Report for Trial Project to Evaluate the Market for selling of Firewood Saving Stoves and the CO2 Carbon Trade Business
For the year 2012

Submitted to
The GAIA Movement

ADPP Mozambique
**Name of the project:** Trial project to evaluate the market for selling of firewood saving stoves and the CO2 carbon trade business in Mozambique

**Organisation:** ADPP - Mozambique

**Report period:** May to September 2012

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**Project Activities:**

This project has as its objective to evaluate and test the market for the possibility to sell firewood-saving/ charcoal saving stoves and to find ways for how the project can be sustainable and maybe be scaled up in future with new funding possibilities.

For this purpose the project has done the following activities:

- Organization of materials, equipment and the place for the production and sale.
- Training a team for the production and sale of the stoves.
- Production of 400 stoves and their registration.
- Production of promoting materials to address the customers.
- Authorization to legalize the sales of the stoves.

The centre for production and sale of the stoves was identified to be at the Street Children School of Chimoio where there are favourable conditions for this production. The School indicated a good site to make the mud mixtures and a room with reasonable space to store the stoves which can be properly closed to secure them and protect them from the sunlight, what have been recommended by the assistant technician.

The project staff went to sell stoves in Chimoio, Vanduzi, Manica, the administrative post of Matsinhe, Sussundenga and Gondola in Manica Province. The project had a vehicle to transport the stoves. Promotion material like pamphlets and poster were produced and distributed to promote the sales.

**Training**

The training started on 14th of May 2012 at DNS Chimoio. There were a total of nine participants, namely one graduated from OWU Community Developer Team,
four Project Leaders from Farmers Club Bilibiza, Sofala and Tete, two project members and two members from Kulima (NGO) Chimoio.

The facilitator of the training was a member of the Kulima Organization, who had worked many years in Mozambique with firewood saving stoves. The type of stove used in the training had been designed by ADEL (an NGO working in the province of Sofala with environmental issues). This type of stove has been tested and recognized for being able to be used in the commercialization of Carbon Credit at an International level and it can save approximately 60% of firewood and charcoal.

The training was divided in two parts. The first part consisted of nine days with a theoretical and practical introduction giving the participants the knowledge about how to produce a firewood and charcoal saving stove. The participants were taught about the advantages of using this particular stove for the communities and the environment, and how to localize, select and prepare good clay for the production.

Prior to the production of the stoves, the clay must be mixed before use with powdered red sand into it. The stoves are formed in a regular bucket so that all stoves will have the same dimensions. Then it is placed to dry during a couple of days and finally the entrances for the firewood/charcoal are caved in and handles mounted so the stove can be moved. The team produced during the training period 90 transportable stoves and one fixed stove at Street Children School of Chimoio.

The second part of the training consisted in learning how to construct the burning oven and how to burn the stoves. The training also contained how to produce bigger stoves for institutional use.

**The Production**

The production was placed at the Street Children School of Chimoio and the team consisted of three members of the Project team and two volunteers from Kulima, who have participated and therefore benefited from the training. The production goal was 400 stoves and 407 stoves were achieved with a production ratio of 3 stoves a day per person. Some of the stoves were for firewood and some for charcoal. After the production the stoves needed to dry 4 weeks. An oven was constructed and 280 stoves were burned 8 hours. Later on more 100 stoves were burned.
Pamphlets and posters were produced as promotion materials for the firewood-saving stoves and permission for selling the stoves was obtained.

**The Sales.**

A total of 57 stoves were sold in Chimoio, Vanduzi, Manica, the administrative post of Matsinhe, Sussundenga and Gondola in Manica Province. In Chimoio and the district capitals the demand was highest for charcoal saving stoves, around 75% of the customers wanted charcoal stoves. Few stoves were sold in villages due to transport problems.

The sales team started selling the stoves at marked in front of hospitals and other places where people were concentrated. Pamphlets were distributed and posters were mounted in shops. One sales strategy was to use the ADPP Second-hand cloths shops. When a person was interested in buying a stove he was connected to the sales team. The selling price of stoves were 100 mt (around 4USD) in the villages outside Chimoio and 150 mt (around 6 USD) in Chimoio. The clients were explained how to use the stoves and the right quantity of firewood or charcoal so they actually would make the saving of fuel. After a while some of the clients came back with stoves which had cracked when they started to cook. 10 to 15 clients came with stoves with cracks and got other stoves. The project team stopped the sales and started to analyze why the stoves had cracked. In the surrounding of Chimoio people are making pots out of clay. They explained that the project should use another type of clay which were suitable for the burning process. The project staff made an experiment with the proposed type of clay, and the new stoves are fine and don’t crack.

**Conclusions.**

With the firewood saving stove pilot project different experiences have been gained from the production and sales. A new firewood saving stove project has on top of the experiences been approved by EEP for scaling up the production and sales of 10,000 stoves.
The important experiences are:

- The mixture of the clay and red sand shall be done very carefully so the mass is homogeneous to avoid that the stoves will crack when they are burned.
- We developed better quality control systems.
- The drying process shall be carefully monitored so that the humidity is optimal for burning.
- The stoves were sold on different markets in the province.
- There is a market for the stoves in the provincial, district capitals and villages.
- People are willing to be registered when they buy the stoves and receive a saving stove consultant, who will calculate the number of saving stove users.
The effects of the project activities:

The expected effects of this project are various:

In the families it will (especially for the women) reduce the living costs, because the stoves will use less firewood or charcoal, reduce the hours spent on finding firewood, reduce the health hazard connected with inhalation of smoke, because the wood is burned more efficiently in the stove and therefore produces less smoke.

In the community it will reduce the exploration of wood, because when the use of these stoves will spread, less wood will be needed in the community with fewer trees to be cut, as one of the main reasons to cut trees is the need of firewood.

The reduced cut down of trees will over a longer period of time result in less soil erosion in the community and a greener environment. A community with a huge number of firewood saving stoves will also be more self relying on “fuel” for their food processing, because the fuel within the community will last longer, it is even possible that the trees planted during a period of time will be able to substitute those trees cut down, and a community can furthermore with certain techniques use compressed dry leaves, grass, and waste paper to produce “fuel-briquettes” to be used in these stoves.

The stove is making less carbon emission than traditional stoves and in a larger picture the project can investigate and calculate the actual reduction of carbon. This calculated and reported carbon reducing effect can be sold to industries with an interest to buy “carbon credit”.

The project experiences have been vital in succeeding a partnership with EEP - Energy and Environment Partnership Programme with Southern and Eastern Africa, for the establishment of a production unit of firewood saving stoves in Nacala. This project aims at producing and selling 10,000 stoves per year.
### Attachment 1: The Project in Numbers

<table>
<thead>
<tr>
<th>Trial project to evaluate the market for selling of firewood saving stoves and the CO2 carbon trade business in Mozambique</th>
<th>Goals and Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Goal for year</td>
</tr>
<tr>
<td><strong>People at the project</strong></td>
<td></td>
</tr>
<tr>
<td>Employees</td>
<td>3</td>
</tr>
<tr>
<td><strong>1 Training programme for local population</strong></td>
<td></td>
</tr>
<tr>
<td>1.1 Population benefited by the Program</td>
<td>400</td>
</tr>
<tr>
<td>1.2 Numbers of participants trained</td>
<td>11</td>
</tr>
<tr>
<td>1.3 Numbers of Stoves produced</td>
<td>400</td>
</tr>
<tr>
<td>1.4 Numbers of Stoves sold</td>
<td>400</td>
</tr>
<tr>
<td>1.3 Villages benefited by Trial Project for start up of Commercial production of Firewood Charcoal Saving Stoves</td>
<td>10</td>
</tr>
<tr>
<td><strong>Trial Project for start up of Commercial production of Firewood Charcoal Saving Stoves as a host for partnership program</strong></td>
<td>2</td>
</tr>
<tr>
<td>3.2 Seminars/ Workshops held in cooperation with partners</td>
<td>2</td>
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</tbody>
</table>
Attachment 2: Photos from the Project

Worker mixing the clay with powdered red sand for the stoves construction

Participants in the training preparing the clay taking out small stones
Participants shaping the stoves in the buckets

Stoves drying for a couple of days before being finalized
Participants finalizing the stoves, caving the firewood/charcoal entrances and mounting the handles.

The stoves are shaped and ready to dry for 21 days before the burning process.
A member of the selling team demonstrating a stove in front of a HPP second hand cloths shop where the sales was promoted.
Attachments 3: Relevant Documentation from the Project

CONTRATO

O PRESENTE CONTRATO é celebrado no dia 07 de Maio de 2012, entre a ADPP Moçambique com domicílio na Rua Massacre de Wíriamo 258, Machava, Matola, representado pelo Sr. (a) Birgit Holm, na qualidade de Directora Geral designado no presente como ENTIDADE CONTRATANTE, e KULIMA — Organismo Para o Desenvolvimento Sócio econômico Integrado, com domicilio na Avenida Karl Marx nº 1452 r/c P.4404 Maputo com NUI nº7000000125 representada pelo Sr. Domenico Liuzzi, na qualidade de Director geral, duravante designado no presente como ENTIDADE CONTRATADA em conformidade com as cláusulas e condições a seguir.

CONSIDERANDO que a ENTIDADE CONTRATANTE deseja que a contratada execute uma capacitação ao seu pessoal em construção de fogões melhorados poupa lenha e forno de queima na província de Manica, doravante designado no presente contrato como formação, e a ENTIDADE CONTRATANTE aceitou a proposta apresentada pela CONTRATADA, para a execução e conclusão da referida formação.

AS PARTES TEM ENTRE SI JUSTO E CONTRATADO O SEGUINTE:

1. A ENTIDADE CONTRATANTE se compromete, através do presente, a pagar a CONTRATADA, pela execução da formação, o valor de 2500 USD (Dois mil e quinhentos dólares americanos), doravante designado preço do contrato.

2. A ENTIDADE CONTRATANTE se compromete ainda o seguinte:
   a) Pagar ao formador os perdiens no valor de 400.00 mts (quatrocentos meticais), por cada dia de formação
   b) Pagar as passagens do formador de Maputo a Manica e Vice-versa
   c) Assegurar a alimentação e alojamento do formador.

3. A ENTIDADE CONTRATADA, se compromete a executar na íntegra a formação no pacote único que compreende:
   - Conservação de energia (fogões Poupa lenha e carvão)
   - Preparação de argila (Misturas e qualidade)
   - Construção de Fogões poupa lenha móvel, fixo e institucional e Fogões carvão móvel
   - Marketing (sensibilização, comercialização e boas práticas de uso)
- Construção de forno de queima (construção e queima).

4. A formação se realizará em duas fases sendo a primeira de 14 a 22 de Maio de 2012 (construção de fogões poupa lenha, fogões poupa carvão e fogões fixos) e, a segunda de 14 a 22 de Junho de 2012 (construção de forno, como queimar os fogões e fogão poupa lenha Institucional).

Pagamento

50% do pagamento vai ser pago para Kulima antes do começo do primeiro curso e outros 50% antes do início segundo - curso.

1250 dólares americanos, perdiem; 11 dias de 400MT e transporte Maputo-Chimoio idade e volta.

O PRESENTE CONTRATO VAI SER ASSINADO PELAS PARTES EM 2 EXEMPLARES, DE IGUAL TEOR, CADA UM DELES FAZENDO FÉ, NA DATA ACIMA MENCIONADA.

Pela ENTIDADE CONTRATANTE

Domenico Liuzzi
(Director Geral)

Pela CONTRATADA

(Birgit Holm)
Translation of the above document:

**Contract**

THIS AGREEMENT is entered into on May 7, 2012, between the ADPP Mozambique domiciled at 258 Massacre Wiriamo Street, Machava, Matola, represented by Mr.(s) Birgit Holm, acting Director General referred to herein as ENTITY CONTRACTOR, and KULIMA - Body To develop Socio Integrated Economy, domiciled in 1452 Karl Marx Av r/cl C.P4404 Maputo with NUIT No. 7000000125 represented by Mr. Domenico Liuzzi, acting Director General, referred to herein as ENTITY CONTRACTOR in accordance with the terms and conditions below.

WHEREAS CONTRACTING ENTITY want the contractor to perform a training its staff in construction of improved stoves save wood and burning oven in Manica province, hereinafter referred to in this contract as training, and ENTITY CONTRACTED accepted the proposal submitted by the CONTRACTOR to the execution and completion of such training.

THE PARTIES HAVE JUST BETWEEN THEM HIRED AS FOLLOWS:

1. The ENTITY CONTRACTED undertakes, through the present, to pay the CONTRACTOR for the execution of the training, the value of 2500 USD (Two thousand, five hundred dollars), hereinafter called the contract price.

2. THE ENTITY CONTRACTED undertakes still the following:

   a) Pay to the formed per diem worth 400.00 mts (four hundred meticais) for each day of training.

   b) Pay the tickets forming the Manica and Maputo roundtrip.

   c) Ensure the food and lodging of the trainer.

3. The ENTITY CONTRACTOR agrees to fully implement the training in one package that includes:

   - Energy conservation (fire wood saving stoves)

   Preparation of clay (mixtures and quality)

   - Construction of fire wood saving stoves mobile, fixed and mobile firewood stoves and institutional

   - Marketing (awareness, commercialization and use of best practices)
Construction-burning oven (construction and burns).

4. The training will take place in two phases being the first on May 14 to 22 2012 (construction saves firewood stoves, coal stoves and stoves saves fixed), and the second June 14 to 22 2012 (building of furnace, as burning, stoves and wood stove saves Institutional).

Payment

50% payment will be paid to Kulima before the start of the first course and another 50% before starting second - ongoing.

$1250, per diem 11 days of 400MT Maputo and Chimoio transportation roundtrip.

THIS AGREEMENT WILL BE SIGNED BY THE PARTIES IN 2 COPIES OF SAME CONTENT, EACH DOING FAITH, THE ABOVE DATE.