone through different project progresses to install EMDs in Addis Ababa and three regions of Ethiopia.

2. CLEANCOOK STOVE COMMERCIALIZATION

Gaia Association established partnership with Makobu Enterprises PLC on 2008 to manufacture CleanCook stoves locally and commercialize ethanol for household use. Since the beginning of the partnership, Gaia has been providing financial and technical support to Makobu to establish local stove manufacturing plant and commercialize ethanol stoves in Ethiopian Market. Towards this, Makobu has made a factory building ready for stove manufacturing and imported 2000 seed stoves to spur the local market with a strong support from Gaia.

During the reporting year, 500,000lit ethanol was able to be secured from Methara sugar factory after a continuous effort made by the partners for more than three years. The stoves were made to be available for sale with promotional activities by Gaia and Makobu team. However, the commercialization was highly challenged due to a number of reasons though Makobu placed attractive subsidized price. Makobu is made to buy the ethanol fuel with VAT inclusive price and forced to sell the ethanol with another additional VAT to the consumers pushing the price of ethanol up unlike the tax free kerosene. Difficulty was also experienced in building households confidence on sustainable ethanol supply, due to the supply interruption previously experienced.

The partners continued to put their strong effort to achieve the intended goals and as a result more than 450 CleanCook stoves were sold out including low income households in Shiromeda area of Addis Ababa. The sales number is expected to increase and all the imported stoves will go out to households in Addis Ababa demonstrating the benefits of ethanol use for cooking to all key stakeholders.

Gaia Association also made partnership with FWFCA to commercialize stoves in low income member households of FWFCA. Financial support was received from the United States Environmental Protection Agency (USEPA) to commercialize ethanol stoves within the FWFCA women’s cooperative. The program targeted 200 low income FWFCA member households and
provided them with a stove in a one year payment period. FWFCA collects payment from each household every month for one year period. Up on the end of the one year period, FWFCA buys more stoves and distribute for new beneficiary member families.

Gaia facilitated the establishment of this FWFCA market through the provision of administrative, technical, and logistical in-kind support to the FWFCA Cooperative. Within the targeted community, the project aimed reducing deforestation through eliminating the need for firewood collection, creating alternative livelihood for the women’s cooperative through the retail of ethanol fuel and stoves, improving indoor air quality and health, last but not least transiting women from the laborious task of firewood collection.

![FWFCA Member Households during Stove Demonstration and Distribution](image)

3. REFUGEE CAMPS MAIN ACTIVITIES

3.1 Ethanol Fuel Provision

Gaia has been providing ethanol fuel to address the refugee’s household energy demand. On 2011, Gaia provided ethanol to the refugee camps of Kebribeyah & Awbere. During the year, a total of 598,782 liters ethanol was distributed for Kebribeyah & Awbere 3,869 refugee households.

Gaia has been distributing the ethanol denaturing it with blue color and giving it a bitter taste. The households were grouped on the basis of their family size; families with a size of 1-4 members received 10 liters, families of 5-8 members received 15 liters, families of 9-13 members received 25 liters and families with a size of 14 and above received 37 liters of ethanol per month. Gaia arranged two distribution sessions for households who received more than 25 liters per month to ensure safe storage of ethanol fuel at the household level. To witness transparent and fair distribution of ethanol and for crowd control purpose, Refugee Central Committees participated in all the distribution sessions of both camps. In addition to make the
distribution process apparent and trouble-free, two ethanol dispensers were installed in Awbarre and Kebrhibeyah refugee camps on the year 2011.

3.2 Kerosene Fuel Provision/Sheder/

Due to supply constraint Sheder refugees and some of Awbarre refugees were not included in ethanol provision program for the year 2011. However, Gaia has been distributing kerosene fuel based on family sizes of households. During the year 2011, a total of 562,555 liters of Kerosene was distributed to 2,605 Sheder and Awbare refugee households. Kerosene dispenser was also placed in Sheder refugee camp during the reporting year.

3.3 Ethanol Stove and Kerosene Stoves Distribution

Subsequent to the commencement of ethanol supply, provision of 3500 CleanCook stoves for Kebrhibeyah and Awbare households has undertaken with how to use demonstration and safe use training. In addition 454 kerosene fuelled stoves distributed for newly relocated household families in Sheder & Awbare refugee camps.

Moreover, Gaia provided two electrical institutional stoves for ARRA School feeding programs in Kebrhibeyah refugee camp.

3.4 Jerry cans and Pitchers Distribution

3780 Jerry cans with 10liters capacity & 3243 Pitchers distributed to 3238 households in Kebrhibeyah & Awbere in order to increase storage capacity of the beneficiaries and minimize fuel wastage. Gaia provided only 10liters of ethanol at a time for every household to ensure safety.
3.5 Stove Maintenance

To promote efficient and accident free stove performance, Gaia provided ongoing stove maintenance service on the basis of the community workers follow-up report.

3.6 Awareness-raising on Safety and IAP

Besides ethanol/kerosene fuel distribution, Gaia has been providing training for all households who received CleanCook stoves and for those who attended ethanol/kerosene distribution sessions. To supplement the group training, Gaia community workers have provided door-to-door training for the beneficiaries at their houses and examined the stoves status. They have recorded households with broken stoves, checked the fuel storage placement, etc. The training helped the households to use the fuel safely and appropriately.

In Awbare, indoor air pollution sensitization was conducted by Gaia supporting staff. The majority of the refugees attended the awareness-raising program and received lessons on how to minimize the CO emissions in the house, improve indoor air quality, and minimize negative impacts on their health.

4. OTHER REFUGEE CAMPS ACTIVITIES

4.1 World Environment Day

Every year on June 5th, the world celebrates World Environment Day. This day was designed to create awareness on the dangers the environment is facing and ways to protect it. 2011s’ World Environment Day was celebrated in the refugee camps with a slogan of “Forest Nature at your service”. In order to enhance the refugees’ concern on the consequences of environment degradation, a panel discussion was organized and held in Kebrebyah camp. The majority of the refugees and panelists were representatives of: Woreda Agricultural Bureau, Refugee Central
Committee, Save the Environment and the Gaia Association. Participants gathered at the camp field to discuss the causes and measures that needed to be taken concerning the environmental degradation. The refugees actively participated and promised to do their part to prevent the environment from further degradation.

Gaia Association organized the celebration with other partners and distributed T-shirts to the refugee community with the 2011 Environmental Day slogan “Forest Nature at your service”.

4.2 Participatory Household Ethanol Consumption Study

At the beginning of this fiscal year, Gaia used to apply the previously designed kerosene distribution norm for ethanol distribution which created constant compliant among the beneficiaries especially family size 3-8. In order to address the complaints of these groups Gaia together with RCC and ARRA undertook Participatory Household Energy Consumption Survey on ethanol consumption in Kebribeyah and Awbare camps. Based on the survey result, Gaia revised ethanol distribution norm and applied to the refugee families.

4.3 Solar Lantern Pilot Testing

Apart from provision of household energy, Gaia undertakes different studies and assessments as to address the refugee concerns and introduce new ideas. 242 solar lanterns supplied by UNHCR were distributed by Gaia to families who are sending their children to school and other vulnerable households in Awbarre refugee camp. The solar lamp charges with sunlight and can give 5 hours of bright light. In addition, for piloting 2 solar charging lanterns were distributed to two selected households. Follow-up assessments were conducted that showed 100% acceptance among participant households.

4.4 Participatory Assessment

Gaia participated in the annual Participatory Assessment (PA) organized by ARRA and UNHCR in all camps. The purpose of the PA is to acquire feedback about the satisfaction of refugees on the services provided by Agencies and to mobilize communities to take collective action to enhance their own protection. The PA data was collected through separate discussion with men, women, and children from various age groups. The Participatory Assessment result stipulated that the household energy requirement of the households is addressed under Gaia’s Safe and Clean energy provision program.

4.5 Storage Facility

For efficient and timely distribution of ethanol in the camps, raising the storage capacity was not a matter of choice. In order to raise the total ethanol storage capacity, two additional 50,000 liters capacity ethanol storage tanker in Kebribeyah and Awbere [one in each camp] were placed successfully raising the storage capacity to 160,000 liters and 155,000 liters in Kebribeyah and Awbere respectively. This has brought the overall storage capacity of Gaia to be more than 400,000 lit in all the three camps.
5. ETHANOL MICRO-DISTILLERY PROJECT

5.1 FEPA Ethanol Micro-Distillery Project

Gaia Association secured a grant from FEPA to build three Ethanol Micro-Distilleries (EMDs) in three regions of Ethiopia. The EMDs are planned to be installed in Gambella, Amhara and Oromia regional states of the country growing sugarcane that can be used as feedstock for ethanol production. It was also planned that the EMDs will be installed in the selected villages and owned by the local community cooperatives with the objective of introducing ethanol for household energy and at the same time enhance the daily income of communities.

As part of the EMD project, Gaia Association conducted pre-feasibility and feasibility studies in the selected areas including construction site selection, orienting the local community through Woreda experts and organizing sugarcane producers to form cooperatives. The study showed positive feedback to install EMDs in the pre selected regions except Afar Region where there is no sugarcane plantation by farmers at present. As a result, the project site moved to Gambela region with FEPA’s recommendation. The project is now seeking for EMD suppliers globally.
5.2 Addis Ababa Ethanol Micro-Distillery Project

For Addis EMD project, Gaia Association made partnership and launched a project with Stockholm Environment Institute (SEI), Environmental protection Authority (EPA) and Former Fuel wood carriers Association (FFWCA) for the implementation of the project financed by the Nordic Climate Facility and World Bank. The project aims to supply ethanol and ethanol fuelled cooking stoves to 1000 low and middle income households in the Kolfe-Keranio community at the outskirt of Addis Ababa by establishing a community owned and run Ethanol Micro Distillery. The project also includes Environment Impact Assessment, Socio-Economic Studies, Carbon Financing Mechanism and IAP studies.

6. STAFFING

Gaia Association has 10 and 7 employees in Addis Ababa and in the refugee camps respectively who continued to be proactive in the implementation of the various aspects of the refugee program, Addis Ababa stove commercialization and EMD projects through technical assistance, facilitating, visiting the site, trainings, distribution, monitoring, pilot testing and evaluation. For the refugee camps, Local staffs and Refugee Incentive workers are hired in the capacity of: community workers, bottlers and security guard. In addition, Project Gaia Inc., the initiator of Gaia Association and long time adherent has continued its support sending out volunteer technical/consulting staff to Ethiopia.

7. MONITORING and EVALUATION

Gaia has been continuously conducting Project Monitoring during the whole reporting year to ensure timely and effective implementation of the project. Furthermore, Monitoring has been in place all the time by partner and donor organization such as UNHCR, ARRA and PGI. Gaia has successfully showed smooth project implementation during internal and external Project Monitoring conducted.

Gaia has also conducted biannual and annual project evaluation to assess the projects in the refugee camps.

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1 NCF is financed by the Nordic Development Fund and is implemented jointly with the Nordic Environment Finance Corporation (NEFCO).
8. NETWORKS

Since 2008, Gaia Association has been a dynamic member of Consortium of Christian Relief and Development Association (CCRDA) and benefited through CCRDAs’ different capacity building programs designed to strengthen members’ capacity.

In Addition, Gaia Association is member of the Ethiopian Civil Society Network on Climate Change (ECSNCC) which is a loose network of Ethiopian Civil Society organizations working on Climate change. The network members are implementing various climate change related projects by organizing themselves in ten working groups and are engaged more in the preparing and implementation of climate change projects. One of the working groups of the network is the Energy Working Group (EWG). Gaia Association is leading the Energy Working Group which comprises Ethiopian Evangelical Church Mekane Yesus Development and Social Services Commission (EECMY-DASSC), Christian Aid, Confederation of Ethiopian Trade Union (CETU), HoAREC (Horn of Africa Regional Environment Center and Network), and Forum for Environment (FfE) Population Health Environment Ethiopia Consortium, and Lem Ethiopia as members.

In 2011, with the financial support obtained from DFID for Stakeholders’ Capacity Building on Climate Change Adaptation and Mitigation Ventures, Energy working group (EWG) has undertaken an Assessment of the Potential and Constraints of Alternative Renewable Energy Nexus Climate Change in the country to set possible solutions on the promotion and development of alternative renewable energy in the country. Along with the assessment, the EWG organized a two-day exhibition and a half day workshop on renewable energy technologies in order to address critical renewable energy topics and to promote products and services on renewable energy production and energy efficiency by offering the opportunity to those involved in the area.

9. PARTNERSHIPS

9.1 Building and Maintaining Contacts with the Government Bureaus
The Association has been working with all related Ethiopian government offices especially; Ministry of Water and Energy, ARRA, FEPA, Addis Ababa EPA, Alternative Energy Technology Promotion and Dissemination Directorate, Sugar Agency, Addis Ababa City Government, and the Ministry of Trade and industry, Ministry of Health and others.

9.2 Makobu Enterprises PLC
Gaia Association has been working closely with Makobu Enterprises PLC, who will be the eventual local stove manufacturer. The partnership is currently collaborating on the Addis Ababa commercialization of the CC Stove, securing ethanol supply and to assess Carbon Financing Mechanisms and others for stove price reduction.
9.3 UNHCR
UNHCR has been a tremendous supporter and advocate of the ethanol for household project. UNHCR continued strong partner and donor for refugee camps project of Gaia Association.

9.4 FWFCA
Gaia established partnership with FWFCA for CC stove introduction in member houses of FWFCA and to install a 1000lit per day production capacity ethanol micro-distillery at FWFCA.

9.5 Dometic AB
The Association is in a technical working group with Dometic AB. Dometic AB is the original CC stove manufacturer based in Sweden. Both the Gaia Association and Dometic have been collaborating to import the CC Stove for up-coming scale ups in the refugee camps and develop local manufacturing capacity of Makobu.

9.6 Project Gaia Inc. and the Stokes Consulting Group
Gaia Association continued its strong partnership with Project Gaia Inc. and Stokes Consulting Group to further the aims of the Association. Project Gaia Inc. continued to support Gaia Association at many levels including financial and technical supports.

9.7 Stockholm Environment Institute (SEI)
Gaia partnered with SEI and made EMD project financing application to NCF on 2011. The partners secured finance to implement an EMD project in Addis Ababa. The partners will work together and implement the project strengthening Gaia Association capacity.

10. LIMITATIONS

During the year limited ethanol supply has been bottle neck to expand the project further in refugee camps and other settings. Lack of commitment to guarantee future ethanol supply by Ministry of Energy has also been a major challenge to ensure households the sustainability of ethanol supply. This has negatively affected the Addis Ababa commercialization project.

The EMD project is also challenged by limited number of equipment suppliers that doesn’t meet the budget of the project. Project Gaia has been supporting a lot to identify major suppliers and bring the cost of machine to the budget. The World Bank requirement to open a US Dollar account had been a major challenge taking months of effort without success.

11. 2012 ACTION PLAN

In 2012, Gaia implements the household energy provision program in the refugee camps and continues to support the Addis Ababa commercialization project. Gaia will continue its effort to secure more ethanol from the local market and facilitate ethanol importation from Brazil to expand the projects. The Association will also continue to work with its partners to install EMDs in Addis Ababa and different regions of Ethiopia.