



FY14 ABCG Technical Report

Task F.4: Clean Energy

Background: Renewable clean energy is a priority for sustainable development and there is a forecast 40% increase in energy consumption over the next two decades, mostly in developing countries, where nearly 2 billion people lack access to electricity, and 3 billion people rely on traditional biomass fuels for cooking, heating, and other basic household needs. The use of these traditional energy sources results in forest degradation and impact negatively on climate change, through reduced carbon sequestration and increased GHG emissions. Additionally, they present a public health challenge from indoor air pollution. The negative impacts stemming from this situation highlight the importance of investing in sustainable and accessible green technologies.

In FY14, the African Wildlife Foundation (AWF) and the Jane Goodall Institute (JGI), continued to build on field assessments conducted in FY12 & FY13 which helped to generate knowledge and understanding on alternative clean technologies and reinforce ongoing REDD+ programs in East Africa. During this period key partnerships were forged with institutions identified that focus on clean energy technologies to raise awareness, build capacity and strengthen ongoing efforts (both at community and institutional level), and identify opportunities for scaling up.

The Jane Goodall Institute in western Tanzania

Objectives

In FY14, using ABCG funds, JGI had planned on targeting ten villages under this task, as well as identify five institutions in Kigoma, Uvinza, Nsimbo and Mpanda districts that are high users of charcoal and firewood to facilitate introduction of energy saving cooking alternative. Objectives of this work included;

- Increase awareness within Kazuramimba, Kalinzi, Illagala and other target villages on the multiple benefits of using improved cook stoves and other clean energy technologies
- Increase availability and utilization of briquettes as an alternative source of household fuel
- Improve coordination and partnership with other organizations that promote clean energy for household use and food processing such as TaTEDO (Tanzania Traditional Energy Development and Environment Organization), Arti-Energy, and Global Village Energy Partnership (GVEP).
- Ensure that the highest consumers of charcoal and firewood are identified, and alternatives identified for their adoption



AFRICA BIODIVERSITY COLLABORATIVE GROUP

Activities under the Clean Energy Task

Planned Activities and Progress to-date:

- **Raise awareness within Kazuramimba, Kalinzi, Ilagala and other target villages on the multiple benefits of using improved cook stoves and other clean energy technologies.**
Ten villages were identified for the implementation of cook stoves and other clean energy activities. They include Kalinzi, Bitale, Mkongoro, Nyarubanda, Mukigo and Matiazo in Kigoma District, while Kazuramimba, Ilagala, Uvinza and Mwamila villages, were selected for Uvinza District.
- **Promote briquettes production and use as an alternative source of fuel and identify on-farm residues that can be used by farmers for making briquettes**
Promotion of briquettes and their production will be commensurate with the partnership agreement with Arti-Energy, which will be implementing these activities. Briquettes will be piloted in Kigoma-Ujiji, because a majority of the urban dwellers rely on charcoal for cooking. Additionally, there is a high supply of agriculture residue such as rice husks, wood saw dust which can be used as raw materials for production of briquettes.
- **Build on discussions initiated in FY13 with TaTEDO on the promotion of improved charcoal stoves in households in Kigoma town as well as owners of small businesses.**
Discussions were held between JGI and Arti Energy on the introduction of improved cookstoves. As soon as the contract is signed Arti will initiate activities in the field to introduce appropriate improved charcoal stoves.
- **Identify groups interested in solar drying and heating technologies in Kigoma – e.g., small business owners.**
This activity will not be taking place due to the lack of funding in follow-on activities once we identify groups that are interested. We would not like to raise hopes of individuals and/or groups, without having a plan in place to implement the appropriate technologies. However, we will reach out to institutions that participated in the Kigoma meeting in 2013 that focus on solar and may be interested in piloting these technologies in Kigoma, with other funding.
- **Identify institutions within Kigoma that are the highest consumers of charcoal/firewood and identify alternatives for them.**
We identified four Secondary Schools that are high consumers of charcoal and firewood sourced from the Masito forest, to pilot alternatives for cooking. From initial discussions with Arti-Energy, we will pilot the use of institutional energy saving stoves in the schools. They have already successfully implemented similar stoves in other parts of the country that substantially reduced consumption of fuel wood. The selected schools are:
 1. Tumaini Secondary School, Nsimbo District
 2. Mpanda Girls Secondary School, Mpanda District
 3. Lugufu Secondary School in Uvinza District
 4. Nyarubanda Secondary School, Kigoma District
- **Improve coordination and create partnerships among organizations and institutions e.g., Arti-Energy, TaTEDO and Global Village Energy Partnership (GVEP), etc., that work on energy**

technologies in this area to strengthen capacity for scaling up. These partnerships can lead to the establishment of model villages and institutions for clean energy demonstrations.

We are improving coordination and partnering with some of the organizations that work on energy technologies. For example, we will be signing a contract with Arti-Energy to introduce improved household stoves, briquettes and institutional stoves. They will also be involved in raising awareness on the benefits of improved stoves in villages and institutions. We are hopeful that with JGI facilitating Arti-Energy to initiate projects in a few villages and schools, this will provide an opportunity for scaling up into a larger area, given the expressed need for these kinds of technologies in this area.

A local stakeholders meeting was held on March 26-27 that included 23 representatives from the District councils, community groups at village level, fuel vendors, Conservation CBOs, experienced Clean Energy technology development firms and traders in Kigoma and Katavi. The participants shared their experience in the field of clean energy and knowledge gained through the newly introduced technologies by Arti Energy in partnership with JGI.

In addition to sharing experience with specific fuel efficient stove implementation, the discussions focused on moving forward in ensuring that there is broad based adoption. Some of the suggestions included: 1) to include in village by-laws the need to use fuel efficient technologies, 2) work with tobacco societies as a medium to channel information to farmers about improved technologies, 3) the gas vendor at the meeting announced that they will start selling gas in Mpanda for lower prices hence more people can access this service in the near future.

Deliverables:

- **List of villages targeted and the clean energy intervention implemented in that village. Villages may include**
Ten villages were identified for the implementation of cook stoves and other clean energy activities. They include Kalinzi, Bitale, Mkongoro, Nyarubanda, Mukigo and Matiazo in Kigoma District, while Kazuramimba, Ilagala, Uvinza and Mwamila villages, were selected for Uvinza District.
- **Contracts for TaTEDO and Arti-Energy finalized that include the following deliverables:**
 - i. Awareness meetings held within Kazuramimba, Kalinzi, Ilagala and other target villages.
 - a. Ultimately, awareness meetings were conducted in 12 villages with over 400 people participating in them. The meetings covered general introduction to improved cook stoves, how to use the stoves, their benefits and maintenance. Discussions were also held on how the use of improved cook stoves reduces deforestation.
 - ii. Implementation plans for integrating improved technologies into households and institutions developed.
 - a. Implementation plans were developed and implemented.
 - b. 480 fuel efficient stoves (both charcoal and firewood) were purchased. This number surpasses the individuals who had been sensitized.
 - c. The Envirofit Institutional stoves were also trialed in 4 Secondary Schools. This stove can reduce school use of fuel wood and can expenses by up to 80%.

- d. Two training sessions were held on the production of charcoal briquettes—one in Kigoma and the other in Mpanda. Training involved discussing the type of equipment, tools required and the process of training the team to create the equipment—a charring kiln, identification of biomass such as maize, rice husks, residual charcoal powder. The sources of fuel to be made into briquettes need to be of high calorific value and available in high quantities. As a result of this training 5 production units were set up in Kigoma, Mpanda and Uvinza. Five distribution points were also set up as selling points for the briquettes.
- iii. Guides to be developed on the processes they have used to pilot these technologies, as well as final recommendations on identification of appropriate clean energy technologies and piloting them.
 - a. Steps implemented by Arti Energy to initiate the technologies are included in their report, entitled [TBD].
- iv. Document evidence of savings that a household and institution will make by using fuel efficient stoves.
 - a. An assessment was conducted at the end of March among the households that were provided with the fuel efficient stoves. Preliminary results indicate that there are energy savings from both charcoal and firewood, reducing the frequency of collection of firewood (a bunch of firewood previously was used to cook for two days and now it can last for at least one week), more foods can be cooked before the energy goes off, especially in the improved charcoal stove which has a double layer and keeps more heat.
 - b. A point of concern that came up is the villagers received the stoves at a subsidized rate of Tshs 15,000, while the shops in Kigoma sell them for 4-5 times that price. Accordingly, coming up with the initial cost is a hindrance to most villagers and ways to finance this need to be explored further.

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